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Oil and Gas Sector Impact Assessment Report

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Acronyms

BAU	Business as Usual
CAMA	Companies and Allied Matters Act
CBN	Central Bank of Nigeria
CIT	Companies Income Tax
CITA	Companies Income Tax Act
CNG	Compressed Natural Gas
CSR	Corporate Social Responsibility
DCC	Department of Climate Change
DPR	Department of Petroleum Resources
ECN	Energy Commission of Nigeria
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
ETO	Energy Transition Office
FDI	Foreign Direct Investment
FIRS	Federal Inland Revenue Service
GDP	Gross Domestic Product
HT	Hydrocarbon Tax
ICT	Information, Communication & Technology
ILO	International Labour Organization
INDC	Intended Nationally Determined Contributions
IOCs	International Oil Companies

JGIT	Just and Gender Inclusion Transition
JT	Just Transition
LNG	Liquified natural gas
LPG	Liquified petroleum gas
LUF	Labour Unity Front
MDAs	Ministries, Departments, and Agencies
NAOC	Nigerian Agip Oil Company
NCCC	National Council on Climate Change
NCCPRS	Nigeria Climate Change Policy Response and Strategy
NDC	Nationally Determined Contribution
NDDC	Niger Delta Development Commission
NEITI	Nigeria Extractive Industries Transparency Initiative
NEPL	NNPC Exploration and Production Limited
NERGP	National Economic Recovery and Growth Plan
NETP	Nigerian Energy Transition Plan
NGC	Nigeria Gas Company
NGFCP	Nigerian Gas Flare Commercialization Programme
NGMP	Nigeria Gas Master Plan
NGOs	Non-Governmental Organizations
NGP	Nigeria Gas Policy
NIUMS	NNPC Upstream Investment Services
NLC	Nigeria Labour Congress
NLPGA	Nigeria Liquified Petroleum Gas Association
NMDPRA	Nigerian Midstream and Downstream Petroleum Regulatory Authority
NNPC	Nigeria National Petroleum Commission
NOCs	National Oil Companies
NOGICD	Nigerian Oil and Gas Industry Content Development
NOSCP	National Oil Spill Contingency Plan
NOSDRA	National Oil Spill Detection and Response Agency

NTUC	Nigeria Trade Union Congress
NUPENG	Nigeria Union of Petroleum and Natural Gas Workers
NUPRC	Nigeria Upstream Petroleum Regulatory Commission
NWC	Nigeria Workers' Council
PA	Paris Agreement
PENGASSAN	Petroleum and Natural Gas Senior Staff Association of Nigeria
PIA	Petroleum Industry Act
PMS	Petroleum Motor Spirit
PPT	Petroleum Profit Taxes
REAN	Renewable Energy Association of Nigeria
RMAFC	Revenue Mobilization Allocation and Fiscal Commission
SAP	Structural Adjustment Programs
SDGs	Sustainable Development Goals
TUCN	Trade Union Congress of Nigeria
ULC	United Labour Congress
UNCRPD	UN Convention on the Rights of Persons with Disabilities
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-Added Tax
WAGP	West African Gas Pipeline

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Executive Summary

As a middle-income country, Nigeria utilises oil and gas production to generate government revenues and maintain thousands of direct and indirect jobs (UNCT, 2022). According to the Nigeria Extractive Industries Transparency Initiative (NEITI) 2021 Oil and Gas Industry Report, "The total government revenue generated in 2021 was 10.75 trillion Naira, to which the oil and gas sector contributed 4.358 trillion Naira. This represents about 40.55% of the total revenue compared to 51% in 2020". This was even higher in 2019, contributing about 65% of government revenue and 88% of Nigeria's foreign exchange earnings. According to Bagudu, 2023 on the national budget, revenue generated from the oil and gas sector, among other sources of revenue in the country, was planned to be allocated to various sectors of the economy, including infrastructure development, education, healthcare, social welfare programs, public sector salaries, benefits, and security and defence. The insignificant impact of the reduction in oil and gas revenue contribution to the national funding affirms the position that with careful assessment and planning, the impact of oil and gas on the nation would not be felt. This is exacerbated by the fact that, despite the country's oil and gas production, Nigeria's poverty level is recorded as one of the highest globally (Wisevoter, 2023). This implies that the oil and gas industry is not necessarily critical in transforming the poverty, lack of jobs, lack of infrastructure, etc., in the country.

Nigeria presented a net zero carbon emissions target of 2060, which has raised concerns among industry stakeholders (Oil and Gas Policymakers, regulators, Civil Society Groups, and Consumers of Oil and products) considering the steps expected to transition away from the oil and gas industry. The concept of net zero is increasing globally as a policy, and the proposal to shift away from fossil fuels could benefit the environment. However, it may challenge the employees without adequate awareness, sensitisation, and preparation. The proposition of phasing out oil and gas production over the coming decades is of great concern to industry stakeholders such as; the oil and gas companies, regulators, policymakers from the petroleum ministry, the crude oil and gas traders and the employees of various related petroleum companies as it is perceived that a phase-out of oil and gas production will cause significant losses in revenue for the country and affect gross public spending on infrastructure and public sector employment. This position does not necessarily align with the realities in the country, especially in the last two to three years, where revenue from the oil and gas sector has reduced drastically. For example, according to the Nigeria Economic Summit Group (NESG, 2022), ".

Federally collected oil and gas revenue as of November 2021 underperformed the projected benchmark by 47.4 percent and was lower than the 2020 figure by 31.1 percent. Likewise, the external reserves have been declining for most of 2021".

The percentage of people working in the oil and gas industry is insignificant, albeit high-paying jobs. It is beneficial for Nigeria in line with its Nationally Determined Contribution (NDC) and Net Zero commitment to assess the impact of the transition away from oil through gas to renewable energy.

The oil and gas industry generates sizeable numbers of indirect and induced jobs, over 30,000 jobs have been created (Adenikinju, 2018) that are concentrated in the coastal (Niger – Delta) region of Nigeria with several liaison and corporate offices in Lagos and Abuja., According to Okafor (2020), as reported in national daily news (Thisday newspaper), in 2018, "Employment in the industry accounted for 19,820 employees in absolute terms. This represents 0.03 percent of Nigeria's total employment (69.54 million). In aggregate, employment distribution in the industry was 18 percent (3,595) female and 82 percent (16,225) male". This therefore triggers tension among the Labour unions in the industry who find it problematic that such profile and number of people are at risk of losing their jobs should oil and gas production be stopped. Conversely, *Power for All* in 2020 states, " Nigerian Decentralized Renewable Energy Sector Jobs is on the the path to more than double by 2023". The renewable energy sector jobs are expected to exceed 76,000 in 2023, up from 32,000 in 2019, overtaking the oil and gas sector." This implies that with careful planning, the country could achieve its energy transition and also create more job opportunities than it would in the oil and gas industry. Notably, the number of jobs referenced would be net job opportunities. and support programmes such as unemployment benefits, skilling, compensation for early retirement or moving, efforts to ensure marginalized groups get access to new employment opportunities in new sectors, etc would need to be put in place for workers and community members (induced, indirect employment) who would be affected. The present reality of continuous decline of funds from crude oil exports is an attestation that transition to other cleaner forms of energy should not pose as much threat as feared among stakeholders. While decline in funds from crude oil could to lead to job losses in the oil and gas industry, there should be properly planned approach to re-integrate significant number from the 20,000 direct employees in the oil and gas sector into new roles with careful planning, reskilling where possible and early retirement for those who may not fit in, as the sector transit into gas and renewable industry and ultimately a renewable industry. The challenge that the transition

poses is how to reintegrate indirect and induced workers into new industry. This is critical issue that the policy makers and implementers need to agree and resolve a workable solution.

The methodology approach in this work includes baseline assessment on emissions from the oil and gas industry and engagement with stakeholders (Oil and Gas Policy makers regulators, Civil Society Groups, and Consumers of Oil and products) via interviews. The objectives of the policies and actions are clearly defined. The effects of the policy actions are highlighted, quantified, and analysed. The sources of data include but are not limited to: Nigeria Upstream Petroleum Regulatory Commission (NUPRC); Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), Nigeria National Petroleum Commission (NNPC), Energy Commission of Nigeria (ECN), and Central Bank of Nigeria (CBN).

The Just and Gender Inclusive Transition (JGIT) in Nigeria's oil and gas (energy) sector is backed by policies and measures as included in the NDC target of 2030 and the Net Zero plan target of 2060. However, while this ambition is being implemented in the country, the implications of subsidy removal on the people were a stronger motivation for transition into lower energy sources. The subsidy removal seems to have pushed the transition further as it forces consideration for alternatives to fossil fuel. The consumption of oil-based fossil fuels has dropped drastically, though it affects consumers (Nnodim & Adejoro, 2024). According to street interviews carried out by Salako (2023), fuel subsidy removal is not clearly understood by most artisans, especially those whose services are directly impacted by the consumption of fossil fuels or the poor, who constitute mostly the over 100 million of the Nigerian population that are living in poverty. This is understandable as about 50% of the population owns either diesel or petrol (petroleum motor spirit (PMS)) generators (Statistica, 2022). The concerns for so many people are not necessarily about fuelling their personal cars but the generators and their small and medium-scale businesses. While this is specific to domestic consumption and has no bearing currently on Nigeria’s export and source of revenue, the subsidy removal could enhance the debate to focus more on the energy transition.

Transition expected from the oil and gas sector will only be achieved with political will to implement policies already in place. The government intends to discontinue the consumption of liquid fossil fuels (diesel, petrol, low pour fuel oil etc) and transition to natural gas (compressed natural gas (CNG), liquified petroleum gas (LPG) and liquified natural gas (LNG)) on the pathway to net zero. The government aims to encourage using gas for a short-term period and

later transit completely to using electric vehicles, renewable energy, and hydrogen (Akintayo Opeoluwani, 2023).

According to the Nigeria Agenda 2050 (see **Table 6** below), the country plans to gradually decrease crude oil production by 2025 – 2030 while intensifying gas production and consumption. Gas production is also expected to start declining afterwards, while renewable energy and emerging technologies such as hydrogen are becoming primary energy sources. It is important to note that renewable energy in the country is also expected to continue to scale up alongside the winding down of fossil fuels. Renewable energy contribution is likely to peak by 2060, with consumption expected to attain about 200 Gigawatts (ETP, 2022).

To ensure the impacts of Just Transition (JT) in the oil and gas industry are adequately accounted for, prominent concerns include ensuring alternative jobs are made available and the ecosystem of the communities around the oil and gas industries are provided alternative economic opportunities. There is a need to find alternative sources of revenue given that oil and gas revenue represents a significant chunk of the budget at the Federal, State, and Local levels of government, including in States that are not into the production of oil and gas. Most states depend heavily on the monthly revenues accruing from the federation's account to meet their obligations to their citizens (Okereke, 2024).

An additional challenge is that current oil and gas sector employees receive relatively high annual pay from the professionals to executives ($9,000 - $255,000, at exchange rate of 1USD to N900) compared to average workers in Nigeria ($3600 - $5000) (KPMG, 2019 and Payscale, 2024). A truly equitable transition for oil and gas workers into a new industry will need to offer comparable wages to ensure Nigeria can retain quality human resources across the energy industry. It is expected that considerable number of current staff in the Oil & Gas industry will migrate to other areas of the energy sector such as mining for gold, sand, limestone and renewable energy industry.

Less than 20% of oil and gas industry workers are females (Oyedeji 2022). While this could be attributed to the nature of the risks and time requirement on the field which is at odds with the culture and tradition of female roles in Nigerian society, a balance must be ensured as we transition into new energy sources. For the transition to truly be just, there must be stronger equity considerations within policies and processes that eliminate ongoing discrimination (Thisday, 2018). Also, the environmental sabotage leading to economic losses for the people of

Niger-Delta communities due to the exploitation of oil in their communities (Amnesty International, 2020) need to be addressed. The transition needs to put into consideration how their livelihoods shall be sustained, and environmental remediation of the polluted communities are actions that will help to address issues around equity. .

Finally, proper, and careful planning before implementation is recommended to be the best way for a JT, particularly within the oil and gas sector. Bringing together all potentially impacted stakeholders and encouraging active dialogue and engagement is important. Negotiation among relevant stakeholders to define the JGIT process should be placed as a priority and made an ongoing activity. Gender inclusiveness should be prioritised and mainstreamed into transition policies and implementation processes to enable procedural and distributional justice. While emission reduction is the phase-out process' primary objective, the transition must be done in a just, fair, inclusive, and equitable manner so that the benefits and harms are equitably distributed and mitigated. Embedding and mainstreaming equity elements will ensure the transition is just for all.

1.0 Introduction

1.1 Overview of the Oil and Gas Sectors in Nigeria

Nigeria is Africa's top oil producer and has the continent's largest natural gas reserves. As of 2018, it was the world's fifth largest LNG exporter. Recent projections show that the country has proven crude oil reserves of roughly 37 billion barrels (DPR, 2018). This places the nation's reserve at the tenth largest in the world, just behind the United States and the second largest in Africa after Libya (Savannah Energy, 2024). However, it should be mentioned that although Nigeria is the continent's top producer of crude oil, supply problems occasionally impact its production (EIA, 2023).

Nigeria has forty-seven (47) oil-producing companies operating in about three hundred and twenty-three (323) production fields, which contributes to the sector's oil production (NUPRC, 2024). According to statistics from 2018, there are approximately two thousand six hundred sixteen (2,616) wells producing from two thousand nine hundred thirty-nine (2,939) strings, with Mobil, Star Deep, and Chevron being the top three crude producers. The top gas producers are Nigeria Exploration and Production Limited (NEPL), Chevron, Shell, and Seplat Energy (NUPRC, 2024). National companies like Aiteo, Seplat Energy, and Oando while most

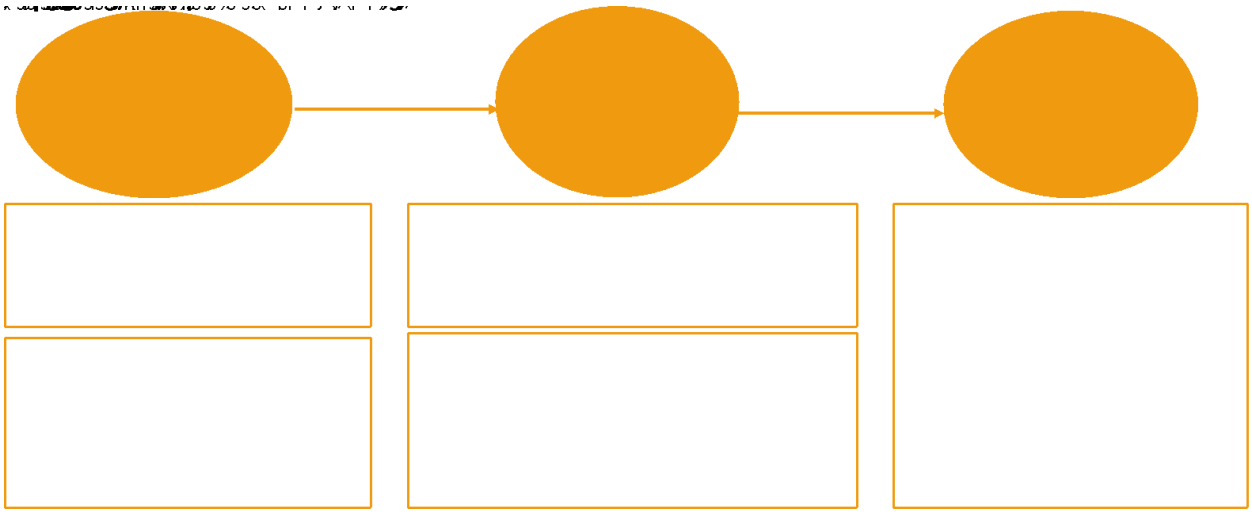
international companies like Shell, ExxonMobil, Chevron, and Total are now moving offshore and selling off their formerly operated onshore assets (Izuaka, 2024).

It should be mentioned that post-passage of the Petroleum Industry Act (PIA) in 2021, a subsidiary of NNPC known as NNPC Upstream Investment Services (NUIMS) has now been empowered to oversee the nation's oil assets and improve efficiency and transparency. This is, therefore, a contrast to Nigeria's 2050 agenda, which suggests that crude oil production in the country will peak by 2025. The PIA highlights initiatives to expand operations beyond conventional areas by incentivizing exploration in locations such as the Chad Basin and the Benue Trough, as against the past where operations have typically been concentrated in the Niger Delta.

On gas production and distribution, the country has about 2,000km of pipeline (Biose, 2019). The country has a pipeline length through the West African Gas Pipeline (WAGP). The nation distributes gas to nearby nations like Tema (Ghana), Lomé (Togo), and Cotonou (Benin Republic). However, the country's gas infrastructure is insufficient to supply the country's domestic demand. The current gas consumption in the country annually is 925 billion cubic feet (bcf) while about 2tcf is produced annually (NNPC, 2024). This implies that the country consumes 45% and exports 55% of its production. The country natural gas utilization capacity is increasing with the government's gas transition programme which focus on more utilization of natural gas especially in power and transport sector.

Oil and Gas Operations in Nigeria

Figure 1: Oil and Gas Value Chain



Operations of the Nigeria oil and gas sector are largely divided into three segments (upstream, midstream, and downstream), with the major operators in the sector falling under the categories of joint ventures, producing sharing contracts, independents, and marginals.

Upstream Operations: Operations in the upstream consist of exploration and production-related activities. Main sources of emissions from the upstream operations include gas flaring and fugitive methane emissions. The biggest operators are the International Oil Companies (IOCs) such as Exxon Mobil, Shell, Chevron, Total Energies, Nigerian Agip Oil Company (NAOC). NNPC Exploration and Production Limited (NEPL) of Nigeria National Petroleum Corporation Ltd (NNPCL) is the top producer among the oil firms with Nigerian ownership. Operations in this sector are regulated by the Nigeria Upstream Petroleum Regulatory Commission (NUPRC) which replaced the defunct Department of Petroleum Resources (DPR).

Midstream Operations: Gas processing, treatment, and transmission operations are activities in these operations. Nigeria Gas Company (NGC) is by far the major operator in the midstream sector, which oversees the nation's transmission gas network (EGMR, 2022). It collects, treats, transports, and sells natural gas as well as its byproducts to large industrial and utility gas distribution firms in Nigeria and its neighbours. Midstream and Downstream operations are regulated by Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA).

Downstream Operations: Operations in the downstream include the delivery, storage, and refinement of crude oil. Four refineries are currently undergoing rehabilitation, some storage facilities have broken down, and a nationwide pipeline system for crude in the country is mostly

vandalized. The NNPCL oversees these facilities, although most of them are not in productive use.

The Nigeria oil and gas industry is the most significant source of Greenhouse Gas (GHG) emissions in the country particularly the fugitive methane emissions from the oil and gas industry (FGN, 2021). The energy sector was the largest source of GHG emissions with 209 MtCO2e in 2018; 60% of the national total emissions. Fugitive emissions from oil and gas are the largest contributor to overall energy sector emissions, 36% of total energy sector emissions in 2018. (Revised NDC, 2021). Major sources of GHG emissions from this sector include gas flaring and methane emissions however, it is important to mention that Nigeria has continued to take progressive steps in reducing its emissions. The country has pledged in its updated NDC to end gas flaring by 2030 and cut down on its fugitive methane emissions by 60% reduction by 2031 from 2018 baseline.

With the introduction of the Petroleum Industry Act (PIA) 2021, which highlighted the need for corporate social responsibility and environmentally sustainable governance on the part of the stakeholder companies to the localities, the sector has experienced major reforms and restructuring. For example, the defunct Department of Petroleum Resources is now transformed into Nigeria Upstream Petroleum Regulatory Commission and Nigeria Midstream and Downstream Petroleum Regulatory Authority aimed for efficiency and swiftness of action. The Nigeria National Petroleum Corporation is now changed to Nigeria National Petroleum Company Limited and expected to transform the business subsidiaries (NNPC, 2024) to be more focused on sustainability and target low carbon operations.

The PIA is a significant piece of legislation in Nigeria that was signed into law on August 16, 2021. It represents a major reform of Nigeria's oil and gas sector. The PIA replaces several outdated and fragmented laws that governed the sector and aims to modernize and regulate the industry more effectively.

Key Provisions and Objectives of the Petroleum Industry Act include:

Establishment of Regulatory Bodies: The PIA establishes regulatory bodies to oversee upstream, midstream, and downstream parts of the value chain of the oil and gas industry. The key regulatory agencies include the NUPRC and the NMDPRA. These bodies regulate the industry's various segments, including exploration, production, and downstream activities.

Industry Fiscal Framework: The PIA introduces a new fiscal framework for the oil and gas sector, which is designed to provide a fair and stable fiscal regime for both the government and investors. It includes provisions for royalty rates, taxes, and production-sharing agreements.

Host Community Development: The PIA addresses the issue of host community development by requiring all oil and gas companies to allocate a percentage (the percentage varies per company) of their annual operating expenses to community development programs. This is intended to promote the social and economic development of communities located near oil and gas operations. The Act highlights the establishment of the host community's development trust [section 235 (1)] to manage and supervise the administration of the annual contribution of holders of a lease or licence. The Lease and Licence holders are mandated to contribute 3% of its actual annual operating expenditure of the preceding financial year in the upstream petroleum operations to the fund.

Transparency and Accountability: The PIA includes provisions to improve transparency and accountability in the industry. It establishes the NUPRC to oversee the transparent allocation of petroleum licenses and leases.

Environmental Protection: The PIA contains provisions related to environmental protection and requires oil and gas operators to take measures to minimize environmental impact, including remediating polluted areas.

Governance of National Oil Companies: The PIA restructures and governs the operations of national oil companies, including the Nigerian National Petroleum Corporation (NNPC), to make them more efficient and commercially oriented.

The Petroleum Industry Act is a significant step toward attracting investment, increasing transparency, and promoting sustainable development in Nigeria's oil and gas sector. However, it also faced some criticism and opposition from various stakeholders, and its implementation may require ongoing adjustments and refinements to address industry challenges and meet its intended goals. More details on the PIA will be presented in **Section 2.1 Oil and Gas Policies in Nigeria).**

1.1.1 Contribution to National Economy and Employment

The oil and gas sector has been central to the nation's economic landscape for the past two decades. While this position is fast changing, the sector's contributions to government revenues are pivotal for the country's growth and development (Olujobi, 2021). The sector has historically played a significant role in Nigeria's national economy and indirect employment in other sectors, especially in the power sector. In recent times, some power plants have been constructed by the National Oil Company (NNPC, 2024a).

Table 1: Summary of Employment by Companies/NNPC (occupational level)

Description	Top	Middle	Lower	Total
Number of Male Employees	1,855	9,267	4517	15,639
Number of Female Employees	470	2,045	1,017	3,532
Total	2,325	11,312	5,534	19,171

Top – Senior Management staff, Middle – Mid Management staff and Lower – Low Management staff

Table 2: Summary of Employment by Companies/NNPC (nationality/origin)

Description	Local/State/ Host Communities	Non-Local Other States	Foreign (Expatriates)	Total
Number of Male Employees	12,934	2,269	436	15,639
Number of Female Employees	2,896	573	63	3,532
Total	15,830	2,842	499	19,171

It should be noted that this is employment from oil and gas industry that is profiled. The total employed by all the oil companies stands at 65,000 for direct employment (VON, 2022).

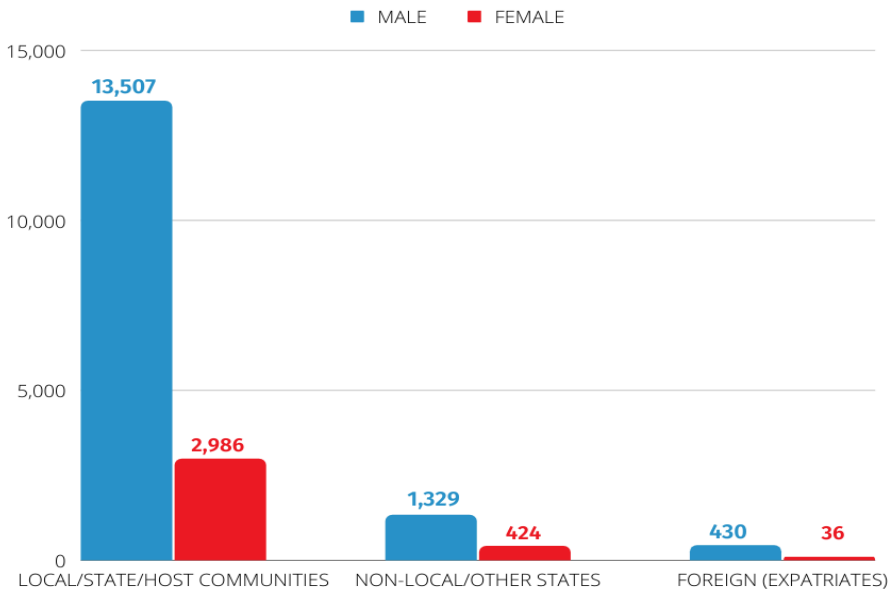


Figure 2: Summary of Nationality/Origin of Employees in the Oil and Gas Sector

Source: NEITI, 2022

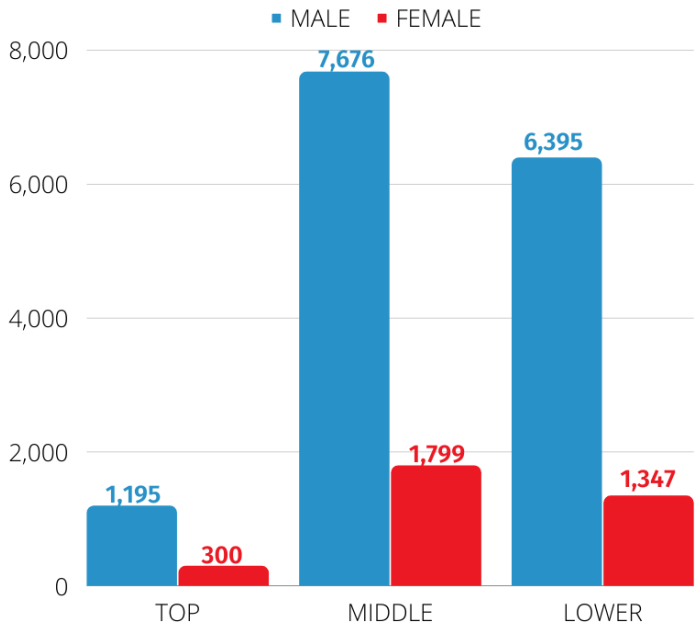


Figure 3: Summary of Occupational Level of Employees in the Oil and Gas Sector

Source: NEITI, 2022

However, as Nigeria seeks to navigate the challenges of sustainability and economic diversification, a JT to a greener and more diversified economy becomes imperative. Balancing these aspects will be essential for Nigeria's long-term economic prosperity and the well-being of its people. Some of the key contributions of the oil and gas sector to Nigeria are highlighted below:

Revenue Generation:

Revenues generated from oil and gas exports contribute about 50% to the country's annual budget (budgetary allocations cover a wide range of expenses, including public infrastructure development, healthcare, education, security, social welfare programs, and administrative functions), funding various government programs and essential services (NEITI, 2023). According to the National Bureau of Statistics, in the third quarter of 2023, aggregate GDP stood at N60,658,600.37 million in nominal terms, with the oil and gas sector contributing 5.48% to the total real GDP. The sector's importance in revenue generation cannot be overstated. Still, it also brings challenges and considerations that impact Nigeria's economic and fiscal policies, including price volatility impacting Nigeria's revenue projections and budget planning, resource management including transparency and accountability, economic diversification, environmental and social impacts etc. However, diversification and prudent fiscal management are essential for a more resilient and sustainable economy, reducing dependence on this volatile sector.

Foreign Exchange Earnings:

Foreign exchange earnings from oil exports constitute a critical component of Nigeria's economy, serving as a primary source of foreign currency inflow. According to a 2021 newspaper report by BusinessDay, Nigeria received a total of N4.7 trillion from domestic and foreign transactions of crude oil and gas operations in 2020. The report also stated that Nigeria relies on crude oil sales for around 90 percent of its foreign exchange earnings and more than half of government revenue. These earnings play a pivotal role in stabilizing the country's balance of payments, supporting the importation of goods and services, and ensuring foreign exchange reserves are maintained at adequate levels. Nigeria's economy heavily depends on oil exports, making these earnings vital for various aspects of economic stability and growth. However, the country faces ongoing challenges related to oil price volatility and the need for economic diversification to reduce dependence on oil exports. Effective management and

prudent fiscal policies are essential to ensure that foreign exchange earnings continue to support Nigeria's economic growth and development while focusing on the transition plan towards net zero target. A good outcome from this is that the government is now re-focussing how to spend revenue which hitherto was spent on subsidy removal, draining resources that was no longer available. Another positive about the subsidy removal is that it has forced the consumption of PMS to reduce by about 35% (Izuora, 2023).

Employment:

Employment is a vital aspect of any economy, and Nigeria's oil and gas sector also contributes to job creation across various workforce segments albeit, not a significant number. NEITI has disclosed that the percentage of Nigeria's 69.54 million labour force working in the country's oil industry as of 2018 was 0.03 per cent (Thisdaylive, 2020). This sector, which encompasses both upstream (exploration and production) and downstream (refining, distribution, and marketing) activities, offers diverse employment opportunities. Engineers, geologists, technicians, and administrative staff (high-paying and low-paying jobs) all find employment within the oil and gas industry. Regarding JGIT in the oil and gas sector, only a fraction of the skills acquired while working in the oil and gas industry will be applicable in the renewable energy industry, particularly the technically skilled staff. Non-technical roles such as administrative, accounting, legal, etc., can easily be transferred. The implication would likely be that with the transition to gas, most staff could be retained, considering the close link between oil and gas, while the transition to the renewable industry will imply some are subjected to early retirement as the renewable industry cannot absorb as many as possible into non-technical roles. However, staff who may be willing to learn new skills can be offered training.

The oil and gas sector employs a diverse range of professionals, from engineers and geologists to technicians and administrative staff. Additionally, skilled, and unskilled labourers are needed for construction, maintenance, and facility operation. These employment opportunities have a direct impact on poverty reduction and the standard of living for many Nigerians.

Upstream activities in the oil and gas sector involve the exploration and drilling of oil and gas reserves. Geologists, geophysicists, drilling engineers, and rig workers are employed to identify and extract hydrocarbons from beneath the Earth's surface. Once oil and gas reserves are discovered, a workforce is needed for production and operations, including petroleum

engineers, production technicians, maintenance crews, and safety personnel who ensure the efficient extraction and processing of hydrocarbons.

Downstream activities, on the other hand, encompass the distribution and marketing of petroleum products, including gasoline, diesel, and LPG. This sector creates jobs in logistics, transportation, sales, marketing, and retail. Refineries are essential for processing crude oil into various petroleum products. Refining operations require chemical engineers, operators, laboratory technicians, and maintenance personnel.

In addition to these roles, there is a substantial need for support services within the oil and gas sector. Administrative staff play crucial roles in managing the operations of oil and gas companies, including human resources, finance, legal, and administrative assistants. Ensuring environmental compliance and workplace safety is paramount, leading to the employment of environmental scientists, health and safety officers, and regulatory compliance experts. Furthermore, research and development scientists, engineers, and technicians work on developing new technologies for exploration, production, and environmental sustainability.

High-paid and low-paid workers are essential for various tasks, from construction and maintenance to facility operation and support. These roles include welders, electricians, plumbers, drivers, and general labourers. The table below presents a summary of the various types of employments across the value chain.

Table 3: Summary of types of Employment across the oil and gas value chain

Upstream	Midstream	Downstream
Geologists and geophysicists	Pipeline operators and maintenance personnel	Refinery operators and process engineers
Petroleum engineers	Logistics and supply chain professionals	Chemists and laboratory technicians
Drilling engineers/Rig workers	Inspection and maintenance technicians	Logistics and distribution professionals
Reservoir engineers	Environmental specialists	Retail staff
Technicians and rig operators		Maintenance technicians
Environmental specialists		Refinery operators and process engineers
Safety professionals		

The few people employed which constitutes about 65,000 directly and 250,000 indirectly (VON,2022) which is insignificant compared to the population of those seeking for employment, provide support to several families, contributing to increased consumer spending and economic stability. It generates government revenue through payroll taxes and other forms of taxation, which can be reinvested in public services, infrastructure, and social programs. It also attracts skilled professionals and encourages technology transfer. Several technical-related workers gain valuable expertise that can be applied in other industries, such as the power sector, mining, and water drilling industries, fostering innovation and development. As the renewable energy industry continue to expand in the country, the expertise developed in oil industry will be useful especially in areas of energy planning, management, design, installation, grid networking etc. Employment opportunities in the sector, particularly for low-paid workers, contribute to poverty alleviation and improved living standards for many Nigerians.

It should however be mentioned that the sector's contributions extend to job creation in other industries like power and transport sector. A diverse range of professionals, from engineers and geologists to technicians and administrative staff, find employment within the oil and gas industry.

Investment Attraction: The presence of a well-established oil and gas sector in Nigeria has proven to be a powerful magnet for foreign direct investment (FDI). These investments have a

ripple effect that stimulates economic growth and development across various sectors of the Nigerian economy. For example, the oil and gas industry impacts power, transport, manufacturing industry and, to some extent, residential, agriculture and logistics services companies. As part of the transition plan, post – gas utilization, it will be important to consider carbon neutral fuel to power the transport, electricity, and manufacturing industries.

Furthermore, FDI in the oil and gas sector has a spillover effect on other industries. Local businesses supplying goods and services to the sector experience increased demand, leading to business growth and expansion.

However, despite its undeniable benefits, investment attraction in Nigeria's oil and gas sector also presents challenges and considerations. Price volatility in the global oil market poses risks to investors, as sudden drops in oil prices can impact profitability and investment returns. Additionally, ensuring transparency, accountability, and effective regulation is crucial to prevent corruption and mismanagement of resources.

Infrastructure Development: The sector has been pivotal in establishing critical infrastructure such as pipelines, refineries, storage facilities, and transportation networks. Most of these infrastructures are mostly to move the oil and gas products out of the communities, it has little and not so significant infrastructures of the communities.

Infrastructure development, including roads, ports, and communication networks, is often catalysed by investments in the sector. Most of these are accidental infrastructural developments, considering they were infrastructures to aid access to the oil and gas infrastructures but also serve the communities. This enhances business conditions and promotes economic diversification in some communities, while several other communities still have poor infrastructure to promote their agricultural and fishing businesses (Osuagwu E.S & Olaifa E, 2018)

One of the most notable infrastructure developments facilitated by the oil and gas sector is the extensive network of pipelines used for transporting crude oil and natural gas. These pipelines crisscross the country, connecting oil-producing regions to refineries and export terminals. The network not only ensures the efficient flow of hydrocarbons but also contributes to the development of transportation infrastructure. Roads, bridges, and access routes are often built or upgraded to support the construction and maintenance of these pipelines, benefiting the regions through which they pass. It should be stated that most of these pipelines are broken

down and the various leakages had impacted on the agricultural farms and fishing in the Niger Delta communities. There are often noise pollution which affects the serenity of the environment (Udotong JIR, Udoudo UP, and Udotong IR, 2017).

Transportation networks, including roads, railways, and ports, are integral to the oil and gas industry. The need for efficient movement of equipment, personnel, and materials necessitates investments in transportation infrastructure. This has a positive impact on the regions surrounding major oil and gas facilities, as improved transportation networks facilitate trade, stimulate economic activity, and enhance accessibility to remote areas.

However, while infrastructure development in the oil and gas sector offers significant advantages, it also presents challenges and considerations. This is quite challenging as there is inadequate gas infrastructure to enable distribution of gas within the country. The infrastructure seems to have been developed for export purposes and not so much for domestic consumption which is one of the significant factors affecting the power industry that has 80% of its power plants relying on gas supply.

Environmental impacts, land acquisition, and the need for effective regulation and maintenance are among the issues that require careful management. Mitigating potential social disparities by ensuring that these infrastructure investments benefit local communities and regions is also essential.

Economic Growth: Despite efforts to diversify the economy, the sector's impact on Nigeria's GDP remains substantial (National Bureau of Statistics Q1. 2022). The sector's significance as a revenue source cannot be overstated, as it fuels government programs and services, funds critical infrastructure projects, and supports various economic activities.

One of the sector's most notable contributions to economic growth is its capacity to attract foreign investment. Although despite the huge presence of the oil and gas sector, poverty is still high. The World Bank says poverty rate in Nigeria has increased to 46 percent in 2023, representing 104 million poor Nigerians. There are significant difficulties and disadvantages associated with these financial gains. The operations of IOCs have been connected to environmental deterioration, such as gas flaring and oil spills, which destroy nearby ecosystems and upend the way of life for communities. There are also worries regarding the absence of

accountability and transparency in the sector which cast doubt on the tracking of inflows, monitoring, and implementation of regulations, as violations of human rights continue unabated.

Government Revenues: Oil and gas companies operating onshore and in swampy areas in Nigeria are subject to a range of fiscal obligations, including corporate income taxes, royalties, and Petroleum Profit Taxes (PPT). The offshore fields dominated by the IOCs have different fiscal arrangements. These fiscal instruments are designed to ensure that the government receives a fair share of the proceeds from the extraction and production of hydrocarbons. Additionally, the government collects various levies and fees from companies involved in exploration and production activities, such as signature bonuses, rents, and acreage fees.

Historically and until recently, oil and gas funds served the government's primary source of income, contributing substantially to the country's annual budget (about 80% in 2011). This revenue was a lifeline for financing public services and infrastructure projects critical for the Nigerian populace's welfare and development. This has changed and will continue to change as the transition process continues.

The Revenue Mobilization Allocation and Fiscal Commission (RMAFC) monitors the accruals and disbursement of revenue from the Federation Account. As a federal state which comprises three tiers of government (Federal, State and Local government areas), each arm of government holds a federation account allocation meeting monthly where the distribution of revenue generated is discussed and settled. It should also be noted that the Niger Delta states, and other oil-producing states share 13% of oil derivation funds which represent 13% of all funds from crude sales. The table below shows the split between the three tiers of government.

Table 4: Split in Revenue among the three tiers of Government.

	Mineral Revenue	Non-Mineral Revenue	VAT Allocation
Federal	45.83%	52.68%	15%
States	23.25%	26.72%	50%
LGAs	17.92%	20.60%	35%
13% Derivation	13%		

Source: RMAFC office, 2024

One of the key areas where government revenues play a vital role is in the provision of healthcare and education services. Adequate funding is essential to maintain and improve healthcare facilities, train medical professionals, and provide access to quality healthcare for

citizens. Similarly, the education sector relies on government funding to build schools, employ teachers, and provide educational materials, ensuring access to quality education for the youth.

Infrastructure development is another significant beneficiary of government revenues from the oil and gas sector. Funds collected are channelled into the construction and maintenance of critical infrastructure, including roads, bridges, ports, and utilities. These infrastructure projects enhance transportation networks, stimulate economic activities, and promote regional development, ultimately improving the overall quality of life for Nigerians.

Additionally, government revenues support social safety nets and poverty alleviation programs. These initiatives aim to reduce poverty, provide support to vulnerable populations, and promote economic inclusion. Through targeted interventions, the government can enhance the well-being of those in need and create a more equitable society. (NEITI 2021)

Social Programs:

The oil and gas sector in Nigeria, comprising both IOCs and National Oil Companies (NOCs), claims to perform its social responsibility to the communities where it operates according to their annual reports. However, this has been questioned severally by the communities as the impact of the social responsibility is rarely felt by the communities in Niger-Delta. Many companies engage in corporate social responsibility (CSR) initiatives to fund education, healthcare, and community development projects. However, it could be inferred from the communities where these companies operate that there is hardly much to show in terms of impact, and this could be connected to the lack of transparency in the administration of the funds spent on CSR activities in the Niger Delta communities. Over the years, there have been several civil suits and legal proceedings on environmental issues and the carelessness of the oil companies with the environmental communities (Milieu Defensie, 2024). These are lessons that need to be put into consideration as we transition to cleaner and, much later, to zero-emission technologies.

Companies understand that their operations can positively and negatively impact the communities near their facilities. As such, they invest in social programs to give back and improve the well-being of these communities (Adetola Bademosi, 2023).

Education is a primary focus of many CSR initiatives in the sector. While this information is not captured in the publicly available information hence no means of verification. However, these programs is believed to have funded the construction of schools, provide scholarships, and support educational infrastructure. By improving access to quality education, oil and gas

companies contribute to human capital development, empowering individuals with the knowledge and skills needed for a better future. Education initiatives also foster goodwill and strengthen community relationships. However, these initiatives have been heavily criticized as there are arguments as to the approach and coordination of the CSR activities (Onyeka, Mbalisi & Okorie, Christiana, 2020).

Healthcare is another vital aspect of CSR in the sector. Many communities in Nigeria lack access to proper healthcare facilities and services. Oil and gas companies often fund the construction and equipping of hospitals and clinics, provide medical supplies, and support healthcare programs. Access to healthcare saves lives and enhances the overall health and productivity of the community (NEITI, 2021).

Community development projects encompass many initiatives to improve local populations' living conditions and economic prospects. These projects may include infrastructure development, such as roads, bridges, and water supply systems, as well as skills training and job creation programs. Some companies have plans to contribute to poverty alleviation and economic empowerment by investing in community development, but these often never get implemented (Robert O. Okere & Nobert Osemeke, 2020).

The impact of CSR initiatives in the oil and gas sector extends beyond the communities directly served. Positive community relations can create an enabling environment for operations, reduce conflicts, and promote social stability. Moreover, CSR efforts enhance the reputation of companies, making them more attractive to investors and stakeholders who value ethical business practices.

However, implementing effective CSR initiatives is not without its challenges. Companies must navigate complex regulatory environments, manage stakeholder expectations, and ensure transparency and accountability in their efforts. Additionally, CSR programs should be sustainable, with long-term benefits for communities. This requires careful planning and collaboration with local authorities and community leaders. To date, there is very little public data available to verify the impact of CSR initiatives. As part of the just transition Oil and Gas companies should publicly release their CSR data to increase transparency and foster trust. Ultimately, there is need for restorative justice through implementation of this CSR initiatives to enable a just transition.

According to the NEITI 2021 Oil and Gas Industry Report, “the total social expenditures in 2021 amounted to US$898.18million. This included mandatory contributions of US$ 863.70 million (96.16%) and non-mandatory contributions of US$ 34.48 million (3.84%). The mandatory contributions include Niger Delta Development Commission’s (NDDC) 3% levy of US$ 797.02 million and NCDMB’s 1% levy of US$ 66.68 million. **Table 5** below show the total mandatory social contributions and non-mandatory social expenditure in 2021.”

Table 5: Summary of Mandatory Social Contributions

Arrangements	NDDC (3%)	NCMB (1%)	TOTAL
	US4(000)	US$(000)	US$(000)
Production Sharing Contract (PSC)	580,259	16,355	596,614
Marginal Field (MF) and Sole Risk (SR)	46,627	8,762	55,389
Joint Venture (JV)	142,474	41,460	183,934
Others/ Service Contract (SC)	27,658	105	27,763
Total	769,018	66,682	863,700

While the oil and gas sector has historically played a significant role in Nigeria's national economy and employment, there is a growing recognition of the need to diversify the economy and address the sector's challenges for more sustainable and inclusive development. It's important to note that Nigeria's oil and gas sector faces challenges and criticisms, including environmental degradation, security concerns, corruption, and the volatility of oil prices in international markets. Overreliance on oil revenue also poses the challenge of making Nigeria's economy vulnerable to fluctuations in oil prices, as was evident during periods of low oil prices.

Negative Impacts of the Oil and Gas Industry: The sector faces a wide range of social, environmental, and economic difficulties. Due to the industry's sensitivity to changes in the price of oil globally, economic vulnerability can result in job losses and financial distress during abrupt downturns, as it was during the oil crash of 2014 with the aftermath of the mid-2014 oil prices fall, growth has been a retrogression and the economy went into recession (Enitan Odupitan, 2017) and similarly the case with the COVID-19 pandemic in 2020 (Yusuff Jelili Amuda, 2023). At the same time, the sector struggles with the difficult issue of striking a balance between job prospects and environmental sustainability. Unfavourable effects including pipeline accidents, gas flaring, and oil spills require careful environmental management to protect local ecosystems and public health. Furthermore, workers are at serious risk for health and safety issues related

to oil and gas activities due to their intrinsically dangerous character, which includes incidents like storage tank explosions and oil blowouts.

Other aspects of the industry's issues include community relations and social repercussions, especially as oil and gas operations often take place in areas where indigenous tribes live. Sustainable growth and peaceful cohabitation depend on social concerns being addressed, positive community engagement, and fair benefit allocation. In addition, the industry faces difficulties with governance and regulation, where strong supervision and enforcement are essential for ethical business operations. Inadequate governance and tax regulatory frameworks can worsen social unrest, environmental degradation, and economic inequality, which will ultimately impact the industry's long-term sustainability and the welfare of society.

Nigeria's economy is vulnerable to fluctuations in global oil prices and market dynamics due to its substantial reliance on oil revenue, which impedes efforts at diversification and prolongs economic fragility. Land relocation, the loss of traditional livelihoods, and disputes over resource distribution among communities close to oil and gas operations are common causes of social tensions. This further buttresses the need to expedite the action plan for the transition processes towards cleaner and environmentally friendlier energy sources.

Although while the oil and gas sector has been a cornerstone of Nigeria's economic growth, it also presents challenges and considerations. Price volatility in the global oil market poses risks to the country's fiscal stability. Sudden drops in oil prices can impact government revenue, leading to budgetary constraints and the need for austerity measures. When analysing the effects of global oil market price volatility on Nigeria's budgetary stability, talks on fossil fuel subsidies are essential. Subsidies for fossil fuels have historically put a heavy burden on government revenue and spending. These subsidies have accounted for a sizable portion of government spending, which has resulted in significant revenue losses and financial restrictions. It is worth stating that between 2005 and 2021, Nigeria spent 13.7 trillion (about 45 billion USD at 2021 naira to dollar exchange rate) to finance fuel subsidies (NEITI, 2022).

Nigeria's budgetary needs have been primarily met by oil money due to its status as an oil producing nation. Fuel subsidies, however, have put a pressure on public coffers, limiting funding for vital areas like social welfare, infrastructure, healthcare, and education. Furthermore, Nigeria's fossil fuel subsidies have impeded attempts to advance sustainable development and the energy transition, promoted excessive consumption habits, and contributed to poor resource

allocation. It should however be mentioned that during President Tinubu's inauguration speech on the 29th of May 2023, he announced that fuel subsidy has now been removed but has had serious impacts in the last ten months of the announcement (Business Day 2023). This could advance the course of the energy transition, which also supports the removal of subsidies and winding down of crude oil production and use of gas as a transition fuel as we eventually switch to renewable energy technologies.

Additionally, overdependence on oil exports makes the economy vulnerable to external shocks, emphasizing the urgency of diversification efforts. Diversifying the Nigerian economy beyond oil and gas is a priority for sustainable growth as discussed in the section on economic diversification. Investments in sectors such as agriculture, manufacturing, information technology, and renewable energy are essential for reducing the country's dependence on hydrocarbon exports. Diversification efforts aim to create a more resilient economy that is less susceptible to global oil price fluctuations and better equipped to withstand economic challenges.

1.2 Just Transition and Gender Inclusion in the Oil and Gas Sector

The Nigeria oil and gas sector faces the dual challenge of transitioning to a more sustainable and environmentally responsible future while ensuring that this transition is fair and equitable for all stakeholders, particularly vulnerable communities, and women. A JT and Gender Inclusion are essential components of ensuring a sustainable and equitable future for Nigeria's energy sector. In the short term (7- 10) the nation is transitioning from oil to gas and renewables and hydrogen (10 – 12 years from announcement in 2022). Addressing the social and environmental dimensions of the sector's transformation, Nigeria can mitigate negative impacts, promote social justice, and harness the full potential of all its citizens, regardless of gender, in building a greener and more prosperous future.

This strategy highlights how crucial it is to consider the broader socioeconomic and environmental effects of the oil and gas sector's evolution in order to make sure that economic development is inclusive, sustainable, and in line with the nation's long-term objectives. Nigeria will need to use the remaining years of production of crude oil to leverage its natural resources for sustainable development while fostering a more resilient and equitable society through the incorporation of social and environmental responsibility concepts into policy frameworks and decision-making processes as the country transition into cleaner energy sources like natural gas

and renewable energy at the long run. Furthermore, Nigeria can unleash the potential and contributions of women by promoting gender equality and inclusivity as the country transitions, enabling them to actively engage in and profit from the nation's economic development and prosperity. For example, there has been gender imbalance in the oil and gas industry (ICIR, 2022) which needs to be corrected as we transition to new energy sources.

By taking a comprehensive approach to sectoral change, Nigeria is better positioned to tackle urgent social and environmental issues and become more competitive across the continent on energy transition, opening the door to a more just and sustainable future for all of its residents.

1.2.1 The Concept of Just Transition and Its Relevance

The concept of JT is a timely and relevant response to the intertwined challenges of climate change, social equity, and economic development. It offers a framework for achieving a sustainable, low-carbon future that leaves no one behind.

The JT concept has a long political history shaped by the efforts of Labour unions to reconcile emerging environmental imperatives with achieving justice for workers initially resulting in the rise of Labour environmentalism throughout the 1970s. It has since been endorsed by diverse national and international trade union bodies, including the European Trade Union Confederation and the International Labour Organization (ILO). Some of the historical development and key milestones of the JT concept are:

1. Emergence of Environmental Imperatives (1970s): The 1970s was a transformative decade that witnessed the emergence of environmental imperatives as a global priority (Michael, 1989). The confluence of events, grassroots activism, environmental crises, and the founding of influential organizations culminated in a profound shift in public consciousness and policy orientation. This awakening continues to shape our approach to sustainability, conservation, and environmental stewardship in the 21st century, emphasizing the enduring significance of the 1970s in the history of environmentalism.

2. Rise of Labour Environmentalism: The rise of labour environmentalism is a testament to the evolving understanding of the complex relationship between labour and the environment. It represents a proactive approach to addressing environmental challenges while safeguarding the rights and livelihoods of workers. The origins of labour environmentalism can be traced back to the mid-20th century when industrialization and economic growth were on the rise. These periods of expansion brought about not only increased employment opportunities but also

environmental degradation. Factories and industries, driven by the pursuit of profit, often disregarded the environmental consequences of their operations. Pollution, unsafe working conditions, and environmental hazards became pervasive issues, impacting both workers and surrounding communities. The significance of labour environmentalism lies in its ability to bridge the gap between environmental protection and workers' rights.

3. Endorsement by Trade Union Bodies: The endorsement of labour environmentalism by trade union bodies represents a transformative shift within the labour movement (Trade Unions for Energy Democracy (January 1, 2018). It underscores the recognition of the interconnectedness of labour and environmental issues and signals a commitment to shaping a sustainable and just future for workers, communities, and the planet. The endorsement stems from a growing acknowledgment of the interdependence between labour and environmental concerns. Historically, labour unions have primarily focused on issues such as wages, working conditions, and job security. However, as the environmental crisis has intensified, unions have come to understand that the well-being of their members is intricately linked to the health of the planet and the communities in which workers live.

4. Key Principles of Just Transition: The concept of a JT is rooted in principles that prioritize social, economic, and environmental justice during the shift from high-carbon to low-carbon economies. According to the International Labour Organization (ILO, 2023), these key principles guide the development and implementation of policies and strategies to ensure that the transition is equitable and inclusive. Some of the key principles that underpin the concept of a JT are:

- **Social Justice:** The core principle of a JT is social justice. It seeks to prioritize the well-being and interests of workers and communities, particularly those most vulnerable to the economic and environmental impacts of the transition. Social justice involves ensuring that the burdens and benefits of the transition gets Distributive Justice.
- **Worker-Centred/Labour Rights Approach:** Workers are at the centre of the JT concept. It recognizes that workers in high-carbon industries may face job displacement and economic uncertainty as a result of the transition. A worker-centred approach aims to protect their livelihoods, job security, and rights. It ensures that workers have a voice in shaping their future and can advocate for fair treatment.

- **Inclusivity:** JT is inclusive and considers the needs and voices of all stakeholders, including workers, communities, marginalized groups, and indigenous populations. It seeks to engage these stakeholders in decision-making processes and ensure their concerns are addressed through procedural justice processes.
- **Equity:** Equity is a key principle, emphasizing that the benefits and costs of the transition should be distributed in a way that reduces existing disparities. It seeks to address historical inequalities and prevent new ones from emerging during the transition through procedural and restorative justice processes.
- **Environmental Responsibility:** A JT acknowledges the importance of environmental sustainability. It promotes the reduction of greenhouse gas emissions and the protection of ecosystems while transitioning to cleaner and more sustainable technologies and practices.
- **Community Development:** JT initiatives aim to support the economic development and diversification of communities that have been reliant on high-carbon industries in line with place-based JT efforts. This involves investing in alternative industries, infrastructure, and sustainable development projects.
- **Transparent Governance:** Transparent and accountable governance is crucial to the success of a JT. It involves open and inclusive decision-making processes that allow stakeholders to participate in shaping policies and strategies.
- **Gender Equity:** Recognizing and addressing gender disparities is a key component of a JT. It aims to empower women and ensure their full participation in the transition process, as they may be disproportionately affected.
- **Cultural Preservation:** A JT respects and preserves the cultural heritage and traditions of communities affected by the transition. It seeks to find a balance between economic development and cultural preservation.
- **Adaptability:** The concept of a JT acknowledges that transitions are dynamic and may require adjustments along the way. Being adaptable and responsive to changing circumstances is essential.

- **Long-Term Perspective:** A JT takes a long-term perspective, recognizing that the transition to a low-carbon economy is a multi-decade process. It aims to create sustainable, enduring solutions rather than short-term fixes.

These key principles collectively form the foundation of a JT, providing a framework for policymakers, industry leaders, and communities to navigate the challenges and opportunities of transitioning to a more sustainable and equitable future.

It should be mentioned that in Nigeria, a sustained effort on several fronts is needed to operationalize the JT framework. This entails creating comprehensive policies incorporating social, economic, and environmental justice concepts into climate initiatives and national development goals. In order to ensure that the transition process is inclusive and participatory, meaningful stakeholder participation is essential. Additionally, investments in sustainable infrastructure and green technologies are critical to creating jobs and lowering carbon emissions. This is pertinent considering the huge energy access gap in the country and the potentials of green technologies to generate significant job opportunities for the populace in the country.

Social protection policies and skill development initiatives are required to support workers and communities impacted by the transition. Funds are expected to be set aside from accruals in the oil and gas industry and possibly from the power sector to fund the social protection and skill development initiative in the new energy sector. Robust monitoring and evaluation systems need to also be in place to track developments and support evidence-based decision-making.

5. Global Relevance: The concept of a JT has evolved from a local labour movement to a global imperative. Its recognition in the Paris Agreement, its integration into international climate discourse, and its role in fostering global partnerships all underscore its significance. The global relevance of the JT lies in its attempt to support environmental and social goals, ensuring that climate action is not only effective but also equitable. The JT concept has gained momentum through the collaboration of labour unions, civil society organizations, and environmental advocates on a global scale. These alliances have fostered international networks focused on advocating for policies and practices that align with the principles of a JT. The global relevance of this movement is evident in its ability to influence national and international policies, ensuring that climate strategies are not only environmentally responsible but also socially just. For example, some of the oil and gas institutions such as NUPRC and PENGASSAN have had

workshops to sensitize their staff and members on energy transition (PENGASSAN, 2022 and NUPRC, 2023). The global relevance of the JT extends beyond climate change. It is a concept that underscores the importance of economic resilience and sustainable development. Green jobs, which are central to the JT, have the potential to drive economic growth and diversification while reducing carbon emissions. This aligns with broader global objectives, such as the United Nations' Sustainable Development Goals (SDGs), emphasizing the interconnectedness of environmental sustainability, social progress, and economic prosperity.

6. Contemporary Application: In contemporary times, the JT concept has found renewed vigour and widespread application in diverse contexts, reflecting its enduring relevance in addressing complex challenges such as climate change, economic transformation, and social justice. Today, the concept resonates prominently in discussions about transitioning away from fossil fuels, promoting renewable energy, and striving for carbon neutrality. As nations recognize the urgent need to reduce carbon emissions and mitigate climate change, the transition to cleaner energy sources becomes paramount. However, this transition often entails significant disruptions to industries and communities reliant on fossil fuels. The JT framework provides a vital approach to navigate this transformation equitably, ensuring that affected workers and communities are not left behind.

Contemporary applications of the JT concept is characterized by robust collaborations between labour unions, environmental organizations, government, and other stakeholders. A typical example is the Renewable Energy Association of Nigeria (REAN)-organized workshops to sensitize and to draw the attention of various unions on energy transition (REAN,2023). This alliance amplifies the concept's impact and fosters the development of innovative policies and practices. It reflects a growing recognition that addressing climate change and promoting social justice are mutually reinforcing goals, and it strengthens the call for a more equitable and sustainable future.

The JT concept has increasingly become integrated into national and international climate policies and agendas. Nations worldwide are recognizing the importance of incorporating social considerations into their climate strategies. From the European Green Deal to the U.S. infrastructure plans, the JT is gaining prominence as a fundamental component of climate action, signalling a commitment to balancing environmental responsibility with social equity.

Along with references to human rights, gender equality, intergenerational equity, and procedural justice, the Paris Agreement is the first international treaty to mention the "imperatives of a JT of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities."

Although it holds great promise, there is a real danger that the chance to improve justice may be lost if its operationalization concentrates only on the effects on labour and the fossil fuel industry, rather than expanding energy considerations to, for instance, include renewables deployment and transition considerations to other sectors, such as agriculture and the human security realm. There is proof that JT policy is currently well ingrained in some national political structures. To help the government develop a carbon-neutral economy, Scotland, for instance, established an independent JT Commission in 2018. The commission is charged with advising the government on "how to maximize opportunities for decarbonization, in terms of fair work and tackling inequalities, while delivering a sustainable and inclusive labour market".

Relevance of Just Transition Concepts

The concept of JT is highly relevant to the Nigerian oil and gas sector due to the unique challenges and opportunities the industry faces. This relevance lies in its potential to address the sector's environmental, economic, and social challenges. Therefore, by embracing JT principles, Nigeria can create a more sustainable and equitable future for its people and the environment. Some of this relevance are discussed below.

Job Security and Re-skilling

As the oil and gas sector evolves with crude oil extraction phasing out, certain job roles may become obsolete, leading to worker concerns about job security. The JT concept strongly emphasises ensuring workers are not left behind during these transitions. It promotes retraining and reskilling programs, enabling workers to acquire the skills needed for new roles in the evolving energy landscape. This approach safeguards the livelihoods of workers while facilitating the sector's transformation. However, operationalising this in Nigeria requires a coordinated effort involving multiple stakeholders, including government entities, industry players, trade unions, and educational institutions.

Community Well-being and Sustainable Development

Many communities in Nigeria are closely tied to the oil and gas sector, relying on it for employment and economic stability. A JT strategy will go beyond economic diversification and promote community development, investing in sustainable practices that benefit local populations. This includes improving infrastructure, healthcare, and education and supporting small and medium-sized enterprises. By doing so, the transition ensures that communities can thrive independently of the oil and gas industry. For instance, Lagos State has implemented various initiatives to promote economic diversification and foster growth in non-oil sectors. The state government has invested heavily in infrastructure development, including road networks, transportation systems, and urban renewal projects, to support business activities and attract investments across various industries (Olasunkanmi, 2024). Lagos has been a pacesetter for other states who are expected to replicate the same ambition in their various states, especially in the Niger Delta states, as the country transitions from using fossil fuels.

Environmental Responsibility and Emissions Reduction

The sector is known for contributing significantly to GHG emissions and environmental degradation.

The process of environmental remediation already commenced but requires more intentionality and commitment to clean up the environmentally damaged communities in the Niger – Delta. In line with global climate goals and environmental sustainability, a JT process which will see the country move through the pathway of utilisation of natural gas and ultimately to renewables will allow the adoption of cleaner and lower carbon content fossil fuels and finally to renewables. This will enable reducing emissions while utilising natural gas and finally embracing renewable energy sources, thereby achieving close to zero emissions.

Inclusive Growth and Social Equity

JT principles promote inclusive growth, emphasising that the benefits of economic and environmental initiatives should be equitably distributed. This inclusivity extends to marginalized and vulnerable groups, ensuring that they are not disproportionately negatively affected by the transition. To address any form of social disparity, a comprehensive strategy including targeted social programs, income redistribution laws, and investments in job and skill development is needed to address gaps and advance social fairness. Environmental justice campaigns and community-led development projects are essential for uplifting neglected groups and guaranteeing that their rights are respected. Through the implementation of national

commitment in the cross-cutting section of the revised NDC, governments and relevant stakeholders can strive towards establishing a society that is more equitable and inclusive, granting all citizens equal access to opportunities and resources, irrespective of their identity or socio-economic background.

Policy Alignment with International Agreements

Nigeria is a signatory to international agreements like the Paris Agreement on climate change. Incorporating JT principles into national policies aligns with these global commitments. Other relevant international agreements on social equity to align with policy include the 2030 Agenda for SDGs and the ILO Conventions. Aligning with these agreements will demonstrate Nigeria's dedication to achieving sustainable and environmentally responsible economic development, which, in turn, can enhance the country's international standing and reputation.

Long-term Sustainability and Economic Resilience

Nigeria's oil reserves are finite, and the country must plan for a future beyond oil. A JT supports the development of a sustainable and resilient economy that can thrive in a post-oil era. By diversifying the economy, investing in renewable energy sources, and prioritizing environmentally responsible practices, Nigeria can secure its economic well-being for generations to come.

Economic Diversification and Reduced Dependency

The Nigeria oil and gas sector has in the past been the primary driver of the country's economy, but this is fast changing from mono economy with diversification into Agriculture, Information, Communication & Technology (ICT), and Services (Okonkwo, 2023). However, this heavy reliance on the oil and gas industry as the source of income requires urgent attention of the government (the policy makers) as the global community shifts away from fossil fuel. Diversifying into other energy sources, such as renewable energy, is necessary to ensure long-term economic resilience. A JT framework will provide guidance for this diversification process, helping Nigeria reduce its dependency on oil and gas revenues and shift focus to renewable energy which is already taking its place across the globe (IEA, 2023). As Nigeria transitions to a more sustainable and inclusive economic model, it must navigate various challenges, including reducing dependency on oil and gas revenues, promoting economic diversification, and ensuring social equity and environmental sustainability. The framework of a JT would offer valuable guidance in this process by emphasizing several key principles. First

and foremost, it underscores the importance of social justice, ensuring that the burdens and benefits of economic diversification are equitably distributed across society. This involves supporting workers and communities affected by the shift away from oil and gas industries through retraining programs, job placement assistance, and social protection measures.

Economic Diversification:

It should be mentioned that in recent times, efforts have been made to diversify the Nigerian economy to reduce the dependence on oil and gas. The government has also initiated reforms to increase transparency, improve environmental practices, and address security issues in the Niger Delta region. Some reforms include framework development for mining processes and encouragement of optimising the agricultural industry across its value chain and improving quality of service delivery.

However, the transition efforts in the oil and gas sector requires adequate planning. In table 6 below, the country showcases crude oil production up till 2050, albeit declining with time. It is expected that by 2050, the country will have eliminated the consumption/production of crude oil. According to Onuigbo, 2024, the country must avert a chaotic or unplanned transition away from oil and gas lest it result in economic breakdown, high fiscal vulnerability, and multidimensional poverty in Nigeria. While also stressing that failure to plan for the transition could lead to stranded assets and the waste of current investments in the oil and gas industry. A proper plan should include an assessment of the inventory assets, including employees and current earnings, and the raising of funds to support the transition process that will ease the migration of employees from their current industry to the future industry where they are to be situated.

Table 6: Objectives and Key Performance Indicators of Oil and Gas Industry

Objectives	Key Performance Indicator	Baseline	Target					
		2020	2025	2030	2035	2040	2045	2050
Restructure the contribution of oil and gas to the economy to ensure a dominant role for refining and petrochemicals	Share of oil and gas in GDP (percent)	6.69	7.56	4.92	2.60	1.40	0.79	0.46
	Share of oil refining in GDP (percent)	0.10	0.11	0.12	0.13	0.13	0.14	0.15
	Share of Petro-chemical industry (percent)	<1	1.17	1.33	1.50	1.00	1.17	2
Improve upstream operations	Oil production (mbpd)	1.80	2.38	2.00	1.68	1.41	1.19	1.0
	Gas production (bscfpd)	7.92	11.60	15.28	18.96	22.64	26.32	30
	Percentage of feed gas to power plants	75	75.83	76.67	77.50	78.33	79.17	80
Privatization of the downstream sector	Private investors' participation, removal of subsidy (percent)	<1	14.17	27.33	40.50	53.67	66.83	80

Source: Nigeria Agenda 2050

1.2.2 Scope of Assessment of Impact on Workers and Communities

Assessing the impact on workers and communities during a JT is a complex and vital process that requires a deep understanding of the multifaceted changes occurring as societies shift towards more sustainable and low-carbon economies. This involves thoroughly examining how these transitions affect the livelihoods, well-being, and opportunities of formal and informal workers and the communities in which they reside.

Impact on Workers:

Worker Engagement: Active engagement of workers in the transition process is pivotal. The assessment should gauge the level of worker engagement and participation to ensure their voices are heard in decision-making processes. Empowering workers to shape policies and initiatives that directly impact their livelihoods actively is a fundamental goal of a JT.

Job Displacement and Security: During the transition, industries heavily relying on high-carbon activities may see significant job displacement as these industries shrink. The assessment involves identifying which specific jobs are at risk and understanding the potential scale of job losses. Strategies aimed at ensuring job security for affected formal workers are paramount. It is expected that unskilled workers such as cleaners, labourers, and office assistants can easily fit into other industries as the transition takes place. These strategies may encompass redeployment within the same industry, job guarantees, or incentives for creating green jobs in alternative sectors. A funding pool will need to be set up to support those who will need to move to other geographical locations for employment as it is most likely that more of

renewable energy opportunities will be towards the mid-central and northern part of the country especially for solar power while other technologies could be found in all geographical locations.

Reskilling and Training: To help workers successfully adapt to new roles in a green economy, assessing the availability and effectiveness of reskilling and training programs is essential. These programs are designed to equip workers with the necessary skills and qualifications for emerging green job opportunities which focuses on renewable energy, agriculture, and forestry sector. The assessment should also evaluate the accessibility of these programs, their alignment with the evolving needs of industries, and their success rates in terms of helping workers transition.

Income and Benefits: Ensuring that a JT safeguards the financial well-being of workers is a core objective. This involves assessing how the transition affects workers' income, wages, and benefits. The assessment should focus on measures to prevent significant income disparities and any loss of benefits that may occur as a result of economic transitions.

Health and Safety: Worker health and safety are also to be considered during any transition. The assessment should thoroughly examine the health and safety conditions of workers in industries undergoing change. Identifying potential health risks associated with new roles and ensuring that appropriate safety measures are in place are critical components of the assessment.

Impact on Communities:

New line of business in the communities: Many communities in the Niger Delta and even some other states are heavily reliant on revenues from oil and gas industries which are facing inevitable decline. This assessment entails evaluating the success of efforts to diversify their economies from oil and gas to agriculturally based industry particularly the ocean economy related to fishing and tourism, other areas include food and cash crop production. Identifying opportunities for sustainable economic development, including support for emerging industries or sectors, is crucial to ensure communities remain economically resilient.

Local Job Creation: Creating new jobs in green industries can benefit communities. The assessment should actively track the quantity and quality of new jobs generated locally. Evaluating whether these jobs are accessible and providing fair wages is essential to determine

the real impact on communities. It should also track job losses and those skilled jobs that might not fit into new job opportunities.

Social Services: Access to essential social services such as education, healthcare, and housing significantly influences residents' quality of life. The assessment focuses on ensuring that communities have access to these services and that they meet high-quality standards. Identifying areas where improvements are needed and measuring progress in delivering these services are integral parts of the assessment.

Environmental Rehabilitation: Communities affected by environmental degradation from past industries should benefit from efforts to rehabilitate and restore the environment. The assessment monitors the progress of environmental remediation projects. Some of the displaced workers could also be part of the environmental remediation work. While the impact is environmental, it also bothers on labour and social as well. Ensuring that communities experience improvements in environmental quality is a central goal, promoting healthier and more sustainable living conditions.

Community Engagement: Active involvement of local communities in decision-making and planning processes is vital. The assessment evaluates the extent of community engagement and whether policies align with the specific needs and preferences of each community. Effective community engagement ensures that the transition is inclusive and respects the unique characteristics of each locality.

Social Cohesion: Economic transitions can have profound effects on the social fabric of communities. The assessment examines how communities adapt to changes and whether social bonds are strengthened or weakened. Preserving or enhancing social cohesion is vital to support the overall well-being of residents.

Cultural and Heritage Preservation: Some communities may have cultural, or heritage assets tied to their traditional industries. The assessment includes efforts to preserve and protect these assets during the transition. Striking a balance between economic development and cultural preservation is an important consideration during the assessment.

Economic Equity: Assessing whether the transition reduces economic disparities within communities, particularly those historically marginalized, is fundamental. The ultimate goal is to ensure that the transition benefits all community members and contributes to reducing inequalities.

Assessing the impact on workers and communities during a JT is a holistic and ongoing process that encompasses various dimensions, including economic, social, environmental, and cultural aspects. The aim is to ensure that the transition is equitable, inclusive, and ultimately enhances the well-being of all stakeholders while achieving environmental sustainability. Continuous monitoring, evaluation, and adaptable policies are essential components of this assessment to address emerging challenges and seize opportunities as the transition unfolds.

1.2.3 Social Inclusion and Empowerment

Social inclusion and empowerment are central to the UN Convention on the Rights of Persons with Disabilities (UNCRPD), as they are necessary to achieve all rights. Furthermore, social inclusion, gender equity, and empowerment of marginalised groups are development issues, as the SDGs include a call to empower and promote the social, economic, and political inclusion of all (Foreign, Commonwealth & Development Office; 2018).

In Nigeria, the principles of social inclusion and empowerment hold immense significance, particularly within the context of the UNCRPD and the pursuit of the SDGs. These principles are fundamental for realising the rights of all individuals, including those with disabilities, and fostering inclusive development. The UNCRPD, to which Nigeria is a signatory, underscores the importance of social inclusion and empowerment as prerequisites for upholding the rights and dignity of people with disabilities. In Nigeria and as in many other countries, the convention serves as a guiding framework for ensuring that individuals with disabilities have equal access to opportunities and are not marginalized or excluded from society. The pursuit of the SDGs reflects the nation's commitment to equitable and sustainable development. The goals highlight the necessity of empowering all individuals and promoting their social, economic, and political inclusion. Nigeria recognises that true development cannot be achieved if any population segment is left behind or faces discrimination.

However, it is important to mention that despite the noble aspirations outlined in the UNCRPD and the SDGs, Nigeria faces significant challenges in achieving social inclusion and empowerment for individuals with disabilities. Systemic and institutional barriers hinder progress, such as the lack of inclusive policies and legislation. Physical barriers, including inadequate infrastructure and inaccessible public spaces, limit mobility and participation. Information barriers, such as the scarcity of sign-language interpretation and accessible information, create communication gaps. Moreover, deeply ingrained stigmatization and

discriminatory attitudes within society pose pervasive and formidable barriers to inclusion and empowerment.

However, to address these challenges, Nigeria must embark on a multifaceted journey to overcome the barriers to social inclusion and empowerment. This entails the development and enforcement of inclusive policies and legislation that protect the rights of individuals with disabilities and facilitate their active participation in society. Nigeria must also invest in infrastructure and urban planning that prioritize accessibility, ensuring that transport, buildings, and public spaces are designed to accommodate all citizens.

It is important that the country honour and respect the international agreements on social equity. There is a need to focus on social justice and fairness as we transition from oil and gas into the new sectors. As the nation represents different races, genders, incomes, sexual orientations, religions, or abilities, it should be applied to a JGIT away from oil and gas. The O&G on the transition path should explore discussing what is necessary to ensure rights, inclusion, accessibility, etc in the society are protected. As we transit from Oil & Gas, it will be useful to ensure that there is a support mechanism to those with disabilities ensuring they are put into consideration for meaningful and quality employment in the transition gas industry and also in the new energies (Renewables and Hydrogen) sectors of Nigeria's new economy.

Moreover, addressing information barriers requires concerted efforts to provide accessible information and communication tools, including sign-language interpretation and accessible digital content. However, the most profound transformation needed lies in changing societal attitudes and eradicating discriminatory practices. Nigeria must engage in robust public awareness campaigns, education, and advocacy efforts to challenge stereotypes, foster inclusivity, and promote empathy and understanding among its citizens.

To transition towards a JGIT away from oil and gas, Nigeria must apply key international agreements on social equity, such as the UNCRPD and the SDGs. This would include a particular focus on assisting people with disabilities in obtaining fulfilling employment (UN, 2006) and place inclusive laws and policies, that gives accessible infrastructure and urban planning top priority, funding the development of skills and training specifically for people with disabilities, encouraging inclusive hiring practices, running active advocacy and awareness campaigns, and setting up support systems and accessibility services within developing industries like renewable energy and hydrogen.

Nigeria can adopt the Power Africa, 2023 framework on steps towards mainstreaming gender equality and social inclusion in energy sector ministries, departments, and agencies as follows:

1. Conduct a Gender Equality and Social Inclusion Analysis (GESI)

A GESI analysis is the first step to challenging inequality and discriminatory norms and shoring up inclusion within organizational ranks. It allows you to define dimensions that affect how individuals and groups engage, examine existing legal and institutional practices and cultural norms, and increase opportunities for excluded people. With this baseline, decision-makers can be informed on how access to assets and resources determines which groups dominate the workforce and which remain underutilized because they may wield lower levels of influence.

2. Adopt Gender Equality and Social Inclusion Responsive Budgeting

Developing a budget is key to allocating time and money to priority areas.

GESI Responsive Budgeting (GRB) does not imply allocating additional resources or separate budgets for men and women — there is the need to understand their different priorities to ensure budget allocation in the most impactful manner. By adopting gender-responsive budgeting considerations, agencies can allocate financial resources to mitigate unintended consequences.

3. Monitor and Evaluate Activities

To gauge the effectiveness of policies and budgeting, and promote GESI responsive practices within the energy sector, organizations should monitor and evaluate what they have set out to do. A typical example is when you designed a GESI objective to deliver electricity to gender-based violence (GBV) resource centres, it requires a corresponding indicator to monitor effectiveness by measuring number of facilities electrified or percentage increase in daily GBV survivor-support meetings.

A precise indicator allows you to measure and collect data on gender, age, and disability status, improving management and budgeting decisions for greater positive impact. Government officials can also use disaggregated data to gain insight on social exclusion and bring about more equitable policies.

4. Promote Gender-Responsive Communications

Organizations can mainstream GESI in communications by using gender-neutral words and images depicting women, persons with disabilities, and members of marginalized groups as empowered, active contributors to society. Inclusive words such as line worker, engineer, or chairperson can break down stereotypes and allow more diverse role models.

5. Implement Human Resources Practices through a Gender Equality and Social Inclusion lens

Programs and policies should be developed with the GESI lens. This demonstrates the organization's commitment to inclusivity. There should be no discrimination. Energy sector agencies should attract and retain diverse talent pools to bring broader perspectives and develop effective programming for all constituents.

2.0 National Determined Contributions and Relevant Oil and Gas Policies

Nigeria submitted its first NDC in 2015 (20% unconditional and 45% conditional target) as a commitment to the global efforts to limit global warming to well below 2 degrees Celsius above pre-industrial levels. The NDC represents Nigeria's climate action plan, encompassing both mitigation and adaptation measures. The development of the NDC involved extensive consultations with various stakeholders, including government agencies, civil society organizations, the private sector, and local communities. This collaborative approach aimed to ensure that the NDC aligns with national development priorities and reflects the unique challenges faced by Nigeria. The revised NDC is clear about just transition and gender inclusion.

The NDC stands as a pivotal instrument in the country's commitment to addressing climate change and achieving sustainable development. While encompassing a wide array of strategies and measures, the NDC distinctly outlines specific targets that Nigeria aims to achieve. These targets serve as guideposts for the country's efforts to mitigate greenhouse gas emissions and adapt to the impacts of climate change. Nigeria submitted an updated NDC in 2021 with a 2% increase to the conditional target in the 2015 NDC (47% conditional target in updated NDC) which further strengthens the nation's commitment to the Paris Agreement and emissions reduction.

Mitigation Targets in the Updated NDC

1. **Unconditional Mitigation:** Nigeria's NDC includes an unconditional target to reduce its GHG emissions by 20% below business-as-usual (BAU) levels by 2030. This means that Nigeria is committed to taking actions within its means and resources to achieve this reduction even without external support.

2. **Conditional Mitigation:** Nigeria has also set a more ambitious conditional target, which involves reducing emissions by 47% below the BAU levels by 2030. This target is contingent on international support, including financial resources, technology transfer, and capacity building. It underscores Nigeria's willingness to go further in its mitigation efforts with the appropriate assistance.

Oil and Gas Specific Mitigation Targets

Table 7 and Table 8 below (ICAT P&M Report 2021) provides more information on each of the O&G sector's mitigation targets. These measures were thoroughly explained by several parameters, including goals, instrument type, status, sector affected, gas affected, implementation year, implementing entities, and non-GHG benefits. The evaluations of the NDC mitigation strategies and their established targets are made clear by these factors.

The Nigerian Government has expressed her commitment in the NDC revision to JT policies and are ready to engage in social dialogue to maximize employment and economic growth. The goal is to protect the potentially negatively impacted population. The JT as stated in the revised NDC targets skills development support for renewable energies and ensuring social protection for the most vulnerable in the society. In the implementation of the NDC plan, attention is expected to be paid to renewable energy which is targeted at generating 13GW of electricity by 2030 while the Net Zero targets 197GW of renewable electricity by 2060 to provide job opportunities and reduce emission reduction. Skills development and retraining for enhancing job creation is expected to be integrated into the policies of line ministries.

Table 7: Overview of the "Gas Flare Reduction" Mitigation Measures

Name	Gas Flare Reduction
Description	This mitigation measure implores commitment from the government and oil companies to end routine flaring by the year 2030

Name	Gas Flare Reduction
Objectives	The objective is to achieve zero Gas Flaring by 2030
Type of instrument	Regulatory
Status	Implemented (in progress)
Sectors Affected	Oil and Gas Sector
Gas Affected	CO_2, CH_4
Start Year of Implementation	2016
Implementing Entities	NUPRC and Relevant Sector Stakeholders e.g., NNPC, IOCs, NOCs, Independent and Marginals operators etc.
Non-GHG Mitigation Benefits	Air pollutants and black carbon reduction.

Table 8: Overview of the ''Fugitive Methane Reduction" Mitigation Measures

Name	Fugitive Methane Reduction
Description	In 2019, Nigeria published its National Action Plan to reduce short-lived climate pollutants joining the Global Methane Alliance and pledging to absolute methane reduction targets of at least 45% by 2025 and 60-75% by 2030. The 60% conditional reduction by 2031, in the updated NDC, is geared towards propelling some legally binding policies in Nigeria over the coming years.
Objectives	The objective is to achieve a 60% reduction in fugitive methane emissions by 2031
Type of instrument	Regulatory

Status	Implemented (in progress)
Sectors Affected	Oil and Gas
Gas Affected	CH_4
Start Year of Implementation	2021
Implementing Entities	Nigerian Upstream Petroleum Regulatory Commission, NMDPRA, Federal Ministry of Environment, National Council on Climate Change (NCCC), NNPCL, IOCs, NOCs, Independent and Marginal Operators etc.
Non-GHG Mitigation Benefits	Job creation, Capacity development, Infrastructural development, just transition, Gender and Youth empowerment and Subnational actions.

2.1 Oil and Gas Policies in Nigeria

Oil and gas policies in Nigeria are a critical aspect of the country's governance, as Nigeria is one of the largest oil producers in Africa and relies heavily on the sector for revenue generation and economic development. These policies are designed to regulate the exploration, production, and exportation of oil and gas resources while ensuring that the sector contributes to national development and the well-being of its citizens. While there are other regulatory policies in the sector with no direct link to GHG emissions reduction, there are also existing policies within the sector to foster GHG emission reduction hence helping Nigeria achieve its NDC targets. Some of the policies that aim to reduce GHG emissions in the oil and gas value chain are highlighted below.

Nigeria Gas Master Plan (NGMP)

The NGMP was approved in 2008 as part of the government's commitment to making the O&G sector become a major player in the international gas market as well as to lay a solid framework for gas infrastructure expansion within the domestic market.

The Masterplan is a guide for the commercial exploitation and management of Nigeria's gas sector. The main strategies of the NGMP which aims at growing the Nigerian economy with gas are highlighted below:

- Stimulate the multiplier effect of gas in the domestic economy.
- Position Nigeria competitively in high-value export markets.
- Guarantee the long-term energy security of Nigeria.

The NGMP is expected to support the implementation of energy transition from higher intensive carbon fossil fuel to natural gas which is a lower intensive carbon fossil fuel.

Nigerian Gas Flare Commercialization Programme (NGFCP)

The NGFCP was launched in 2016 as a strategy to implement the policy objectives of the government for the elimination of gas flares with potentially enormous multiplier and development outcomes for the country.

The objective of the NGFCP was to eliminate gas flaring through technically and commercially sustainable gas utilization projects developed by competent third-party investors who will be invited to participate in a competitive and transparent bidding process. The objective policy was intended to:

a) Reduce the environmental and social impact caused by the flaring of natural gas.
b) Protect the environment.
c) Prevent waste of natural gas and,
d) Create social and economic benefits from gas flares capture.

It should be noted that despite the gains of NGFCP, the price of gas is not yet affordable to stimulate the utilization of gas for cooking. While flare avoidance has important environmental and health consequences, it provides other benefits which impacts women's caregiving role. Most Nigerian women in the Niger Delta communities who cannot afford cooking gas rely on the heat from gas flares for cooking (drying of food crops and beef/fish). As part of the decade of gas utilization, it is expected that small bottles of LPG would be made readily available for the rural Niger Delta community women. This will further encourage the transition from using firewood, charcoal, and kerosene for cooking to using gas. The policies and measures on energy access and natural gas utilization can drive this.

National Gas Policy (NGP)

The NGP document was developed upon the policy goals of the Nigerian Government for the gas sector as presented in the Seven Big Wins initiative (Iledare, 2008), that is developed by the Ministry of Petroleum Resources and the National Economic Recovery and Growth Plan (NERGP 2017 – 2020).

The Policy was intended to remove the barriers affecting investment and development in the gas sector. It proposed an implementation plan to introduce an appropriate institutional, legal, regulatory, and commercial framework for the gas sector. The policy was expected to be reviewed and updated periodically to ensure consistency in government policy objectives as it covers all activities in the gas sector's Upstream, Midstream, and Downstream sectors.

This is intended to ensure availability of natural gas for generating of electricity and industrial use as the country transit to the utilization of electric vehicles and electricity for cooking post 2030 and as we approach net zero in 2060. The intention as recorded in the energy transition policy is to switch fully to the use of hydrogen as replacement for gas by 2040 (ETP, 2022)

National Gas Flare Commercialization Regulation

On July 5, 2018, the Flare Gas Regulation came into full effect with the aim to govern and implement the NGFCP. The regulation was also developed to reduce gas flaring through the prohibition of the flaring of Natural Gas. It established that operators that produce at least 10,000bpd shall be liable to a flare payment of $2 per 28.317 standard cubic meters of gas flared. However, operators that produce less than 10,000 bpd shall be liable to a flare payment of $0.5 per 28.317 standard cubic meters of gas flared.

Through this policy, the Federal government has the right to take all the flare gas at no cost from the flare sites without payment of royalty to the operator. The policy also gives the government the right to issue a permit to third party bidders to access the flare gas based on a transparent bidding process. The aim is to eliminate flare before or by 2030.

The Decade of Gas

The "Decade of Gas" in Nigeria is a government-led policy aimed at promoting the development and utilization of natural gas as a key driver for economic growth and energy transition over a ten-year period. (This Day, 2023). This is meant to go alongside with the NGFCP which experienced some bottlenecks in its implementation. Albeit it was successful in reducing gas

flaring, but utilization is not as significant as expected. Nigeria has moved from second in gas flaring in 2010 to seventh in 2016 and recently ninth on the list of gas flaring nation (GGFR, 2024).

Key elements of Nigeria's Decade of Gas include:

- **Gas-to-Power:** Nigeria to focus on using natural gas for electricity generation to improve the reliability and availability of power supply. This involves the construction of gas-fired power plants and the rehabilitation of existing ones.
- **Gas-Based Industries:** The government is encouraging the establishment of gas-based industries, such as fertilizer and petrochemical plants, to create jobs, stimulate economic growth, and reduce the country's dependence on imported goods.
- **Gas as Transportation Fuel:** The initiative promotes the use of CNG and LNG as cleaner alternatives to traditional fuels in the transportation sector.
- **LPG Penetration:** Encouraging the adoption of LPG for domestic and industrial cooking, reducing the reliance on firewood and kerosene.
- **Infrastructure Development:** Investments in gas infrastructure, including pipelines and gas processing facilities, to support the transportation and distribution of natural gas across the country.
- **Monetization of Stranded Gas:** Efforts to commercialize stranded gas reserves that were previously uneconomical to develop.
- **Clean Energy Transition:** The Decade of Gas aligns with Nigeria's commitment to reducing carbon emissions and transitioning to cleaner energy sources. The overwhelming fossil fuel consumed is diesel and petrol. Natural gas is therefore considered a transition fuel that emits lower greenhouse gases compared to petrol and diesel. It is planned that gas will replace the consumption of oil in transportation, industry, and household consumption.
- **Private Sector Participation:** Encouraging private sector investments in the development of gas infrastructure and gas-based industries.

The Decade of Gas is part of Nigeria's broader efforts to diversify its economy and reduce its dependence on oil exports. This is meant to be the transition scenario prior to full transition to

renewable energy. The natural gas will be used for power generation, industrial use and as transport fuel while the production of crude oil is expected to start declining. The gas consumption itself is expected to peak towards the end of decade of gas production and consumption. Nevertheless, the energy transition office in Nigeria is currently in partnership with the Energy Commission of Nigeria, is engaging the renewable energy industry to encourage scale up. It also supports the country's commitment to the Paris Agreement on climate change and its targets for reducing greenhouse gas emissions.

By focusing on the development of the natural gas sector, Nigeria aims to leverage its abundant gas resources to drive economic growth, improve access to energy, and reduce its carbon footprint. This initiative plays a crucial role in the country's energy transition and sustainable development.

According to Uzoho (2023) three years following announcement, Nigeria's "Decade of Gas" initiative has underperformed at a pitiful less than 10% to date, underperforming by as much as 80% behind the federal government's objective of 85% annual growth. The introduction of the Value-Added Tax (VAT), a high exchange rate, an increase in the price of goods abroad, a high cost of transportation, and domestic producers benchmarking gas prices on international prices have all been blamed by the government for the poor performance.

The Petroleum Industry Act (2021)

The PIA (2021) seeks to fundamentally overhaul and restructure the oil and gas industry in Nigeria by creating various regulatory bodies for the industry, recharacterizing the existing licensing regime, as well as changing the existing fiscal framework. The PIA has a direct impact on the JGIT, particularly as it places emphasis on the utilization of gas and avoidance of gas flare. Should this be properly implemented, it would lead to increase utilization of gas in the country. The PIA is silent about renewable energy technologies, but it encourages efficient utilization of hydrocarbons.

Major highlights of the Petroleum Industry Act

- **Establishment of the Nigerian Upstream Regulatory Commission**

The Commission regulates technical, operational and commercial activities in the upstream petroleum sector; it monitors compliance to rules regulating the sector; enforce compliance with the terms and conditions of leases, licenses, permits and authorizations granted to companies

in the upstream petroleum sector; establish and enforce standards relating to upstream petroleum activities and undertake evaluation of national reserves while developing policies for prudent reservoir management practices.

In addition to the above functions, the Commission keeps public registers detailing beneficial ownership of leases, licenses, permits, and authorizations issued by it. It is also to develop, maintain and publish a database of upstream petroleum and advise the Minister of Petroleum on all matters relating to upstream petroleum activities.

- **Establishment of the Nigerian Midstream and Downstream Regulatory Authority**

This body is responsible for the technical and commercial regulation of midstream and downstream oil and gas operations in the petroleum industry. This involves ensuring efficient and effective infrastructural development, compliance with regulations, implementation of government policies, development of a framework on tariff and pricing, amongst others.

- **The Nigerian National Petroleum Company Limited**

NNPC Limited was created in 2022 with the Ministry of Finance and Ministry of Petroleum Incorporated as shareholders took over the assets, interests and liabilities or its subsidiaries and NNPC has ceased to exist. The new company, Nigeria National Petroleum Company Limited operates as a government-owned private limited liability company registered under the Companies and Allied Matters Act (CAMA) and operates under a corporate governance regime.

- **Establishment of Incorporated Joint Venture Companies**

The Act permits NNPC Ltd and parties with joint operating agreements in the upstream petroleum sector to voluntarily incorporate joint venture limited liability companies subject to the provisions of the Second Schedule to the Act.

- **Introduction of New Licences and Lease for Upstream Operations**

The Act provides the issuance of Licenses and leases in the upstream sector with specified duration. Some of the licences are:

I. Petroleum exploration licence to carry out petroleum exploration on a non-exclusive basis.
II. Petroleum prospecting licence to carry out petroleum exploration on a non-exclusive basis and drill wells, do corresponding test production on an exclusive basis.

III. Petroleum mining leases to carry out petroleum exploration on a non-exclusive basis; drill wells, carry out test production, win, work and dispose of crude oil, condensates, and natural gas on an exclusive basis.

The Act restricts the duration of a petroleum prospecting license for onshore and shallow water acreages to 6 (six) years while deep offshore and frontier acreages are limited to 10 (ten) years. The duration for a petroleum mining lease is a maximum of 20 years and it may be extended for further terms of not more than 20 years per renewal.

- **Provision for Host Communities Development**

The Act highlights the establishment of the host community's development trust [section 235(1)] to manage and supervise the administration of the annual contribution of holders of a lease or license. The Lease and License holders are mandated to contribute 3% of its actual annual operating expenditure of the preceding financial year in the upstream petroleum operations to the fund. Unfortunately, this is expected to be used in Frontier exploration which is counterproductive to the JGIT plan.

- **Provision for Payment of Hydrocarbon Tax (HT) and Companies Income Tax (CIT)**

The Act introduced the payment of HT and Extension of Applicability of CIT to All Companies. HT is payable by companies engaged in upstream petroleum operations undertaken in onshore and shallow water (deep offshore is excluded) and applies to crude oil, field condensates and natural gas liquids derived from associated gas. CIT applies to all companies, concessionaires, licensees, lessees, contractors, or subcontractors involved in the upstream, midstream, or downstream petroleum operations. (Section 302(1)).

- **Requirement for the Separation of Upstream, Midstream and Downstream Operations**

For tax purposes, the Act requires that a company intending to be involved in more than one stream of petroleum operation should register a separate company for each.

- **Other Fiscal Provisions**

Companies engaged in midstream petroleum operations, downstream gas operations, large scale gas utilization as well as investors in gas pipelines are entitled to incentives under section 39 of Companies Income Tax Act (CITA) which include a tax-free period of 3 years and

accelerated capital allowance after the tax-free period among others. Section 302(9) permits that “acquisition costs of petroleum rights shall be eligible for annual allowance at the rate of 20% with a retention value of 1% in the last year until the asset is disposed.”

Agencies Related to Climate Data for GHG Inventory and Mitigation

This section highlights sections and sub-sections of the PIA that mention, mandates and or clarifies agencies that would provide data information useful for GHG inventories and mitigation actions with the O&G sector. These institutions would also by extension share data necessary for tracking JGIT as the only institution with competence for carbon reduction.

I. In PART III section 7 (j), the Nigerian Upstream Regulatory Commission is saddled with the responsibility to “maintain a Nigeria petroleum industry data bank comprising of materials, information, and data acquired by, or submitted to, the commission in the exercise of its statutory and regulatory functions”.
II. In PART II section 68(1), highlights that the Government of Nigeria shall be entitled to upstream petroleum operations data and data interpretation. “Title to any data and its interpretation relating to upstream petroleum operations are vested in the Government of the Federation of Nigeria and shall be administered by the Commission.

Guideline for Fugitive Methane Reduction (2022)

The Fugitive Methane Reduction Guidelines which were developed by the NUPRC and adopted in 2022 sets the procedures and practices that operators within the sector must follow in order to prevent and manage GHGs and methane emissions from upstream oil and gas operations. The guidelines' provisions apply to both new and existing facilities in Nigeria's upstream oil and gas sector.

The goal of the Guideline is to reduce the effects that natural gas emissions, such as those of methane and other chemicals, have on the environment and society:

i. Preventing natural resource waste.

ii. Environmental protection.

iii. The main abatement measures and their targets are the elimination of routine gas flaring (100% of gas flaring eliminated by 2030) and the control of fugitive emissions/leakages (60%

Methane Reduction by 2030) in order to meet Nigeria's emission mitigation and reduction targets of the NDCs in the Oil and Gas.

Apart from the above listed policies and the 1999 Constitution, other legislations impacting, governing, and regulating the oil & gas sector in Nigeria are as follows:

Local Content Policy: Nigeria's Local Content Policy has seen numerous revisions and changes throughout the years. The Nigerian Oil and Gas Industry Content Development (NOGICD) Act (discussed below), which was passed in 2010, gave the policy impetus.

Promoting Nigerians' and their companies' active involvement in the oil and gas industry is the aim of the Local Content Policy. It aims to ensure that local products and services are used in the sector, develop local capability, and provide job opportunities. By doing this, it hopes to lessen reliance on outside knowledge and resources, advancing the nation's economy. This is about use of local materials and products for development in the sector.

The Nigerian Oil and Gas Industry Content Development Act 2010: it provides a framework for promoting the participation of Nigerians in the oil and gas industry and laying down the minimum thresholds for local contents utilized in the sector. This focuses on personnel working in the Oil and Gas sector.

Niger Delta Development Commission (NDDC): The Niger Delta Development Commission (Establishment, etc.) Act created the NDDC in 2000, and it has since undergone modifications to increase its efficacy.

The goal of the NDDC is to solve the developmental obstacles in the Niger Delta, a significant oil-producing region. It aims to improve communities affected by oil and gas operations, it focuses on fostering the development of infrastructure, social well-being, and economic prospects.

Extractive Industries Transparency Initiative (EITI): Nigeria embraced the EITI, a global standard, in 2003. To improve transparency in the extractive industry, a multi-stakeholder process involving the government, business community, and civil society is involved. Enhancing accountability and transparency in the extractive industries—including the oil and gas sector—is the goal of EITI. This is accomplished by revealing and keeping track of the payments made to the government by oil and gas corporations, guaranteeing that the proceeds support national development and lowering the likelihood of corruption. It also provides data on employment in

the industry which gives insight into proper planning for JGIT goals of ensuring that jobs are protected as a result of transition in the energy sector. **The Nigerian Extractive Industries Transparency Initiative Act of 2007** provides the framework for transparency and accountability by imposing reporting and disclosure obligations on all oil and gas companies upon requirement by NEITI of revenue due to or paid to the federal government as well as comprehensive records of employees in the Oil and Gas Industry.

Other Oil and Gas policies are:

The Petroleum Profits Tax Act: it provides the framework under which the federal government obtains revenue from oil and gas operations by way of signature bonuses, royalties, and taxes.

The Environmental Impact Assessment (EIA) Act: providing the framework for assessing the impact of oil and gas projects on the environment.

The Federal Inland Revenue Service (FIRS) Establishment Act 2007 details the FIRS's statutory powers to collect all taxes, fees, levies, royalties, rents, signature bonuses, penalties for gas flaring, depot fees, including fees for oil prospecting licenses, oil mining licenses, etc.

The Education Tax Act: it provides for the imposition of annual taxes of 2 percent of assessable profits on oil and gas companies for the development of Nigeria's educational sector.

The Niger Delta Development Commission (Establishment) Act: It mandates the payment to the Commission by oil and gas companies of 3 per cent of their annual budgets for the development of the Niger Delta areas where oil and gas are exploited.

National Oil Spill Detection and Response Agency (Establishment) Act: It establishes the National Oil Spill Detection and Response Agency (NOSDRA), which coordinates and implements the National Oil Spill Contingency Plan (NOSCP) for Nigeria.

These policies collectively reflect Nigeria's commitment to fostering a sustainable, transparent, and socially responsible oil and gas sector that contributes positively to the country's development. These taxes could be used as means of pooling funds for aggressive renewable energy development plan.

However, with the primary focus of assessing how well the country is faring in terms of achieving and meeting its NDC targets, it is important to track mitigation goals, and this should be adequately measured and reported in CO_2eq of the GHG.

2.2 JGIT Related Policies:

Renewable Energy Master Plan:

The available resource base, technologies, and the market situation of the various energy sources formed the basis for establishing realistic targets for the growth of the renewable energy industry in the country. The Energy Commission's High Growth Scenario projection for energy demand and NEEDS projections form the basis for comparing renewable energy progress with the overall sector growth. The projected electricity supply, from all sources (conventional and renewable) is defined based on the following; the short term (2007), medium term (2015) and long term (2025) is estimated to be 7000MW, 14000MW and 29,000MW, respectively.

The target contributions to the electricity supply mix from renewable energy sources (solar, wind, small, hydro, biomass) are 56MW, 701 MW and 3060 MW in the short, medium, and long term. This represents an achievement of 0.8%, 5% and 10.5% of total electricity demand in 2007, 2015 and 2025, respectively. Non-electricity renewable energy sources' expected contribution to the projected energy demand will decline during the plan period. These figures will decline from 41% in 2007 to 16% and 9% in 2015 and 2025, respectively. The expected decline of the contribution of biomass to the overall energy demand will account for this trend.

These targets imply a rapid scaling up of most renewable energy technology applications. Some of the highlights include a combined increase in wind power generation to 1MW, 19MW, and 38MW in 2007, 2015, and 2025, respectively.

Small-scale hydro plants will contribute 56MW, 600MW, and 2,000MW in 2007, 2015, and 2025, respectively. Improved woodstove dissemination will significantly expand with 300,000, 500,000, and 1,000,000 units in the short, medium, and long-term periods, respectively. An estimated 40,000, 400,000, and 4,000,000 solar home systems will be achieved within the same period. Solar cookers will increase from 1,500 in 2007 to 50,000 in 2015 and 150,000 in 2025. Solar

water heaters and chick brooders are expected to experience significant increases within the period.

It is important to state that the ambition to increase renewable energy consumption for electricity and non-electricity would imply several jobs will be created. According to a source from online website, Freeingenergy.com, about 26.6 jobs can be created per MW of residential renewable energy installation. This implies that if the targeted 29,000MW is to be installed by 2025, about 750,000 jobs can be created which is significantly higher than the total number of people in the Oil and Gas Industry. However, it should be stated that most of these jobs are likely to be those paying much lesser that what is paid in the oil and gas industry. The implication is that more jobs would be created but will take care of most people in the low cadre category. There would be early retirement for some high-level officers in the oil and gas sector. Beyond the estimated 750,000 direct jobs, there are indirect and induced jobs also expected to be created in the renewable energy industry.

National Social Protection Policy:

The National Social Protection Policy (NSPP), adopted in 2017 and later revised in 2021, is a comprehensive strategy to tackle poverty, vulnerability, and social exclusion in Nigeria. It includes various programs to aid the poor, vulnerable, and marginalized communities. The NSPP also advocates for social insurance, livelihood support, and disaster risk management to enhance resilience and shield individuals and households from economic shocks. This policy has a link to the Just and Gender-Inclusive Transition (JGIT), which is connected to climate change adaptation strategies. Important points to note include:

1. **Gender-sensitive and Age-appropriate Framework**: The policy is built to ensure that social protection mechanisms are attuned to the needs of different gender and age groups, indicating an inclusive approach towards supporting vulnerable populations during climate transitions.
2. **Life-Cycle Approach**: The policy adopts a life-cycle approach which provides interventions suited for different age groups from youth to old age. This ensures that social protections are tailored across individual life stages, increasing resilience to environmental and socio-economic changes precipitated by climate change.

3. **Education and Health Services**: Provisions for free basic education and essential healthcare services for vulnerable genders and ages are set forth. These are fundamental elements ensuring that vulnerable groups can better withstand the socio-economic impacts of climate change.
4. **Protection Measures**: The document emphasizes creating a basic social protection floor to protect against poverty and social risk, which are likely to exacerbate due to climate change impacts.
5. **Promotive and Transformative Measures**: These include employment initiatives, accessibility to resources for productive activities, and addressing social inequalities. Such measures ensure that vulnerable populations, particularly women and the disabled, can gain financial independence and agency, critical in times of environmental stress.
6. **Focus on Governance and Effective Implementation**: The document calls for strong governance structures to effectively coordinate and implement climate-adaptive social protections.
7. **Sustainability and Flexibility**: There's an emphasis on sustainable funding sources and adaptive policy measures that can respond to the evolving nature of climate change impacts.

These components within the National Social Protection Policy contribute towards a comprehensive and inclusive strategy to ensure social protection that aligns with climate resilience efforts, recognizing the unique needs of different genders and ages in the face of climate adversities.

National Development Plan (NDP) 2021-2025:

This Plan was created to address Nigeria's development challenges, including low economic growth, insecurity, weak institutions, poor public service, infrastructure deficits, climate change, and weak social indicators. It aims to invest in infrastructure, ensure macroeconomic stability, improve social indicators, and implement climate change strategies. The Plan's specific goals include creating 21 million jobs and lifting 35 million people out of poverty by 2025, contributing to the government's goal of lifting 100 million Nigerians out of poverty in 10 years. These targets

can be achieved through high-quality economic growth, a more inclusive economy, leveraging the young workforce, and enhancing implementation capacity. With effective implementation, Nigeria can unlock its potential for sustainable and inclusive development.

This plan highlighted the Just and Gender Inclusive Transition (JGIT) policies in climate change to include:

1. Mainstreaming of gender issues in existing policies through technical support to Ministries, Departments, and Agencies (MDAs) alongside stakeholder facilities.
2. Strategic measures focused on policy reform programs and skills development that aid in transitioning to a greener economy.
3. Reviewed and improved the National Environmental Sanitation Policy to support climate adaptation, with a specific emphasis on areas affecting women.
4. Deliberate efforts should be made to expand opportunities for Nigerian women to obtain entrepreneurial skills, affordable credits, and access to markets and innovative technologies.
5. Integration of a gender perspective in reviewing existing policies and strategies to remove bottlenecks and effectively incorporate gender issues and social protection for vulnerable groups in all stages of policymaking and implementation.

Overall, the NDP tries to ensure that gender inclusivity is embedded into the transition towards a sustainable and equitable climate policy framework.

National Youth Policy (2019):

This policy represents a declaration and commitment to the priorities, directions, and practical supports that a country intends to provide for the development of its young men and women. It is a concrete and bold step to put the development and participation of youth at the center of national development efforts. It is indicative of the readiness of the Government and people of Nigeria to meet the needs and aspirations of the youth as well as seek a solution to their problems. It sets guidelines and provides the framework for all stakeholders to empower the youth to realize their potential and take advantage of the opportunities available to make positive contributions to the well-being of their communities across the entire country.

The "National Youth Policy: Enhancing Youth Development and Participation in the Context of Sustainable Development" incorporates Just and Gender Inclusive Transition (JGIT) policies by focusing on various strategies aimed at involving youth, especially young women, and socially disadvantaged groups, in sustainable development and political processes. The key aspects include:

1. **Gender Equality and Education:** The policy prioritises gender equality at all educational levels, particularly secondary education, through initiatives like the Conditional Cash Transfer program to support school enrolment and gender equality.
2. **Protection and Empowerment:** There are robust measures to enforce child rights and labour laws, and to protect young people from gender-based violence and armed conflicts. There is also an emphasis on increasing access to training and educational opportunities for socially disadvantaged youth.
3. **Youth Political Engagement:** The policy aims to encourage young people's participation in political processes by creating an enabling environment that includes waivers for young women in politics, training, mentorship, and the promotion of leadership skills.
4. **Inclusive Policy Framework:** The policy is revised to align with the Sustainable Development Goals and to address new and emerging issues impacting the youth in Nigeria, emphasizing a gender lens in political and developmental processes.

Through these, the policy outlines a comprehensive approach to promote an inclusive and sustainable transition that effectively includes youth, with a particular focus on gender inclusivity.

National Employment Policy (2017):

The National Employment Policy (NEP) has been developing for years, but despite economic growth and a rising population, many Nigerians remain unemployed due to a lack of job opportunities. The NEP focuses on creating jobs, improving skills, making the labour market more flexible, and protecting workers. It includes initiatives to support entrepreneurship, SMEs, labour market information systems, and improved working conditions and safety.

The National Employment Policy emphasizes some points regarding Just and Gender Inclusive Transition (JGIT) policies in climate change:

1. **Green Jobs**: The document highlights the creation of green jobs as a pathway towards decent work, particularly benefiting women and youth. These jobs are associated with the renewable energy sector, including roles like solar panel installers and technicians.
2. **Gender Diversification**: The policy focuses on diversifying the Nigerian workforce by gender, aiming to increase the employment and participation of women in the labour force, including in higher-paying and more sustainable sectors.
3. **Social Protection**: Employment policies are designed to provide better social protection for workers, enhancing the quality, productivity, and efficiency of a gender-balanced workforce.
4. **Regulatory Policies for Local Industry**: The policy supports import substitution to protect local industries, which helps create more jobs that can be accessible to a diverse population, including women.
5. **Addressing Employment Gaps**: There is a significant emphasis on addressing gaps in employment for youth, and persons with disabilities, and combating gender inequality, highlighting the importance of creating decent work for all demographics.
6. **Incorporation of Environmental and Employment Goals**: The policy acknowledges that addressing environmental challenges can create job opportunities and stresses the importance of integrating employment goals into broader macroeconomic growth strategies and environmental policies.

These points reflect a commitment to creating a more inclusive and gender-balanced workforce while addressing environmental challenges and promoting sustainable development.

National Climate Change Policy for Nigeria (2021–2030):

This policy outlines a comprehensive approach to addressing climate change in Nigeria through both mitigation and adaptation strategies. It recognizes the interconnectedness of climate change, gender inequality, and the broader socio-economic impacts. The policy explicitly integrates gender and social inclusion considerations into its implementation strategies.

1. **Gender-Responsive Policies**: It acknowledges that climate change affects men and women differently, which can exacerbate existing gender inequalities. Women, often being primary caretakers and food providers, are more vulnerable to climate change. Therefore, the policy aims to mainstream gender perspectives into all climate change responses and ensure women's participation in climate action.
2. **Social Inclusion**: Aside from emphasizing gender, the policy also focuses on including other vulnerable groups such as children, the elderly, and persons with disabilities in its climate strategies. This approach is aimed at ensuring that these groups are not left behind in adaptation and mitigation efforts.
3. **Key Strategies**: The policy outlines specific measures to incorporate gender and social inclusion:
    - Enhancing understanding of gender dimensions in climate change.
    - Addressing inequalities that heighten vulnerability to climate impacts.
    - Promoting equal participation of women in leadership roles in climate governance.
    - Integrating gender perspectives into funding processes for climate initiatives.
4. **Implementation**: For effective implementation, the policy proposes building capacities and offering incentives that involve various stakeholders, including government agencies, private sectors, and communities, with an emphasis on empowering women and vulnerable groups.

Nigeria's National Climate Change policy approaches the climate crisis with a keen awareness of the need for Just and Gender Inclusive Transition (JGIT) by embedding gender and social equity right into the heart of policy planning, foreseeing a strategy that not only tackles climate issues but also advances gender equality and social inclusion.

National Economic Recovery & Growth Plan (2017-2020):

This Plan (NERGP) was initiated in 2017 as a mid-term strategy (2017-2020) with the objective of invigorating economic resurgence, attaining sustainable development, and steering Nigeria’s economy towards diversification, thereby reducing its dependence on oil.

The plan places a strong emphasis on infrastructure development, investment in human capital, and the enhancement of macroeconomic stability, all of which are geared toward creating a conducive environment for economic diversification and sustainable growth through the Presidential Enabling Business Environment Council (PEBEC), Anchor Borrowers' Programme and the Presidential Fertilizer Initiative intended to augment agricultural productivity.

Invariably, the policy focuses on social inclusion and gender-sensitive measures as part of its broader economic strategies with some key aspects to include:

1. **Social Inclusion**: Emphasis on providing every citizen the opportunity to work and participate in society, which is crucial for a harmonious, progressive, and stable country.
2. **Education and Infrastructure**: We are prioritising education for girls and constructing schools specifically for girls in 13 pilot states, as well as classroom blocks and schools focusing on 'Almajiri' and nomadic education.
3. **Agricultural Transformation**: Supporting the integrated transformation of the agriculture sector with attention to including women and youth and boosting productivity through accessibility to inputs and financing.
4. **Presidential Initiative on Fertilizer**: This initiative aims to promote agricultural productivity, which indirectly supports economic growth and social inclusion.

These components align with the ideals of a Just and Gender Inclusive Transition (JGIT) by integrating gender considerations and ensuring inclusive participation in economic recovery and growth strategies.

National Gender Policy (2021-2026):

The National Gender Policy (NGP) aims to boost gender equality and women's rights in Nigeria. It tackles issues like education, health, and job opportunities for women. It also includes plans to stop unfair practices and violence against women. The key takeaways from policy concerning Just and Gender Inclusive Transition (JGIT) policies in climate change are as follows:

1. **Objectives and Goals:** The policy aims to reduce gender inequalities and enhance participation in socio-economic and political development. It emphasises gender equality

as a fundamental human right and necessary for socio-economic development and attaining Sustainable Development Goals.

2. **Framework and Alignment:** The policy is aligned with national and international instruments, such as the Nigerian Constitution, Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), and SDGs, supporting the principle of gender equality and empowerment of women. This alignment helps create a strong policy framework for addressing gender inequalities.

3. **Strategic Actions and Implementation:** To achieve gender equality, the policy outlines specific actions such as protecting women's human rights, mitigating gender-based violence, promoting women's participation in leadership, and ensuring gender equity in social protection and legislation.

4. **Mainstreaming Gender:** A core strategy of the policy is gender mainstreaming, acknowledging the different impacts of gender and the barriers that create inequality. This strategy aims to integrate gender equality concerns into all sectors of national development.

5. **Policy Life Cycle and Institutional Support:** The policy emphasises institutional culture and an enabling environment that integrates gender equality through its life cycle from 2021 to 2026. It also promotes a paradigm shift in policymaking to be more gender aware.

6. **Challenges and Monitoring:** The policy recognises the need for political will and confronts challenges like patriarchy to successfully actualise gender policies. It advocates for strong coordination, networking, and monitoring to track the impact and effectiveness of the implemented measures.

The National Gender Policy (2021-2026) is a comprehensive framework aimed at addressing and mainstreaming gender issues across various levels of policy and implementation to achieve a just society with reduced discrimination and enhanced socio-economic development.

The Long-Term Low Emission Development Strategy (LT-LEDS)

This is a comprehensive roadmap designed to guide Nigeria towards a sustainable, low-carbon future while simultaneously fostering economic growth and social development. Developed in alignment with global climate objectives, particularly the Paris Agreement, the LT-LEDS outlines a trajectory for Nigeria's long-term transition to a low-emission economy.

Key features of Nigeria's LT-LEDS include:

1. **Emission Reduction Targets:** The strategy sets ambitious yet achievable targets for reducing greenhouse gas emissions across various sectors of the economy. These targets are based on comprehensive assessments of Nigeria's emission sources, including energy, transportation, industry, agriculture, and waste.

2. **Sectoral Strategies**: Recognizing the diverse nature of emissions sources, the LT-LEDS includes sector-specific strategies tailored to address the unique challenges and opportunities within each sector. This approach ensures that emission reduction efforts are integrated into broader development agendas, such as energy security, industrial growth, and agricultural productivity.

3. **Renewable Energy Transition:** A cornerstone of the LT-LEDS is the transition towards renewable energy sources such as solar, wind, hydro, and biomass. By promoting the deployment of renewable energy technologies, Nigeria aims to reduce its reliance on fossil fuels, enhance energy access, and mitigate climate change impacts.

4. **Energy Efficiency Measures:** The strategy prioritizes energy efficiency improvements across various sectors, including buildings, transportation, and industry. By promoting the adoption of energy-efficient technologies and practices, Nigeria seeks to reduce energy consumption, lower emissions, and enhance productivity.

5. **Green Growth and Economic Diversification:** The LT-LEDS integrates climate action with broader economic development objectives, such as promoting green growth and economic diversification. By investing in sustainable infrastructure, green industries, and innovation, Nigeria aims to create new employment opportunities, stimulate investment, and foster resilient, inclusive economic growth.

6. **Social Inclusion and Equity:** Recognizing the importance of social inclusion and equity, the strategy emphasizes the need to ensure that the benefits of low-emission development are equitably distributed across society. This includes measures to address

the needs of vulnerable populations, promote gender equality, and enhance community resilience to climate change impacts.

7. **Stakeholder Engagement and Collaboration:** The LT-LEDS underscores the importance of multi-stakeholder engagement and collaboration at all levels of government, civil society, private sector, and international partners. By fostering partnerships and cooperation, Nigeria seeks to mobilize resources, share knowledge, and leverage expertise to accelerate the transition to a low-emission, climate-resilient future.

National Industrial Revolution Plan (NIRP):

The National Industrial Revolution Plan (NIRP), started in 2014, aims to rejuvenate Nigeria's industries, diversify the economy, and boost global competitiveness. It prioritizes sectors like agro-processing, manufacturing, petrochemicals, and construction for development.

The plan outlines key strategies and efforts to improve the investment climate in Nigeria through a comprehensive approach targeting several areas:

1. **Investment Climate Reforms**: The Plan emphasizes addressing land and property rights, tax administration, access to credit, labour laws, insolvency, anti-competition laws, consumer protection, policy consistency, and fiscal and tariff regimes to make Nigeria an attractive destination for both domestic and foreign investors.
2. **Infrastructure Operations**: Efforts to enhance port and customs operations, electricity connections, access to waterways, and rail infrastructure are seen as crucial to improving the overall ease of doing business.
3. **Stakeholders and Responsibilities**: The lead responsibilities are assigned to the Ministry of Industry, Trade & Investment (MITI) and NIPEC, collaborating with state governments, the Ministry of Justice, Nigerian Customs, the Ministry of Power, and other key agencies.
4. **Legal and Regulatory Framework**: The focus is on reviewing and reforming the private equity and venture capital industry to unleash these sources of risk capital.

5. **Benchmarking and Measurement**: The Plan will use the World Economic Forum's Global Competitiveness Index and the World Bank's "Ease of Doing Business" indicators to measure success and make improvements.
6. **Information and Decision Making**: It recognises the lack of readily available information for industrialists. By continually benchmarking against global best practices, it aims to facilitate decision-making and attract investments into key industrial sectors.

The Nigerian Industrial Revolution Plan is a strategic initiative to create a more favourable business environment, drive industrial growth, and foster economic development by engaging multiple stakeholders and using international standards to measure progress.

However, a newspaper publication (Vanguard) on October 12, 2023, revealed that President Bola Ahmed Tinubu led the groundbreaking ceremony for a $250 million lithium factory in Nasarawa State. The factory, initiated by Ganfeng Lithium Industry Limited, aligns with Tinubu's industrialisation policy to enhance energy provision in Nigeria. Pan Quen, Ganfeng's President, revealed the factory's capacity to process 18,000 metric tons of lithium daily and 4.5 million metric tons annually. He anticipated increased Chinese investment in Nigeria, bolstering the economy because the factory would also have the capacity to provide 2,500 direct and indirect employments to Nigerians.

Consequently, the same newspaper (Vanguard) clearly stated on April 24, 2024, that the factory will be commissioned by the Federal Government of Nigeria in May 2024.

NDC Measures:

As already discussed in Section 2.0, Nigeria filed its Intended Nationally Determined Contributions (INDC) in 2015, representing its first submission to the United Nations Framework Convention on Climate Change (UNFCCC). This action paved the way for a new era of efforts towards Climate Change (FGN, 2017).

Nigeria's NDC concentrates on delivering sustainable and economic expansion. As part of the Paris Agreement (PA), the nation made a revised statement unconditionally committed to reducing emissions by 20 percent from Business as Usual (BAU) levels by 2030 and a conditional commitment to reduce emissions by 47% depending on the support received from the developed nations in terms of funding, technology transfer, and capacity building. Nigeria

committed to leading development by making these bold commitments in the Paris climate agreement (FGN, 2021).

Implementing NDCs would require that the awareness campaign is driven effectively so that the populace widely understands the process, as everyone has roles to play. In Nigeria, with support from the United Nations Development Programme (UNDP), the Department of Climate Change (DCC) organised several workshops in the country's six geopolitical zones to sensitise the people in various types of businesses, professionals, and Non-Governmental Organizations (Hassamal et al., 2021).

The Nigeria NDC implementation will be carried out in line with the Paris Agreement, under the Nigeria Climate Change Policy Response and Strategy (NCCPRS) adopted in 2012, also in line with the strategic goal to foster low-carbon and increase economic development and growth, while building a climate-resilient society as posited by the Federal Ministry of Environment. This implementation will be coordinated and managed by the National Council on Climate Change (NCCC) and assisted by all relevant Federal Ministries and Agencies with specific implementation tasks. The complete execution of the mitigation actions proposed in the INDC/NDC document has been stressed to be reliant and directly proportional to the availability of the required financing for investment (UNFCCC, 2016). The

Table 9 below shows the NDC mitigation measures across the energy Sector.

Table 9: NDC Measures across the Energy Sector

Sector	Measure	Target
Residential	Increase use of LPG and Improved cookstoves	26.8 million households using LPG.
		7.3 million households using improved cookstoves
Industry/Energy efficiency	Reduction in energy intensity consumed	2.5% reduction in energy intensity across all sectors
Transport	Use of buses for transportation intra and inter-cities	100,000 buses by 2030
	Use of Bus Rapid Transport (BRT)	22.1% of passenger-km by 2035
	Trucks and Buses using CNG by 2030	25% of trucks and buses using CNG by 2030
	All vehicles meet EURO III emission limits by 2023 and EURO IV by 2030	Switch from EURO III in 2023 to EURO IV by 2030
Electricity Generation	Increase drastically the use of Renewable energy	13GW off-grid renewable energy (i.e., mini-grids 5.3 GW, Solar Home Systems, and streetlights 2.7 GW, self-generation 5GW)
	Reduce transmission and distribution losses.	Reduce grid transmission and distribution losses to 8% of the final electricity consumption in 2030, down from 15% in 2018.
	Switch from open cycle to combined cycle.	Switch 50% of the current open-cycle gas turbines to combine cycle turbines.
	Elimination of the use of diesel and gasoline generators	Elimination of diesel and gasoline generators for electricity generation by 2030
Oil and Gas	Elimination of gas flaring	Zero gas flaring by 2030
	Reduction in fugitive methane emissions	60% reduction in fugitive methane emissions by 2031

	Switch from liquid fuels to natural gas	The drastic increase in gas utilization between 2020 – 2030

Source: NDC, 2021

Energy Transition Plan:

Nigeria announced clean energy policies geared towards achieving its ambition of net zero. Prominent among such efforts include Nigeria's passage of the legislation titled "Climate Change Act, 2021" to demonstrate the Nation's commitment to the UNFCCC, the Paris Agreement, NNDCs, the Kyoto Protocol, UN SDGs, and other guidelines relevant to climate change adaptation and mitigation. The enactment of the Act buttresses the commitment made by the Nation to reduce carbon emissions and build resilience to the negative impacts of climate change at the Glasgow COP 26 Conference. The Act sets the target time frame for Nigeria to achieve net-zero carbon emission by 2060 and established a NCCC.

The Act's provisions apply to private and public sector players and cover all sectors of the economy. It encourages every organisation, including Ministries, Departments, and Agencies (MDAs), to appoint a designated Climate Change Officer or Environmental Sustainability Officer who is expected to routinely send reports of their climate change implementation actions to the NCCC.

As the Nigerian power sector is the country's second-largest contributor to GHG emissions, the Act would enhance opportunities by expanding the deployment of renewable energy, such as solar, small hydro, biomass, waste to energy, etc., for on-grid and off-grid power generation. It will also promote energy efficiency and energy conservation behaviours, the application of modern technologies, and GHG emissions reduction along the Nigerian electricity sector value chain.

Nigerian Energy Transition Plan (NETP) aims to reduce the emission of GHG across five (5) energy sub-sectors (power, residences, transportation, energy in agriculture and industries – manufacturing, mining, and oil and gas).

Overview of the Energy Transition Plan in Nigeria

The Federal Government of Nigeria launched an elaborate plan to achieve its net zero pledge by 2060 through the "NETP ". The objectives of the plan include:

a. Lifting millions of Nigerians out of poverty and driving economic growth.

b. Bringing modern energy services to the total population.
c. Managing the expected long-term job loss in the oil sector due to the reduced global fossil-fuel demand.
d. Playing a leadership role for Africa by promoting a fair, inclusive, and equitable energy transition in Africa that will include gas as a “transitionary fuel” and
e. Streamlining existing and new government-related energy transition initiatives.

The NETP aims to significantly reduce GHG emissions across the country’s power, transport, industry, clean cooking and oil and gas sectors.

Overview of the Energy Transition Plan in Nigeria: Power Sector

The NETP outlines the plans for Nigeria’s power sector. The plan highlights that the power industry accounts for roughly 27% of in-scope emissions for both on- and off-grid electricity generation. The significant use of gas-fired plants for on-grid power generation and diesel/petrol generators for off-grid power generation are the problems with power that the NETP seeks to address. To achieve carbon neutrality, the plan aims to achieve (a) transitioning away from diesel/petrol generators, (b) the initial expansion of gas generation capacity to establish baseload capacity for meeting increased electricity demand and integrating renewables, and (c) the ramp-up of renewables-backed electrification to facilitate decarbonization in buildings, industry, and transportation sectors.

The listed action steps for the power sector include:

a) The deployment of decentralized renewable energy by replacing generators to attain universal electrification goals and deploying approximately 0.6GW per year, which equals about 1.5 million newly electrified households per year.
b) The expansion of the transmission and distribution network capacities.
c) The upgrade of the central generation capacity to achieve 42GW of operational capacity in 2030 and Post 2030 deployment of centralized Renewable Energy – Solar PV and corresponding storage with hydrogen starting in 2040.

Overview of the Energy Transition Plan in Nigeria: Transport Sector

About 24% of the emissions within the scope of the NETP are attributed to the transportation sector in Nigeria. By adopting low-emission transportation technologies and increasing the use

of electric vehicles in the passenger automobile market, the plan seeks to cut emissions. The NETP's listed action steps for the transport sector to include:

a. Mode-shifting from passenger cars to public transport/electric two and three-wheelers
b. The deployment of biofuels.
c. Post-2030 deployment of electric vehicle charging infrastructure; and
d. Post-2030 development of electric vehicles cars market.

Overview of the Energy Transition Plan in Nigeria: Industry Sector

Emissions within the scope of the NETP are estimated to be attributed to the industrial sector at 16%. The plan calls for a 100% switch to zero-emissions fuels for heating and a 97% reduction in emissions from industrial expansion due to decarbonisation initiatives in the manufacturing of cement and ammonia. The NETP's listed action steps for the industrial sector include:

a. Shift to lower carbon processes for ammonia and cement production and
b. Shift to zero-emissions technologies for industrial heating.

Overview of the Energy Transition Plan in Nigeria: Clean Cooking Sector

Including urban, rural, and commercial cooking, the NETP estimates that the cooking sector in Nigeria accounts for roughly 22% of all emissions within the scope of the study. By replacing cooking with conventional fuels like firewood, charcoal, and kerosene with LPG, efficient woodstoves, electrification, and biogas—especially in rural areas—the plan seeks to lower emissions. The NETP's listed action steps for the clean cooking sector include:

a. Replacement of traditional firewood, kerosene, and charcoal with LPG (2.0 million new LPG stoves per year) and
b. Post-2030 transition to electric cookstoves and biogas, mainly in rural homes (1.7 million new electric or biogas stoves per year).

The **Table 10** below are summaries of the Mitigation Goals, JGIT Aspects and NDC Indicators from O&G Policies, the **Error! Reference source not found.Error! Reference source not found.** presents the Targets, Updated NDC, Energy Transition, Net Zero Targets/Related Policies and the policies' relevance to Gender. However, the

Table 12 summaries of Environmental, Social, and Economic Impacts and JGIT relevance of the Policies.

Table 10: Summary of Mitigation Goals, JGIT Aspects and NDC Indicators from O&G Policies

S/N	Exiting O&G Policies	Identified JGIT Aspects from Policies	Mitigation Goals from oil and Gas Policies	NDC Mitigation Measures	NDC indicators	Remarks/Gaps
1	Nigerian Gas Master Plan	• Gender diversity in employment opportunities.	Reduction in emissions by: • Creating a robust, scalable, and fully connected gas infrastructure that supports gas utilization. • Transformation of the domestic market into a vibrant and fully commercial gas market; and • Introduction of a maintenance and safety culture. • Measures to minimize environmental impact, including	• Zero Gas flaring by 2030 • 60% reduction in Fugitive Methane emission by 2031	• Work towards ending gas flaring by 2030, inclusive of measure of using Gas-to-Power Plants at Gas Flare Sites • Work towards Fugitive Methane emissions reduction by 2031	The National Gas Flare Commercialization Programme and the Flare Gas Regulation which particularly focused on addressing the issue of gas flaring in Nigeria currently lack the necessary economic incentives to meet their mitigation goals. For instance, without providing financial incentives or benefits for compliance, companies may prioritize other investments over flare gas reduction
2	National Gas Flare Commercialization Programme	• Creation of job opportunities for women through gas utilization projects. • Access to employment and entrepreneurship opportunities. • Mitigation of environmental pollution and promoting alternative uses for flared gas, benefiting communities, including women.				
3	National Gas Policy	• Employment opportunities for women.				
4	Flare Gas Regulation	• Indirect opportunities for women's participation in gas utilization projects. • Minimizing environmental pollution and protecting communities from adverse				

		impacts, promoting inclusive development.	the remediation of polluted areas. • Preventing natural resource waste. • Environmental protection.			efforts, especially if the cost of compliance outweighs the benefits.
5	PIA	• Regulatory reforms and industry development contributing to more inclusive and sustainable operations.				
6	Guideline for Fugitive Methane Reduction	• Improving environmental sustainability and community well-being, with benefits extending to women and vulnerable populations.				

Table 11: Summary - Updated NDC, Energy Transition (Net Zero Targets) and Related Policies

Targets	NDC 2021	Energy Transition and Net Zero Targets 2060	Related Policies	Benefits	Policy Relevance to JGIT
Greenhouse Gas (GHG) Emission Reduction	Reduce emissions by 20% unconditionally and up to 45% with international support by 2030	Achieve net zero emissions by 2060, focusing on transitioning to renewable energy sources.	National Climate Change Policy and Action Plan, Net Zero 2060 Strategy	Reduced climate change impacts, improved air quality, enhanced resilience	- Promotes reporting and rewarding of clean cooking stoves and renewable energy as part of gender-responsive adaptation measures

					- Improves public health outcomes and addresses health disparities
Renewable Energy Deployment	Increase renewable energy share to 30% of total energy mix by 2030	Achieve 100% renewable energy generation capacity by 2060	National Renewable Energy and Energy Efficiency Policy (NREEEP), Net Zero 2060 Strategy	Reduced reliance on fossil fuels, energy security, job creation	- Promotes women's participation in the renewable energy sector, fosters gender-inclusive energy access. - Facilitates access to renewable energy for marginalized communities, promotes inclusive energy access
Energy Efficiency Improvement	Improve energy efficiency by 30% by 2030	Implement energy efficiency measures across all sectors, aiming for maximum efficiency.	National Energy Policy (NEP), Net Zero 2060 Strategy, NREEEP. A comprehensive framework for switching to renewable energy sources and reaching net zero emissions by 2060 is outlined in the National Energy Policy (NEP) and the Net Zero 2060 Strategy. The NEP places a strong emphasis on the value of fair benefit distribution	Lower energy costs, reduced emissions, enhanced competitiveness	- Encourages gender-sensitive energy efficiency programs, addresses energy access disparities - Supports energy efficiency programs that benefit low-income households and underserved communities

			and comprehensive energy access, especially for underprivileged and marginalized groups. The strategy attempts to offer opportunities for all facets of society to engage in and profit from the shift to clean energy through focused programs and investments in infrastructure for renewable energy. Furthermore, the Net Zero 2060 Strategy ensures that gender-responsive techniques are integrated into energy planning and decision-making processes, thereby including the principles of Just Gender and Inclusive Transition. This entails encouraging women to work in the renewable energy industry, addressing the differences in access to energy across genders, and bringing gender perspectives into the creation and application of policies.		- Addresses energy access disparities and promotes inclusive energy efficiency initiatives
Clean Energy Investment	Secure $50 billion in investment for clean energy projects by 2030	Mobilize significant investment in renewable energy infrastructure and technologies	National Renewable Energy and Energy Efficiency Policy (NREEEP), Net Zero 2060 Strategy In order to accomplish sustainability goals, the National Renewable	Economic growth, job creation, improved energy access	- Supports women's entrepreneurship in clean energy, promotes gender-equitable investment strategies

			Energy and Energy Efficiency Policy (NREEEP) provides a strategy framework for encouraging the deployment of renewable energy sources and improvements in energy efficiency. The NREEEP integrates gender-responsive strategies for energy efficiency and renewable energy production within the framework of Just Gender and Inclusive Transition. By encouraging women's involvement in the renewable energy sector, guaranteeing equitable access to clean energy technologies and benefits, and incorporating gender considerations into policy design and implementation, it acknowledges the significance of addressing gender disparities in access to energy resources and opportunities. Additionally, NREEEP promotes inclusivity by focusing energy efficiency and renewable energy deployment initiatives on underprivileged and marginalized populations. NREEEP promotes		- Encourages investment in clean energy projects that prioritize communities with limited access to energy resources - Promotes gender equality and women's empowerment in the renewable energy secto - Ensures equitable distribution of benefits from renewable energy deployment and energy efficiency improvements - Targets vulnerable communities for clean energy access and energy efficiency programs

			gender equality in energy planning and decision-making processes and helps ensure that everyone has access to clean, sustainable energy resources by placing a high priority on social equity and inclusion. This helps create a fair and equitable transition to a low-carbon economy.		
Fossil Fuel Subsidy Reform	Phase out fossil fuel subsidies and redirect resources to clean energy initiatives	Eliminate fossil fuel subsidies and reallocate funds to support renewable energy transition	National Policy on Fossil Fuel Subsidy Reform, Net Zero 2060 Strategy The National Policy on Fossil Fuel Subsidy Reform aims to gradually remove fossil fuel subsidies while reallocating funds to promote the switch to renewable energy sources and energy-saving initiatives. This policy acknowledges that social and gender imbalances made worse by fossil fuel subsidies must be addressed within the framework of Just Gender and Inclusive Transition. The policy aims to mitigate the negative effects of fossil fuel extraction and consumption on the environment,	Fiscal savings, reduced emissions, enhanced sustainability	- Mitigates gendered impacts of subsidies to ensure equitable energy access for marginalised groups - Redirects subsidies to support renewable energy projects in underserved areas, fostering inclusive energy transitions - Reduces environmental and health risks in marginalised communities - Supports inclusive energy access and

			human health, and social equity, especially for marginalised and vulnerable populations, by restructuring fossil fuel subsidies. Furthermore, the strategy also supports inclusive energy access by reallocating funding to assist energy efficiency and renewable energy projects that help marginalised populations, such as women and disadvantaged groups. In addition, moving away from fossil fuel subsidies opens doors for economic empowerment and job development, promoting a more just and sustainable energy transition.		empowerment for underserved populations - Fosters job creation and economic opportunities in renewable energy and energy efficiency sectors - Promotes a fair and equitable transition to sustainable energy for all members of society
Electric Vehicle (EV) Adoption	Increase EV penetration to 30% of total vehicle sales by 2030	Achieve 100% EV sales by 2060	Electric Vehicle Policy, Net Zero 2060 Strategy The Electric Vehicle (EV) Policy aims to encourage the use of electric vehicles in the transition to more environmentally friendly transportation systems and to lower greenhouse gas emissions. This policy acknowledges the significance of resolving social and	Reduced air pollution, improved public health, energy security	- Promotes gender-sensitive EV adoption policies, addresses EV affordability and accessibility - Promotes equitable access to electric vehicles and charging infrastructure, particularly in

			gender gaps in access to clean transportation options within the framework of Just Gender and Inclusive Transition. The policy helps improve public health and reduce air pollution by providing incentives for adopting electric vehicles, especially in metropolitan areas where vehicle emissions disproportionately affect people. Additionally, the switch to electric vehicles opens up prospects for economic empowerment and job development, particularly in the infrastructure production, installation, and maintenance of EVs. The EV Policy includes efforts to address obstacles to EV adoption that underprivileged communities confront, like restricted access to infrastructure for charging and financial restraints, in order to ensure inclusivity. The policy also encourages gender-responsive approaches by taking into account the unique requirements and preferences of women when planning and		underserved communities - Reduces air pollution and health risks in urban areas -Creates job opportunities and economic empowerment in EV-related industries - Improves access to clean transportation options for marginalized communities

			implementing EVs, including efforts to improve accessibility and cost.		
Carbon Pricing Implementation	Establish carbon pricing mechanisms to incentivise emission reductions	Implement robust carbon pricing policies to internalise externalities and drive decarbonisation	Carbon Pricing Mechanisms (Proposed), Net Zero 2060 Strategy	Revenue generation, emissions reductions, promotes low-carbon investments	- Considers gender impacts of pricing policies, ensures equitable distribution of benefits - Ensures carbon pricing policies are designed to benefit marginalised communities, addressing disparities in climate impacts and benefits

Targets	NDC 2021	Energy Transition and Net Zero Targets 2060	Related Policies	Benefits	Policy Relevance to JGIT
Greenhouse Gas (GHG) Emission Reduction	Reduce emissions by 20% unconditionally and up to 45% with international support by 2030	Achieve net zero emissions by 2060, focusing on transitioning to renewable energy sources.	National Climate Change Policy and Action Plan, Net Zero 2060 Strategy	Reduced climate change impacts, improved air quality, enhanced resilience	- Promotes reporting and rewarding of clean cooking stoves and renewable energy as part of gender-responsive adaptation measures - Improves public health outcomes and addresses health disparities
Renewable Energy Deployment	Increase renewable energy share to 30% of total energy mix by 2030	Achieve 100% renewable energy generation capacity by 2060	National Renewable Energy and Energy Efficiency Policy (NREEEP), Net Zero 2060 Strategy	Reduced reliance on fossil fuels, energy security, job creation	- Promotes women's participation in the renewable energy sector, fosters gender-inclusive energy access. - Facilitates access to renewable energy for marginalized communities, promotes inclusive energy access

Energy Efficiency Improvement	Improve energy efficiency by 30% by 2030	Implement energy efficiency measures across all sectors, aiming for maximum efficiency.	National Energy Policy (NEP), Net Zero 2060 Strategy, NREEEP. A comprehensive framework for switching to renewable energy sources and reaching net zero emissions by 2060 is outlined in the National Energy Policy (NEP) and the Net Zero 2060 Strategy. The NEP places a strong emphasis on the value of fair benefit distribution and comprehensive energy access, especially for	Lower energy costs, reduced emissions, enhanced competitiveness	- Encourages gender-sensitive energy efficiency programs, addresses energy access disparities - Supports energy efficiency programs that benefit low-income households and underserved communities - Addresses energy access disparities and promotes inclusive energy efficiency initiatives

			underprivileged and marginalized groups. The strategy attempts to offer opportunities for all facets of society to engage in and profit from the shift to clean energy through focused programs and investments in infrastructure for renewable energy. Furthermore, the Net Zero 2060 Strategy ensures that gender-responsive techniques are integrated into energy planning and		

			decision-making processes, thereby including the principles of Just Gender and Inclusive Transition. This entails encouraging women to work in the renewable energy industry, addressing the differences in access to energy across genders, and bringing gender perspectives into the creation and application of policies.		
Clean Energy Investment	Secure $50 billion in investment for clean energy projects by 2030	Mobilize significant investment in renewable energy infrastructure and technologies	National Renewable Energy and Energy Efficiency Policy (NREEEP), Net Zero 2060 Strategy In order to accomplish sustainability goals, the National Renewable Energy and Energy	Economic growth, job creation, improved energy access	- Supports women's entrepreneurship in clean energy, promotes gender-equitable investment strategies - Encourages investment in clean energy projects that

			Efficiency Policy (NREEEP) provides a strategy framework for encouraging the deployment of renewable energy sources and improvements in energy efficiency. The NREEEP integrates gender-responsive strategies for energy efficiency and renewable energy production within the framework of Just Gender and Inclusive Transition. By encouraging women's involvement in the renewable energy sector, guaranteeing equitable access to clean energy technologies and benefits, and incorporating gender		prioritize communities with limited access to energy resources - Promotes gender equality and women's empowerment in the renewable energy sector - Ensures equitable distribution of benefits from renewable energy deployment and energy efficiency improvements - Targets vulnerable communities for clean energy access and energy efficiency programs

			considerations into policy design and implementation, it acknowledges the significance of addressing gender disparities in access to energy resources and opportunities. Additionally, NREEEP promotes inclusivity by focusing energy efficiency and renewable energy deployment initiatives on underprivileged and marginalized populations. NREEEP promotes gender equality in energy planning and decision-making processes and helps ensure that everyone has access to clean, sustainable energy resources by placing a		

			high priority on social equity and inclusion. This helps create a fair and equitable transition to a low-carbon economy.		
Fossil Fuel Subsidy Reform	Phase out fossil fuel subsidies and redirect resources to clean energy initiatives	Eliminate fossil fuel subsidies and reallocate funds to support renewable energy transition	National Policy on Fossil Fuel Subsidy Reform, Net Zero 2060 Strategy The goal of the National Policy on Fossil Fuel Subsidy Reform is to gradually remove fossil fuel subsidies while reallocating funds to promote the switch to renewable energy sources and energy-saving initiatives. This policy acknowledges that social and gender imbalances made worse by fossil fuel	Fiscal savings, reduced emissions, enhanced sustainability	- Mitigates gendered impacts of subsidies ensure equitable energy access for marginalized groups - Redirects subsidies to support renewable energy projects in underserved areas, fostering inclusive energy transitions - Reduces environmental and health risks in marginalized communities - Supports inclusive energy access and empowerment for underserved populations

			subsidies must be addressed within the framework of Just Gender and Inclusive Transition. The policy aims to mitigate the negative effects of fossil fuel extraction and consumption on the environment, human health, and social equity, especially for marginalized and vulnerable populations, by restructuring fossil fuel subsidies. Furthermore, by reallocating funding to assist energy efficiency and renewable energy projects that help marginalized populations, such as women and disadvantaged groups, the strategy also		- Fosters job creation and economic opportunities in renewable energy and energy efficiency sectors - Promotes a fair and equitable transition to sustainable energy for all members of society

			supports inclusive energy access. In addition, the move away from subsidies for fossil fuels opens doors for economic empowerment and job development, which promotes a more just and sustainable energy transition.		
Electric Vehicle (EV) Adoption	Increase EV penetration to 30% of total vehicle sales by 2030	Achieve 100% EV sales by 2060	Electric Vehicle Policy, Net Zero 2060 Strategy The goal of the Electric Vehicle (EV) Policy is to encourage the use of electric vehicles in the transition to more environmentally friendly transportation systems and to lower greenhouse gas emissions. This policy acknowledges the significance of resolving social and	Reduced air pollution, improved public health, energy security	- Promotes gender-sensitive EV adoption policies, addresses EV affordability and accessibility - Promotes equitable access to electric vehicles and charging infrastructure, particularly in underserved communities - Reduces air pollution and health risks in urban areas

			gender gaps in access to clean transportation options within the framework of Just Gender and Inclusive Transition. The policy helps to improve public health and reduce air pollution by providing incentives for the adoption of electric vehicles, especially in metropolitan areas where vehicle emissions disproportionately affect people. Additionally, the switch to electric vehicles opens up prospects for economic empowerment and job development, particularly in the infrastructure production, installation,		-Creates job opportunities and economic empowerment in EV-related industries - Improves access to clean transportation options for marginalized communities

			and maintenance of EVs. The EV Policy includes efforts to address obstacles to EV adoption that underprivileged communities confront, like restricted access to infrastructure for charging and financial restraints, in order to ensure inclusivity. The policy also encourages gender-responsive approaches by taking into account the unique requirements and preferences of women when planning and implementing EVs, including efforts to improve accessibility and cost.		

Carbon Pricing Implementation	Establish carbon pricing mechanisms to incentivize emission reductions	Implement robust carbon pricing policies to internalize externalities and drive decarbonization	Carbon Pricing Mechanisms (Proposed), Net Zero 2060 Strategy	Revenue generation, emissions reductions, promotes low-carbon investments	- Considers gender impacts of pricing policies, ensures equitable distribution of benefits - Ensures carbon pricing policies are designed to benefit marginalized communities, addressing disparities in climate impacts and benefits

Table 12: Environmental, Social, and Economic Impacts and JGIT Relevance of the Policies

O&G policies	Environmental Impacts:	Social Impacts:	Economic Impacts:	JGIT Relevance
Nigeria Gas Master Plan	• The NGMP has had several environmental impacts. On the positive side, it has aimed to reduce gas flaring, which has been a significant environmental concern in Nigeria. By increasing the utilization of associated gas for power generation and industrial use, the plan has led to reduced gas flaring, contributing to a decrease in greenhouse gas emissions and less pollution of the local environment. However, the development of gas infrastructure has led to land use changes and deforestation, which can have adverse environmental consequences, particularly in ecologically sensitive areas.	• The Gas Master Plan has created social impacts by encouraging domestic gas utilization, which has increased access to cleaner and more reliable energy sources. This has improved the living conditions of communities with better access to electricity, as well as supported industries and job creation in the gas sector. On the downside, community engagement and benefits-sharing have sometimes faced challenges, leading to tensions and conflicts, particularly in the Niger Delta where gas infrastructure is located.	• Economically, the Gas Master Plan has helped diversify Nigeria's energy mix and reduce reliance on oil. The plan has contributed to economic growth by supporting industries, creating jobs, and increasing revenue through the domestic utilization of gas resources. Furthermore, it has attracted investment in the gas sector, both domestic and foreign, which can lead to economic benefits. However, economic benefits have not always been equitably distributed, and the potential for corruption in the gas	• The Gas Master Plan, while beneficial economically and environmentally, faces challenges in equitable distribution of benefits and community engagement, particularly in the Niger Delta region, highlighting the need for addressing social inequalities and fostering inclusive development.

			sector remains a concern.	
National Gas Flare Commercialization Programme	• The NGFCP is aimed at reducing gas flaring by monetizing the associated gas. This policy has led to positive environmental impacts by reducing greenhouse gas emissions and minimizing local environmental pollution. By encouraging operators to utilize and sell the gas they once flared, it promotes better environmental stewardship. However, the program's success largely depends on effective enforcement. More efforts need to be put in to achieve the level of enforcement that would foster positive change.	• The NGFCP's positive social impact lies in the potential for increased benefits to host communities through the monetization of flare gas avoided • Revenues generated from gas sales are expected to be invested in community development projects, thereby improving living conditions and infrastructure in these areas. However, ensuring equitable distribution and community engagement in these projects is crucial.	• Economically, the NGFCP can be beneficial in several ways. It helps create opportunities for investment in gas processing and utilization, which can lead to job creation and economic diversification. Furthermore, it can generate government revenue through royalties and taxes. However, the program's success depends on effective implementation and addressing challenges like infrastructure and market access. Thus far, since 2016, gas flare has reduced drastically as confirmed by Global Gas Flare Reduction	• The NGFCP holds potential for enhancing gender equality by fostering community development and infrastructure improvement through revenue generated from gas sales, but equitable distribution and community engagement are vital for realizing inclusive benefits.

			(GGFR) program of World Bank (GGFR,2024)	
Flare Gas Regulation	• Flare Gas Regulation focuses specifically on reducing gas flaring. The environmental impacts are predominantly positive, as it seeks to reduce greenhouse gas emissions, minimize air and water pollution, and mitigate environmental damage caused by flaring. This contributes to better air quality and environmental protection.	• Socially, this policy can have positive impacts by reducing the health risks and environmental hazards faced by communities living near flare sites. It also encourages local content development and job creation in the gas sector, which benefits local communities.	• Economically, reducing gas flaring can lead to economic benefits by encouraging investment in gas utilization projects and supporting the development of gas-related industries. It has the potential to create jobs, stimulate economic growth, and increase government revenue.	• Flare Gas Regulation, by reducing environmental hazards and health risks associated with gas flaring, contributes to creating safer and healthier communities, but ensuring local community participation and equitable benefits is essential for promoting inclusivity and social justice.
National Gas Policy	• The National Gas Policy promotes responsible resource management and utilization. By emphasizing environmental protection and sustainability in gas operations, it contributes to minimizing environmental degradation and pollution. It aligns with reducing gas	• This policy aims to improve access to natural gas for domestic use, which can enhance energy access and contribute to social development by providing cleaner and more reliable energy sources. It also encourages community	• Economically, the National Gas Policy aims to stimulate economic growth and diversification by expanding the gas sector. By attracting investment, supporting local industries, and promoting gas	• The National Gas Policy has implications for promoting gender equality and inclusivity by improving access to cleaner energy sources and fostering community engagement, but efforts are needed to ensure equitable participation and benefits for all stakeholders,

	flaring and adopting cleaner energy sources.	engagement and benefits-sharing, which can reduce tensions in gas-producing areas.	utilization, it has the potential to create jobs and generate revenue, reducing Nigeria's dependence on oil.	especially marginalized groups.
PIA	• The PIA is expected to introduce regulations and standards to govern oil and gas operations, with an emphasis on minimizing the environmental impact of these activities. Provisions related to environmental restoration and remediation may address issues such as oil spills and pollution.	• The act may underscore the importance of community engagement, ensuring that local communities benefit from petroleum activities in their regions. Additionally, the PIA might encourage the development of local content within the petroleum industry, fostering the growth of indigenous businesses and generating job opportunities for local residents.	• The PIA could influence the investment climate by providing a clear regulatory framework, and its provisions may define how revenues from petroleum activities are allocated, thereby impacting the national economy and government finances. Furthermore, the act may promote stakeholder collaboration, encouraging public-private partnerships and involving civil society organizations in monitoring and ensuring industry adherence to	• The PIA's emphasis on community engagement and local content development presents opportunities for inclusive participation and economic empowerment, but effective implementation and adherence to environmental and social standards are essential for ensuring equitable outcomes and mitigating adverse impacts, especially on marginalized groups.

			environmental and social standards.	
Guideline for Fugitive Methane Reduction	• The implementation of the methane guidelines in the plays a crucial role in mitigating environmental impacts. By enforcing measures such as improved leak detection and Repair Program (LDAR), emissions monitoring, and technological advancements, the guidelines contribute significantly to reducing methane emissions during oil and gas processes across the entire value join. The Guidelines will foster improved air quality and protecting ecosystems surrounding oil and gas operations.	• The Guideline has notable social implications. Adherence to the guidelines will improve air quality in the oil and gas regions, directly benefiting the well-being of nearby populations. Moreover, the involvement of local communities in the implementation process will fosters transparency, build trust, and empower stakeholders. Prioritizing the health and safety of communities, the guidelines will contribute to sustainable and socially responsible practices within the oil and gas industry.	• The economic impacts of implementing methane guidelines involve a dynamic interplay of costs and benefits. While the sector may incur initial costs to comply with the guidelines, the long-term benefits are substantial. • Adherence to the methane reduction measures will enhance operational efficiency, reduces resource waste, and positions companies as environmentally responsible players in the global market. The implementing the guidelines can attract investments, strengthen corporate reputation, and ensure the	• Implementation of the Methane Reduction Guidelines contributes to improving air quality and ensuring the health and safety of nearby communities, but ensuring community participation and transparency is crucial for fostering trust and promoting inclusive development in the oil and gas industry.

			long-term competitiveness of the oil and gas industry.	
Net Zero 2060 Goal	• Aims to achieve net zero greenhouse gas emissions by 2060, requiring a significant reduction in fossil fuel use, including in the oil and gas sector. • Shift towards renewable energy sources and low-carbon technologies will mitigate environmental impacts.	• Transition to cleaner energy sources will improve air quality and reduce health risks for communities, particularly those located near industrial sites and fossil fuel extraction areas. • Potential for job creation and economic diversification in renewable energy sectors, providing opportunities for local communities.	• Shift towards renewable energy sources and low-carbon technologies will drive innovation and stimulate investment in new industries and technologies. • Economic benefits from job creation, increased productivity, and reduced health care costs. • Transitioning to cleaner energy sources can enhance energy security and reduce dependence on volatile fossil fuel markets.	• The Net Zero 2060 Goal emphasizes transitioning to cleaner energy sources, which can have positive environmental and social impacts, including improved air quality and health benefits for communities. However, ensuring equitable access to opportunities in renewable energy sectors and mitigating potential economic disruptions for workers in the oil and gas industry are crucial for promoting inclusive transition and addressing social inequalities.
Energy Transition Plan	• Focuses on transitioning from fossil fuels to renewable energy sources, reducing environmental impacts associated with	• Transition to renewable energy sources improves energy access and affordability, particularly in	• Investment in renewable energy infrastructure creates new job opportunities and	The Energy Transition Plan presents opportunities for job creation and economic development in renewable energy sectors, but ensuring

	fossil fuel extraction, refining, and combustion. ● Promotes energy efficiency measures to reduce energy consumption and mitigate climate change.	rural and underserved areas. ● Potential for job creation and economic development in renewable energy sectors.	stimulates economic growth. ● Reduced energy costs and increased energy efficiency lead to long-term economic benefits.	equitable access to benefits and supporting affected workers in the oil and gas industry are essential for promoting inclusive transition and social cohesion.

2.2.1 Identification of Tracked Policies

Identifying and tracking oil and gas policies in Nigeria is essential for transparency, accountability, and effective governance. Leveraging government resources, industry associations, stakeholder engagement, legislative tracking, and research can provide valuable insights into the evolving policy landscape in Nigeria's oil and gas industry. Continuous monitoring and collaboration ensure policies align with national goals and environmental concerns.

Nigeria's oil and gas and other energy-related policies, such as renewables and energy efficiency, can be identified and tracked through:

1. **Policy Identification**:

The first step in tracking oil and gas policies is identifying them (as listed and discussed above). Nigeria's oil and gas sector includes exploration, production, refining, distribution, and environmental regulations. Policies can take multiple forms, such as laws, regulations, guidelines, and industry standards.

- **Government Documents**: Policies are often published in government documents, such as white papers, gazettes, and official websites. Government agencies, like the Ministry of Petroleum Resources, NUPRC, NMDPRA, and the NNPCL, regularly release policy documents.
- **Legislation**: Oil and gas policies may be embedded in legislative acts, including petroleum laws and environmental protection acts. The National Assembly enacts these laws and can be tracked through legislative processes.
- **Industry Guidelines**: Industry-specific organisations, like the NUPRC and the Nigerian Content Development and Monitoring Board (NCDMB), issue guidelines and regulations that impact the sector.

2. **Regular Monitoring and Updates**:

To keep abreast of policy changes and developments, regular monitoring is essential. This involves:

- **Stakeholders Consultations**: Engaging with industry experts, legal professionals, and stakeholders can help identify new policies or policy changes.

- **Legislative Tracking**: Tracking legislative processes at the National Assembly helps identify proposed bills related to the oil and gas sector.

3. **Government Transparency**:

Government transparency initiatives can aid in policy tracking:

- **Open Data Portals**: Governments often maintain open data portals that provide access to policy documents, regulatory information, and compliance data.
- **Freedom of Information Act**: Nigeria's Freedom of Information Act which allows citizens to request information from public institutions, including oil and gas policy documents can be an avenue of identifying sector data.

4. **Engagement with Industry Associations and Non-Governmental Organizations (NGOs)**:

Collaborating with industry associations and NGOs specializing in oil and gas can provide valuable insights into policy developments:

- **Chambers of Commerce**: Organizations like the Lagos Chamber of Commerce and Industry (LCCI) often publish reports and analyses on sector-specific policies.
- **PENGASSAN:** Petroleum and Natural Gas Senior Staff Association of Nigeria
- **NUPENG:** Nigeria Union of Petroleum and Natural Gas Workers
- **NLPGA:** Nigeria Liquefied Petroleum Gas Association
- **NGA:** Nigeria Gas Association
- **Environmental NGOs**: NGOs focusing on environmental issues may track and advocate for environmental protection and sustainability policies.

5. **Online Databases and Research**:

Access to online databases, research reports, and academic studies can help identify and understand oil and gas policies:

- **Research Institutions**: Academic institutions, think tanks and research centres may publish reports on oil and gas policy issues.
- **Oil and Gas Associations**: Associations like the Oil Producers Trade Section (OPTS) may publish policy-related reports and research.

3.0 Identifying Effects and Mapping the Causal Chain

3.1 Stakeholders' Main Concerns

Some of the concerns of stakeholders (Oil and Gas Policy makers regulators, Civil Society Groups, and Consumers of Oil and products) in the industry include loss of jobs, reduction in salaries, gross inflation thus impacting on the value of the salaries earned (Nigerian Tribune, 2023), and requirement to learn new skills as consequence of transition. There are also concerns from the stakeholders on the impact of the oil and gas processes on the environment, especially the hosting communities. Another concern includes the poor infrastructures of the host communities which implies that little or no revenue made from these hosting communities was spent on infrastructure.

In recent times, the removal of subsidy on the refined products has created a tensed atmosphere in the country with labour union (Nigeria Labour Congress) with membership around 4 million, calling for palliatives and increase in salary especially for the people in public service as well as private sector outside the oil and gas industry (NLC, 2024). While the subsidy removal was a decision taken by the President due to the inability of government to sustain it, the development was perceived to have highlighted the intersection between energy transition policies and the principles of a JT framework, emphasizing the need for inclusive strategies, transparent economic practices, and extensive social protection measures to ensure a fair and sustainable transition for all (Uwaegbulam, 2024). It is important to stress that there were no support mechanisms or programmes put in place to support the vulnerable people before or after the subsidy removal.

The typical consumer has been significantly impacted financially by the removal of subsidies on refined products, especially in terms of higher fuel prices. For example, fuel prices increased by as much as 215.95% when the removal was announced in May 2023. This has increased transportation expenses and put inflationary pressure on necessities. Low-income households are disproportionately impacted by this increase in living costs, which exacerbates their financial difficulties and lowers their purchasing power nationwide for vulnerable groups. As PMS and diesel remain the energy feedstock powering most of the SMEs, it has impacted the country's cost of goods and services (Devex, 2023).

Related Labour Unions in Oil and Gas Sector

NLC:

NLC was established in 1978 and has 42 industrial union affiliates. It was to be the only legal trade union federation; in 2005, the law was changed to permit other trade union federations to receive government recognition and senior staff unions to join the NLC. In 2016, about 25 affiliates left to form the ULC, but they rejoined the NLC in 2020. As of 2023, it had 43 affiliates, representing over 4,000,000 members.

The National Women's Commission is the national women's wing of NLC. It was created in 2003 to increase women's participation in the union's affairs. Demand for more recognition of working women began in 1983, which led to the establishment of women's wings in state capitals. As it stands presently, state branches of NLC have a women's committee and the chairperson of the committee is an automatic member of the administrative council of the state's NLC. On the national level, the head of the National Women's Commission is automatically a Vice-President of the NLC. The women's wing also engages in massive rallies and protests in support of women's rights and against gender-based violence against women (NJLIR,2013; Wikipedia, 2024).

NUPENG:

Nigeria Union of Petroleum and Natural Gas Workers (NUPENG) is one of the 46 industrial unions formerly affiliated to the NLC. NUPENG was registered as a Trade Union in 1978, though it held its inaugural conference in 1977 in Edo State. NUPENG is currently affiliated to the NLC. The Union is divided into four zones for ease of administration and operations: Lagos Zone, Warri Zone, Port Harcourt Zone and Kaduna Zone with Zonal offices. There are sub-zonal offices at Akwa Ibom State, Oyo State and a liaison office at Abuja (NUPENG, 2024).

PENGASSAN:

PENGASSAN is Petroleum and Natural Gas Senior Staff Association of Nigeria. It is a foremost union in the oil and gas sector in the country's economy that accounts for significant part of the country's exports and Federal Government's revenue, The association regulates and maintain all forms of labour and industrial relations activities between the various Managements of the Petroleum, Natural Gas, Petrochemicals and Allied Companies all over Nigeria and their Senior to Middle level Management Employees on the one part and between two or more individual members or Branches of the Association on the other part. It ensures effective participation and representation in policy formulation, legislation and decision processes of institutions, Petrochemical, Allied boards, agencies, and parastatals in the petroleum industry.

3.2 Impact Categories to be Assessed: Environmental, Economic, Social, and Gender

Despite the economic benefits of the oil and gas businesses to the nation, the operations threaten public health and the atmosphere by releasing greenhouse gases and oil spills into the environment. However, some oil and gas companies have already begun their steps towards curtailing GHG emissions and diversifying into other energy sources, especially the IOCs. For example, the solar lamps deployment for rural and peri-urban communities by TOTAL Energies and the deployment of various renewable technologies by Shell oil company (TOTAL Energies, 2024 & Shell, 2024)

I. Environmental impacts: Environmental impacts that occur mostly in the oil and gas industry are consequences of long-term habitat change within the oil and gas field, production activities (including facility component maintenance or replacement), waste management (e.g., produced water), noise (e.g., from well operations, compressor or pump stations, flare stack, vehicle, and equipment), the presence of workers, and potential spills.

i. Noise - Wells production, intermittent flaring gas, pumping and compressor, and vehicle traffic are the major noise sources during crude oil and natural gas production. Localised disruption to animals, recreationists, and inhabitants will be the main impacts of noise.
ii. Air quality
iii. Waste and Hazardous materials management
iv. Ecological resources

v. Water /groundwater resources

II. Economic: The total measure of economic effects of crude oil and natural gas production on the host nation or community especially for Nigeria could be best described by the impacts:

- direct,
- indirect and
- induced

The direct impacts are measured as the jobs (direct, indirect, and induced), labour income and value added to the oil and gas industry.

Indirect impacts are measured with the same yardstick but occurring across the supply chain due to crude oil and natural gas production activities. For example, laying of gas pipelines for gas transmission and distribution creates job opportunities for diggers, welders, truck owners who move pipelines, crane owners, food sellers and other indirect impacts due to oil and gas major activities. In similar way, transitioning to Renewable energy is expected to create jobs for other artisans who would be indirectly engaged in the industry.

Induced impacts are measured as jobs, labour income, and value addition resulting from household spending of labour and proprietor's income earned either directly or indirectly from crude oil and natural gas production activities. However, by integrating informal workers and demographic breakdowns into economic impact assessments, policymakers, government agencies, and industry stakeholders can develop targeted interventions and inclusive strategies to maximise the socio-economic benefits of oil and gas production in Nigeria.

Impacts on the Economy measurements:

- Taxes: Payments of taxes to the government (federal and hosting states) help to service government expenditure on education, health care and provision of infrastructures.
- Oil and Gas Royalties: The government share it receives from companies producing crude oil and natural gas.
- Employment and Job Creation: The industry employs high-paid and low-paid workers. The number of jobs created is classified into high-income, middle income and lower-income categories.

- Gross Domestic Product: This is tracked by the total change in value-added generated by direct spending.
- Provision of Foreign Exchange Reserves: Nigeria has the potential to earn and save foreign exchange in reserves, considering that crude oil and natural gas are sold in international markets.

III. Social

1. Value of properties located in proximity of oil and gas fields decreases as the number of wells increase.
2. Basic amenities in the environment might improve but this is subject to the interaction, engagement and agreement between the oil and gas companies and the hosting communities.
3. Improved health or quality of life is also subject to the engagement and interaction of the oil and gas companies' relationship with hosting communities and often time due to poor infrastructure, accessing quality health services in the O&G communities is often a rarity.
4. Equitable or equal opportunity for decent employment in new sectors developed as part of economic diversification for all. Equitable distribution of the transition's benefits and relevant measures taken to mitigate harms, especially for historically marginalised and vulnerable communities. Retraining for workers and provisions of social safety nets.

   In oil and gas production, meaningful and inclusive interaction with impacted stakeholders is a fundamental component of a JT paradigm. This engagement aims to empower affected communities through active participation in decision-making processes, maintaining accountability and transparency throughout the project lifecycle, and enhancing local communities' capacity for effective participation. Additionally, it strongly emphasises equity and inclusivity, giving all voices a chance to be acknowledged and heard. Establishing and maintaining long-term connections that promote trust, conversation, and continuous communication is a top priority for organisations, governments, and communities. The purpose of conflict resolution mechanisms is to handle disagreements and disputes impartially. Stakeholders may collaborate to produce sustainable outcomes that benefit all

communities impacted by oil and gas production, fostering openness, equity, and respect for the rights and interests of all parties involved by prioritising meaningful involvement.

IV. Gender

A range of social, economic, and health-related effects often characterises the impact of oil and gas operations on gender. Here are key aspects of how these operations can influence gender dynamics:

1. Employment Opportunities:
    - Occupational Segregation: Women may be disproportionately employed in lower-paying and less-skilled roles than men in the oil and gas sector.
    - Limited Representation: Women's representation in decision-making and leadership positions within the industry may be limited.
2. Health and Safety:
    - Health Risks: Women in communities near oil and gas operations may face health risks due to exposure to pollutants, which can affect maternal and reproductive health.
    - Safety Concerns: Security issues associated with oil and gas activities can pose safety concerns for women, impacting their mobility and overall well-being.
3. Gender-Based Violence:
    - Increased Vulnerability: The socio-economic changes associated with oil and gas projects can contribute to an increased risk of gender-based violence, including domestic violence and sexual harassment.
4. Community Participation:
    - Limited Participation: Women's participation in community decision-making processes related to oil and gas projects may be limited, affecting their ability to voice concerns and influence outcomes.
    - Information Access: Limited access to information about the impacts of projects can disproportionately affect women's ability to make informed decisions.

5. Livelihoods:

    - Disruption of Livelihoods: Environmental pollution impacting on air, water and sound impacts on farming and fishing may see their activities disrupted, impacting their economic independence.

6. Corporate Social Responsibility:

    - Opportunities for Empowerment: CSR initiatives that specifically address gender issues can contribute to the empowerment of women through education, healthcare, and economic opportunities. These activities have proved to be successful as implemented by both International Oil Companies (IOCs) and some national oil companies.

7. Community Health:

    - Maternal and Reproductive Health: Environmental pollution in the oil and gas communities can impact maternal and reproductive health, affecting women's well-being and their children's health.

The mid-term to long-term goal is to consider the following key aspects as it transitions from oil and gas to gas-based and finally to renewable energy sources. As part of the proposed solutions to end every form of discrimination against the female gender, most efforts towards the renewable energy industry have quite elaborate inclusion of women mainstreamed into training programmes. A typical example is the Women's Solar Installation Certification Course (WSICC): A three-week training For Nigerian Women promoted by USAID Power Africa programme (MSME Africa, 2024)

Table 13: Impact Categories to be Assessed: Environmental, Economic, Social, and Gender

Dimension	Group of Impacts	Impact Categories
Environmental Impacts	Noise	• Adverse per capita environmental impact of cities
	Air quality	• Climate change mitigation (SDG 13) • Environmental Impact (SDG 11)

	Waste and Hazardous materials management	• Sustainable Management of Chemicals and Waste (SDG 12) • Climate change mitigation (SDG 13) • Sustainable management of wastewater and hazardous chemicals (SDG 6) • Resource Efficiency (SDG 12)
	Ecological resources	• Marine Pollution Reduction (SDG 14) • Promotion of Sustainable Land Practices (SDG 15) • Halting Biodiversity Loss (SDG 15)
	Water /ground water resources	• Universal Access to Safe and Affordable Drinking Water (SDG 6) • Improvement of Water Quality (SDG 6) • Efficient Water Resource Management (SDG 6) • Marine Pollution Reduction (SDG 14)
	Community Health	• Health Systems Strengthening (SDG 3) • Access to Safe and Affordable Drinking Water (SDG 6) • Healthy Workforce
	Health and Safety	• Occupational Safety • Risk Assessment and Management • Access to Healthcare (SDG 3) • Health Hazard Management
Economic Impacts	Taxes	• Revenue Generation • Redistribution of Wealth • Economic Stimulation • Fiscal Policy Tool • Behavioural Change • Social Justice • Compliance and Enforcement
	Oil and Gas Royalties	• Promote Economic Growth (SDG 8) • Government Revenue • Infrastructure Development • Environmental Conservation

		• Local Community Development Income Inequality (SDG 10) • Equality of Opportunity (SDG 10)
	Employment and Job Creation	• Equal Opportunities (SDG 5) • Direct and Indirect Employment Opportunities • Youth Employment and Empowerment • Local Content Development
	Gross Domestic Product	• Promote Economic Growth (SDG 8) • Contribution to National GDP • Investment and Infrastructure Development
	Provision of Foreign Exchange Reserves	• Promote Economic Growth (SDG 8) • International Trade and Competitiveness • Debt Servicing • Currency Stability
Social Impacts		
	Value of properties	• Housing and Land Rights (SDG11) • Urban Resilience • Infrastructure Development • Property Appreciation • Inclusive Urbanization (SDG 11)
	Basic amenities in the environment	• Access to clean water • Air Quality • Land Use and Habitat Protection • Waste and Hazardous Materials Management • Ecological Resources • Community Health and Livelihoods • Improved Water Quality (SDG 6) • Access to Electricity and Development (SDG 7) • Social Welfare Programs
	Improved health or quality of life	• Health and Safety Measures • Access to health care services • Reduce Maternal Mortality (SDG 3)

		• Access to Safe Water (SDG 6)
	Corporate Social Responsibility	• Access to Basic Services (SDG 11) • Development of Infrastructure (SDG 9)
Gender Impacts	Employment Opportunities	• Local Employment • Skill development • Poverty Eradication (SDG 1) • Equal Economic Opportunities (SDG 5) • Equal Rights and Opportunities (SDG 5)
	Gender-Based Violence	• End Discrimination and Violence (SDG 5) • Equal Economic Opportunities • Income Inequality (SDG 10)
	Community Participation	• Stakeholder Engagement • Multi-stakeholder Partnerships (SDG 17)
	Livelihoods	• Reducing Multidimensional Poverty (SDG 1) • Livelihood Diversification • Social Infrastructure Development • Livelihood Protection • Equal Rights and Access to Resources (SDG 1)

The

Table 14 below highlights the selected measurable indicators that effectively capture the progress and impact of the policies. These indicators are chosen to provide clear insights based on relevance and significance into the environmental, social, and economic outcomes of the policies. The evaluation is done in such a way that each category reflects the effects of the policies, ensuring that they are encompassed within the assessment boundary.

Table 14: Selected Impact Categories from Relevant Oil and Gas and Energy Policies Assessed.

Dimension	Impact Categories	Relevant ?	Significant?	Included in the assessment boundary	Brief description
Environmental	Adverse per capita environmental impact of cities	Yes	Yes	Yes	This policy aims to reduce the adverse per capita environmental impact of the host communities and nearby cities by implementing sustainable urban planning and promoting green infrastructure initiatives, improving overall environmental quality for residents.
	Climate change mitigation	Yes	Yes	Yes	The policy is expected to reduce GHG emissions by adopting climate-smart agricultural practices and improved technology
	Sustainable Management of Chemicals and Waste	Yes	Yes	Yes	The policy is expected to manage waste disposal generated during oil and gas operations using more sustainable methods.
	Sustainable management of wastewater and hazardous chemicals	Yes	Yes	No	This Impact category is important; however, it was not explicitly discussed by stakeholders as it is believed that this could be managed directly by ministries in charge of water resources.
	Promotion of Sustainable Land Practices	Yes	Yes	No	The policy is expected to promote sustainable land practices to avoid community conflicts due to oil and gas operations
	Halting Biodiversity Loss	Yes	Yes	Yes	The policy is expected to promote and integrate conservation efforts, sustainable development

					practices, and effective governance to prevent biodiversity loss.
	Access to Safe and Affordable Drinking Water	Yes	Yes	Yes	This policy is expected to address the pressing need for access to safe and affordable drinking water in the host communities, mitigating the environmental and health risks posed by oil and gas operations while promoting public health and sustainable development.
	Occupational Safety	Yes	Yes	Yes	This policy emphasises occupational safety, implementing measures to protect workers' health and well-being, reducing workplace hazards, and ensuring compliance with safety regulations to prevent accidents and injuries.
Economic	Revenue Generation/ Redistribution of Wealth	Yes	Yes	Yes	The policies are expected to significantly increase income for members of the host communities through job creation, employment, and CSR activities.
	Promote Economic Growth	Yes	Yes	Yes	This policy is expected to drive economic growth in the host communities, creating jobs, developing infrastructure, and advancing socio-economic opportunities, leading to sustainable development and improved livelihoods.
	Local Community Development	Yes	Yes	Yes	This policy is expected to drive local community development by empowering communities with resources and capacity-building initiatives,

					improving living standards and fostering sustainable growth from the grassroots level upwards.
	Equality of Opportunity	Yes	Yes	Yes	This policy aims to ensure equality of opportunity by providing fair access to education, employment, and essential resources, enabling individuals of the host communities to realise their full potential regardless of background or circumstance.
	Direct and Indirect Employment Opportunities	Yes	Yes	Yes	This policy aims to create both direct and indirect employment opportunities, fostering economic growth and enhancing livelihoods within the host communities
	Youth Employment and Empowerment	Yes	Yes	Yes	This policy focuses on youth employment and empowerment, providing opportunities for skill development and entrepreneurship to drive sustainable economic growth and social advancement in the host communities.
Social	Housing and Land Rights	Yes	Yes	Yes	This policy prioritises housing and land rights, ensuring secure tenure and access to affordable housing and fostering community stability and social equity. It will prevent the use of agricultural and residential land for industrial activities.
	Infrastructure Development	Yes	Yes	Yes	This policy emphasises infrastructure development, aiming to build resilient and

					sustainable systems that support economic growth, improve living standards, and enhance connectivity within the host communities.
	Inclusive Urbanization	Yes	Yes	Yes	This policy advocates for inclusive urbanisation, ensuring equitable access to resources, services, and opportunities for all residents of the host communities, regardless of socioeconomic status or background. Thus, it fosters cohesive and sustainable urban communities.
	Access to clean water	Yes	Yes	Yes	This policy focuses on ensuring access to clean water, addressing water scarcity and pollution caused by oil and gas operations, and promoting sustainable management practices to safeguard public health and environmental integrity.
	Air Quality	Yes	Yes	Yes	This policy prioritises improving air quality by implementing measures to reduce pollution from various sources (gas flaring and methane emissions), safeguarding public health and environmental well-being in the industrial areas.
	Community Health and Livelihoods	Yes	Yes	Yes	This policy aims to enhance community health and livelihood by implementing initiatives promoting access to healthcare, sanitation, and economic opportunities, fostering well-being and resilience within local populations.

	Access to Electricity and Development	Yes	Yes	Yes	This policy prioritises access to electricity, facilitating development by providing reliable energy infrastructure and promoting electrification initiatives to enhance socio-economic opportunities and improve living standards within communities.
	Access to Basic Services	Yes	Yes	Yes	This policy prioritises access to basic services, ensuring all individuals have equitable access to essential services such as healthcare, education, sanitation, and clean water, fostering well-being and social inclusion within communities.
	Local Employment	Yes	Yes	Yes	This policy is expected to prioritise local employment, bolstering job creation initiatives within host communities to foster economic growth and enhance livelihood opportunities for youths and women.
Gender	Skill development	Yes	Yes	Yes	This policy aims to prioritise skill development by implementing initiatives that enhance education and training opportunities, equipping individuals, especially women, with the necessary skills for employment and economic empowerment.
	Poverty Eradication	Yes	Yes	Yes	It is expected to focus on poverty eradication by implementing comprehensive strategies that address root causes, promote economic empowerment, and provide social support to uplift

					marginalised populations and ensure their sustainable social integration.
	Equal Rights and Opportunities	Yes	Yes	Yes	This policy prioritizes equal rights and opportunities by promoting non-discrimination, ensuring access to education, employment, healthcare, and other essential services for all individuals, regardless of gender, ethnicity, religion, or socioeconomic status, fostering a more inclusive and equitable society.
	End Discrimination and Violence	Yes	Yes	Yes	This policy seeks to end discrimination and violence through comprehensive measures, promoting equality and protecting human rights for a more inclusive and peaceful society.
	Stakeholder Engagement	Yes	Yes	Yes	This policy promotes stakeholder engagement, fostering collaboration to address challenges and ensure inclusive decision-making for sustainable development.

3.3 Identification of Relevant Indicators for Tracking Impacts

The identification of relevant indicators for tracking impacts in the Nigerian Oil and Gas sector is a multifaceted process that demands careful consideration of the sector's intricate dynamics. Given the strategic importance of the industry to the nation's economy, the chosen indicators must encompass a comprehensive range of factors, including environmental sustainability, social responsibility, economic contributions, and operational efficiency as highlighted in **Table 15** below.

Table 15: Identified relevant indicators for tracking impacts in the energy sector

Impact Categories	Indicators
	Environmental Impact
Climate change mitigation (SDG 13)	• Measurement of emissions of GHGs such as CO2), CH4 and N2O resulting from human activities, particularly from industrial processes. • Net emissions of SLCPs like black carbon, organic carbon, CO, NMVOCs, sulphates etc.
Sustainable Management of Chemicals and Waste (SDG 12)	• Volume of chemicals used (e.g., litres, kilograms) per unit of production or operation (e.g., barrels of oil equivalent, cubic meters of gas). • Percentage reduction in the use of hazardous chemicals compared to baseline levels. • Number of spills or releases (count) or volume of chemicals spilt (e.g., litres, kilograms) per spill. • Volume of waste generated (e.g., cubic meters, metric tons) per unit of production or operation.
Promotion of Sustainable Land Practices (SDG 15)	• Total land area occupied by oil and gas facilities, including flow stations, pipelines, access roads, and ancillary infrastructure, measured in hectares (ha) or acres. • The percentage of disturbed land reclaimed or restored to a natural or productive state after oil and gas operations, assessed through satellite imagery and ground surveys.
Halting Biodiversity Loss (SDG 15)	• Assessment of species diversity and abundance in areas affected by oil and gas activities, including flora and fauna surveys and biodiversity indices. • Mapping critical habitats, ecological corridors, and biodiversity hotspots to identify priority areas for conservation and mitigation efforts, measured in hectares (ha) or square kilometres (km^2). • Identification and protection of ecologically sensitive areas (e.g., biodiversity hotspots, critical habitats) from oil and gas development through regulatory authorities
Access to Safe and Affordable Drinking Water (SDG 6)	• Percentage of drinking water samples meeting microbial safety standards measured through regular water quality testing.

	• Concentrations of chemical pollutants (e.g., heavy metals, pesticides, nitrates) in drinking water compared to regulatory limits through laboratory analysis. • Measurement of turbidity levels and visual clarity of drinking water • Volume of drinking water available per person per day, measured in litres or cubic meters, considering population size and water demand. • The percentage of the population served by piped water supply systems or other improved water sources, ensuring equitable access to safe drinking water across urban and rural areas. • The average distance travelled by households or individuals to access safe drinking water, measured in kilometres or minutes, considering the proximity to water points and transportation infrastructure.
Occupational Safety	• Number of work-related injuries and illnesses, including both non-fatal and fatal incidents. • Number of lost time injuries (resulting in days away from work) • Number of hazards identified and reported by workers or through workplace inspections. • Total hours spent on safety training for workers, including training and emergency response drills.
	Economic Impact
Revenue Generation/ Redistribution of Wealth	• Total royalty revenue from oil and gas production measured in USD per year. • Total income tax revenue from oil and gas companies measured in USD per year. • Total revenue from licensing fees for oil and gas exploration and production rights measured in USD per licensing round. • Total revenue from export taxes on oil and gas products measured in USD per volume of exports. • Reduction in fuel subsidies funded by oil and gas revenues measured by percentage reduction in subsidy expenditure.

	• Investment in education and training programs funded by oil and gas revenues measured in USD per program. • Expenditure on social welfare programs funded by oil and gas revenues measured in USD per program area (e.g., education, healthcare, infrastructure) • Allocation of funds to regional development projects in oil-producing areas measured in USD per region. • Total revenue from environmental taxes or levies on oil and gas activities measured in USD per year. • Fines imposed on oil and gas companies for flaring associated gas during production measured in USD per amount of gas flared.
Promote Economic Growth (SDG 8)	• Total revenue generated from oil and gas production and export measured in USD per annum. • Total foreign direct investment (FDI) and domestic investment attracted to the oil and gas sector measured in USD per year. • Total investment in oil and gas infrastructure development, including pipelines, refineries, and terminals measured in USD per year. • Number of direct jobs created in the oil and gas sector measured in full-time equivalents (FTEs). • Number of indirect jobs created in related industries supported by the oil and gas sector measured in FTEs.
Local Community Development (SDG 10)	• Total funds allocated to community development projects from oil and gas revenues measured in USD per year. • Percentage of procurement spending directed to local businesses and suppliers within host communities compared to total project expenditure. • Total expenditure on social investment programs, including education, healthcare, infrastructure, and livelihood support, in local communities measured in USD per year.

	• Total investment in community infrastructure projects, such as schools, hospitals, roads, and water supply systems, funded by oil and gas companies measured in USD per year. • Percentage of workforce hired from local communities in oil and gas projects compared to total project workforce. • Percentage of workforce hired from communities for renewable energy projects
Equality of Opportunity (SDG 10, SDG 5)	• The percentage of local community members, disaggregated by gender, ethnicity, socio-economic background, etc., benefiting from economic opportunities generated by the oil and gas sector. • Total investment in programs that promote equality of opportunity, including gender equality, minority inclusion, and social inclusion initiatives, measured in USD per year. • Percentage of female representation in new transition sectors including technical and leadership positions, compared to the overall workforce composition.
	Social Impact
Housing and Land Rights (SDG 11)	• Total funds allocated to community housing development projects from oil and gas revenues per year. • Total expenditure on land acquisition and compensation for oil and gas projects per project. • Total investment in infrastructure projects related to housing and land development, including roads, utilities, and community facilities, to support the resettlement and rehabilitation of affected populations measured in USD per year.
Inclusive Urbanization (SDG 11)	• Total investment in urban infrastructure development projects within oil and gas urban areas per year. • Total value of urban infrastructure projects developed through public-private partnerships

Access to clean water (SDG 6)	• Total investment in water infrastructure projects (water treatment plants, distribution networks, and sanitation facilities) within oil and gas operational areas – including production, refining, pipeline network areas per year. • Allocation of funds from oil and gas revenues to community water projects. • Percentage of the population within oil and gas operational areas with access to clean drinking water from improved water sources, such as piped water, boreholes, and protected wells.
Air Quality (SDGs 11 and 12)	• Average concentration of PM2.5 and PM10 particles in micrograms per cubic meter (μg/m³) measured over a specified time period (e.g., annually) across the country. • Average concentration of sulphur dioxide in parts per billion (ppb) measured over a specified time period (e.g., monthly) in all areas across Nigeria. • Average concentration of nitrogen dioxide in parts per billion (ppb) measured over a specified time period (e.g., daily). • Total volume of air pollutants emitted, including particulate matter, sulphur dioxide, nitrogen oxides, volatile organic compounds (VOCs), and other hazardous air pollutants, measured in tons per year with focus more on oil and gas operations but also on other areas across the country.
Community Health and Livelihoods (Maternal and Child mortality rates)	• Percentage of communities within oil and gas operational areas with access to primary healthcare facilities (maternal and child welfare) within a 5-kilometer radius • Ratio of healthcare professionals (doctors, nurses, midwives) to population within oil and gas operational areas • Percentage of children under five years old within oil and gas operational areas who have received full immunization according to national vaccination schedules. • Number of health literacy programs conducted annually in oil and gas operational areas, targeting at least four programs per year.

	• Percentage of local people with health insurance plan in oil and gas communities and other rural locations where renewable energy technologies are installed.
Access to Electricity and Development (SDG 7)	• Percentage of households within oil and gas operational areas with access to electricity from the grid or off-grid sources, such as solar panels or mini-grids. • Percentage of households connected to the electricity grid or off-grid systems, measured annually. • Average electricity consumption per capita within oil and gas operational areas, measured in kilowatt-hours (kWh) per year. • Average frequency and duration of power outages experienced by households and businesses within oil and gas operational areas, measured in hours per year. • Percentage of commercial and industrial establishments within oil and gas operational areas connected to reliable electricity supply, facilitating economic activities and job creation.
Access to Basic Services (SDG 11)	• Percentage of school-age children within oil and gas operational areas enrolled in formal education programs, including primary, secondary, and vocational education. • Percentage of households within oil and gas operational areas living in adequate housing conditions, including access to durable shelter, basic amenities, and security of tenure. • Availability of public facilities and amenities, such as community centers, markets, recreational areas, and emergency services, to support social interaction, economic activities, and disaster resilience.
	Gender Impact
Poverty Eradication (SDG 1)	• Average annual income per capita of households within oil and gas operational areas.

	• Percentage of working-age population (15-64 years) employed within oil and gas operational areas, measured annually. • Percentage of eligible households receiving social assistance benefits, such as cash transfers, food aid, and subsidized healthcare.
Equal Rights and Opportunities (SDG 5)	• Percentage of male and female employees transitioned to the new renewable energy sectors, measured across different job categories and hierarchical levels. • Representation of diverse ethnic groups in the workforce, measured as the percentage of employees from minority or indigenous communities. • Numbers of people with disability employed in the new clean/renewable energy sectors
End Discrimination and Violence (SDG 5)	• Percentage of employees and contractors who participate in training sessions focused on preventing discrimination, harassment, and violence in the workplace across all industries and sectors. • Annual count of reported incidents of discrimination, harassment, or violence within the workplace or project areas

4.0 Evaluation of Impact Assessment Approaches and Selection of Best Approach

Evaluating the impact assessment approaches and selecting the best approach for Just and gender inclusive transition within the oil and gas sector in Nigeria is a complex and critical undertaking.

Historically, the oil and gas sector in Nigeria has been dominated by a male workforce. This has resulted in gender disparities in employment, compensation, and career advancement opportunities. However, there has been a growing recognition of the importance of gender diversity and inclusivity in this industry, driven by international norms, corporate social responsibility, and national policy initiatives. Nigeria has made efforts to promote gender equality and empowerment through policies and initiatives, including the National Gender Policy and the National Policy on Women which commits Nigeria to a bolder and more ambitious vision for gender equality and the empowerment of all children, adolescents, and women (Vision Spring Initiatives, 2023). Nevertheless, achieving gender equality within the oil and gas sector remains a significant challenge due to the perceived risks involved in the job. However, the National Gender Policy and National Policy on Women are policies highly significant with JGIT and other economic sectors as they advocate for equality even as the sector undergoes transition process.

To evaluate the impact assessment approaches for gender transition in the Nigerian oil and gas sector, it's essential to consider various models and methods. Several approaches can be applied to assess the impact of initiatives that support a just and gender-inclusive transition in this sector:

1. **Social Impact Assessment**: This approach evaluates the social consequences of energy transition on gender inclusion, equity etc. It focuses on aspects such as employment, work environment, and community relations. It considers the benefits and drawbacks of gender diversity in the workforce and how these changes affect the local communities.
2. **Economic Impact Assessment**: This method examines the financial implications of gender transition, assessing whether it results in cost savings or increased profitability. It may involve analysing pay equity, job satisfaction, and productivity.

3. **Legislative and Policy Analysis**: Evaluating existing laws and policies related to gender equality and identifying gaps or areas that require improvement. This analysis can help ensure that gender transition initiatives align with legal frameworks n objectives.
4. **Stakeholder Engagement and Public Consultation**: Involving various stakeholders, including employees, communities, government bodies, and non-governmental organizations, to gather their input and perspectives on gender transition within the sector.
5. **Gender Mainstreaming and Inclusivity Audits**: Assessing the extent to which gender considerations are integrated into all aspects of the oil and gas industry, from employment practices to community engagement.
6. **Comparative Analysis**: Examining the experiences of other countries or regions that have successfully implemented gender transition initiatives in the energy sector and determining the lessons that can be applied in the Nigerian context.

In selecting the best approach for gender transition in the Nigerian oil and gas sector, a multi-faceted approach may be necessary. Below are several considerations for choosing the most suitable approach:

1. **Contextual Relevance**: The selected approach should align with the specific challenges and opportunities in Nigeria's oil and gas sector. It will be tailored to address the industry's unique dynamics, such as cultural norms, legal frameworks, and the structure of the sector.
2. **Measurability**: The approach will be capable of quantitatively and qualitatively measuring the impact of gender transition initiatives. This involves defining clear metrics and indicators to assess the outcomes.
3. **Inclusivity**: This would engage a broad range of stakeholders, including marginalized groups, prioritizing women, CSOs supporting women's empowerment and equity to ensure that the gender transition initiatives are inclusive and responsive to the diverse needs of the workforce and communities.
4. **Alignment with National Policies**: This approach would be in harmony with national policies and frameworks for gender equality, ensuring that it complements broader gender empowerment objectives.

5. **Capacity Building**: It will encompass capacity building and training programs to equip the workforce with the necessary skills and awareness to support gender transition.
6. **Sustainability**: The approach should consider the long-term sustainability of gender transition initiatives, ensuring that they result in lasting change within the sector.

4.1 Description of Historical and or Possible models, methods, and Projections for Nigeria

The trajectory of Nigeria's oil and gas sector has been significantly influenced by historical economic planning models and methods. Since gaining independence in 1960, the country has navigated various National Development Plans, outlining strategies for the oil and gas industry's role in economic development. These plans initially aimed at maximizing the potential of oil resources, incorporating initiatives for infrastructure development and industrialization. However, the implementation of these plans faced challenges, and external factors, particularly the volatility of global oil prices, introduced uncertainties.

The discovery of oil in the 1950s marked a transformative moment, making Nigeria a major oil exporter and shifting the economic landscape. The historical model of heavy reliance on oil revenue underscored the vulnerabilities associated with market fluctuations. This underscored the imperative for diversification within the sector, recognizing the need to reduce dependence on oil as a single revenue source and fostering resilience against global economic uncertainties.

In the 1980s, Structural Adjustment Programs (SAP) were implemented in response to economic challenges. While SAP aimed at addressing imbalances, its impact on Nigeria's oil and gas sector was profound. Liberalization policies and currency devaluation influenced the sector's dynamics, illustrating the intricate challenges of implementing reform programs within the industry.

Possible Models and Projections for Nigeria's Oil and Gas Sector:

Looking forward, the potential models and projections for Nigeria's oil and gas sector demand strategic responses to current challenges and emerging global trends. Diversification emerges as a pivotal consideration, emphasizing a shift from oil dependency towards a diversified and resilient energy portfolio. This involves strategic investments in renewable energy sources like solar and wind, coupled with initiatives to develop the gas sector for both domestic consumption and export markets.

Inclusivity within the sector becomes a crucial focus, presenting a potential model cantered on gender diversity and equal opportunities. Implementing policies that foster an inclusive work environment, acknowledging the contributions of all genders, and promoting diversity across all levels of the industry can enhance organizational effectiveness and innovation.

Green growth and sustainable development present a model in alignment with global efforts towards environmental responsibility. The oil and gas sector can explore environmentally sustainable practices, such as reducing carbon emissions, incorporating cleaner technologies, and investing in research and development for green energy solutions.

The technology and innovation-driven growth model is tailored to the oil and gas sector, emphasizing the adoption of digital technologies and innovation. This involves investing in smart technologies for exploration, production, and distribution, as well as leveraging data analytics for efficient decision-making and operational excellence.

Projections for Nigeria's Oil and Gas Sector:

Projections for Nigeria's oil and gas sector include expectations of continued population growth, urbanization, and increased energy demand. The sector is poised to witness ongoing efforts to diversify the economy and reduce dependency on oil revenue. The adoption of digital technologies is anticipated to redefine operational processes within the industry, improving efficiency, reducing costs, and enhancing overall productivity.

The NCCC, DCC and the Energy Transition Office (ETO), Coordination team in the Vice President’s office are expected to be key actors monitoring the performance of all sectors in terms of mitigation action plans.

It is anticipated that NCCC, DCC and ETO will help to guide the industry's future trajectory, with a focus on environmental responsibility, social inclusivity, and economic prosperity. Initiatives to reduce the carbon footprint of the sector, promote community engagement, and ensure responsible resource management will likely be prioritized. Additionally, the sector may witness increased collaboration with renewable energy providers and advancements in technologies that support a more sustainable energy future.

4.2 Selection and Elaboration of why the Selected Approach is Preferred.

Having considered the points discussed above, a comprehensive approach that combines Social Impact Assessment and Stakeholder Engagement and Public Consultation is recommended as the preferred approach. Discussed below is why this approach is preferred.

1. **Contextual Relevance:** The Nigerian oil and gas sector operates within a distinct cultural, social, and economic context. A Social Impact Assessment approach, combined with Stakeholder Engagement and Public Consultation, allows for a nuanced understanding of these contextual factors. It considers the existing gender disparities and social dynamics, providing a clear picture of the challenges that women face in this male-dominated industry. This approach is well-suited to address the specific needs and realities of the Nigerian workforce.

2. **Measurability:** Social Impact Assessment provides a structured framework for measuring the tangible outcomes of gender transition initiatives. It allows for the development of clear metrics and indicators to assess the impact on employment, workplace culture, and community relations. Measuring these outcomes is crucial for monitoring progress and ensuring that gender transition efforts are effective.

3. **Inclusivity:** The Stakeholder Engagement and Public Consultation component of this approach ensures that the voices and perspectives of various stakeholders, including employees, local communities, government bodies, and non-governmental organizations, are considered. Inclusivity is vital for the success of gender transition initiatives, as it helps identify the diverse needs and concerns of different groups and ensures that the approach is responsive to these concerns.

4. **Alignment with National Policies:** Nigeria has established national policies and frameworks for gender equality, including the National Gender Policy and the National Policy on Women. The selected approach aligns with these policies, reinforcing the importance of integrating gender mainstreaming and inclusivity in the oil and gas sector. This alignment ensures that gender transition initiatives are consistent with the broader gender empowerment objectives of the country.

5. Capacity Building: Both the Social Impact Assessment and Stakeholder Engagement and Public Consultation components focus on capacity building and training. This is essential for equipping the workforce with the necessary skills and awareness to support gender transition

effectively. Training programs can help raise awareness about gender issues and promote a more inclusive and diverse workplace culture.

6. Sustainability: The preferred approach emphasizes long-term sustainability. Assessing social impacts and engaging stakeholders creates a foundation for lasting change within the Nigerian oil and gas sector. Sustainability is not only about achieving short-term goals but also ensuring that gender equality becomes an integral part of the sector's culture and operations.

It should be stressed that the combination of Social Impact Assessment and Stakeholder Engagement and Public Consultation is the preferred approach for gender transition in the Nigerian oil and gas sector due to its contextual relevance, measurability, inclusivity, alignment with national policies, capacity building, and focus on sustainability. By implementing this approach, the industry can take significant steps toward achieving gender equality, promoting diversity, and creating a more inclusive and equitable work environment. It also allows for continuous monitoring and adaptation to ensure the effectiveness of gender transition initiatives as they evolve over time.

5.0 Development and Implementation of Impact Assessment Methodology

Within Nigeria's oil and gas industry, the creation and application of an impact assessment methodology represent a methodical and organized process meant to thoroughly assess the possible impacts of policies, projects, or programs on a variety of dimensions, such as the environment, society, and economy. This customized approach is essential in a strategically significant industry, guaranteeing ethical and sustainable practices that meet the particular potential and difficulties of Nigeria's oil and gas sector.

In this situation, it is critical to start with a precise description of the goal and extent. Considering the importance of the oil and gas industry to Nigeria's economy, the goal may include socioeconomic development, environmental preservation, and effective resource use. The identification and active participation of a variety of stakeholders, including members of the public sector, governmental organizations, and local communities, becomes essential. Nigeria's distinct socioeconomic environment necessitates a complex strategy to guarantee representation from a range of viewpoints.

Following a thorough literature analysis that explores the resources, laws, and standards that are currently in place and are relevant to the oil and gas industry in Nigeria. Examining best practices and benchmarks that can direct the impact assessment procedure while taking the sector's history, legal structure, and socioeconomic dynamics into account is part of this.

Collecting information on the existing status of the environment, social structures, and economic conditions in places that are directly influenced by oil and gas operations is necessary to establish baseline conditions within the Nigerian context. This baseline, which considers the socioeconomic dynamics and environmental sensitivity common in the Nigerian context, is an essential point of reference for evaluating changes and repercussions across time.

The methodology that was developed after that is specific to the oil and gas industry in Nigeria and outlines important procedures, data gathering strategies, and analytical methodologies. The industry's particular difficulties, such as environmental degradation, community dislocation, and economic reliance on oil money, are considered when choosing impact categories and indicators.

In the Nigerian oil and gas industry, impact identification and prediction entails identifying possible effects—both positive and negative—by comprehending the direct and indirect consequences of projects or policies. The socioeconomic complexity of the surrounding

communities is included into this process, guaranteeing that the impact assessment is sensitive to cultural differences and takes the livelihoods of individuals who will be directly impacted into account.

The impact assessment and evaluation phase apply the developed methodology to assess identified impacts, with a keen focus on their significance against predetermined criteria or thresholds relevant to the Nigerian context. Subsequently, mitigation and enhancement measures are proposed to address adverse impacts and promote positive ones, acknowledging the need for sustainable development in the region. An action plan is devised to implement these measures during the implementation of oil and gas projects, ensuring tangible and timely outcomes.

During the reporting and documentation phase, a thorough impact assessment report customized for the Nigerian oil and gas industry is prepared. Stakeholders can easily understand the methodology, results, and conclusions presented in this paper. In a field that frequently touches on matters of national significance, such income production, environmental sustainability, and community well-being, open communication is essential.

After that, the impact assessment report is subjected to an external evaluation procedure by professionals and authorities who are knowledgeable about the oil and gas industry in Nigeria. This provides an extra degree of legitimacy and validity, which is in line with the requirement for comprehensive and unbiased evaluations in an area of significant public interest.

Continuous improvement remains an inherent aspect of the impact assessment methodology within the Nigerian oil and gas sector. Feedback and lessons learned from each assessment are systematically incorporated to refine and enhance the methodology, considering the evolving circumstances and emerging best practices specific to the industry in Nigeria. The refined methodology becomes an integral part of the decision-making process, guiding adjustments to policies or projects based on the assessment's findings, while aligning with the broader goals of transparency, accountability, and sustainability within the sector.

In the Nigerian setting, strong monitoring and assessment systems must be put in place to guarantee continued compliance. By monitoring the application of mitigation and enhancement actions, these techniques would provide a feedback loop that helps the impact assessment approach improve iteratively. To put it simply, an impact assessment approach that is specifically

designed for Nigeria's oil and gas industry will improve accountability, transparency, and the overall sustainability of projects, policies, and programs in this vital sector.

Response By Nigeria Labour Congress to ICAT Research

- **Energy**

Achieving high socio-economic growth requires sufficient energy to meet the needs of households, businesses, and industrial processes in a gender-responsive and socially inclusive manner. The energy sector is the second major contributor of GHG in Nigeria.

Producing adequate energy for the country's development needs and minimizing GHG emissions at the same time presents critical challenges to achieving high socio-economic growth in Nigeria. These will require improved investment, regulatory control and critical review of existing approaches, adoption of low-cost but efficient energy generation technologies, rapid and extensive transitions in energy, agricultural land, infrastructure, urban systems and overall lifestyle changes.

The balance of energy mix will also consider the impacts such choices may have on the rapidity of required transitions, socio-economic implications with regard to competing needs and technological implications. In addition, the adopted measures will have the potential to deliver a low carbon growth plan for Nigeria. The focus is to deliver clean and affordable energy to Nigeria's growing population and drive social development and economic prosperity. Such measures will also have the potential to deliver on national targets on power generation and energy access captured in national development policies and plans. The overall objective is to reduce greenhouse gas emissions mainly from the power sector.

Policy Measures

i. Expand the production and use of renewable energy, particularly solar and wind, both on-grid and off-grid.

ii. Promote energy efficiency and management activities that include new and innovative energy efficiency methodologies and techniques in power generation, including use of gas-fired power stations, as well as retrofitting buildings and other infrastructure.

iii. Reduce transmission and distribution losses.

iv. Facilitate full transition to clean cooking fuel.

v. Provide sustainable incentives and financial mechanisms to encourage and support the use of renewable sources of energy.

vi. Support cities in the country to undertake ambitious climate change mitigation actions.

Issues of Concern for Nigerian Workers

- Failure of the policy to stipulate measures to accelerate the decarbonisation processes especially through sustainable solutions that provide decent work and contribute to formalisation, negotiated with the social partners.

- Failure of the policy to prioritise energy poverty as a significant contributor to working poverty and as such as a critical concern and proffer ways of dealing with it.

- Failure of the policy to come clear on guarantees for an inclusive and well-managed JT away from fossil fuels particularly through:

1) Providing employment guarantees, 2) Transparent management of petroleum subsidies in ways that address energy poverty 3) Preventing energy profiteering, 4) Ensuring the protection of households against energy poverty, 5) Training workers in the heavy carbon energy sector with green skills that would help them find jobs in the green economy.

- Failure of the policy to guarantee the necessary levels of investment in social protection, skills and lifelong learning needed to ensure JT for workers who might lose their livelihood because of the current global consensus for transitioning from fossil fuel in order to achieve net zero emission by 2050.

- Failure of the policy to highlight the centrality of workers in the overall climate change and environmental engagements within the broader context of human and labour rights while fostering inclusive and active participation of trade unions in national climate policy formulation.

- Dearth of mitigation ambitions to create quality decent jobs, backed by JT measures.

- Failure of the policy recommendations to deliver on adaptation needs through robust social protection plans and funding mechanisms recognising the centrality of decent work opportunities and social protection not only as measures that enhance resilience of communities to future shocks, but also as means to address climate displacement drivers.

- Failure of the policy to recognise the mandate of UN processes outside the UNFCCC on JT, especially the role of the ILO as the recognised tripartite body and the ILO Guidelines on JT.

- Failure of the policy to make adequate provisions for the mainstreaming of international climate finance for developing countries and establishing accountability mechanisms for sustainable and “green” investments, to avoid greenwashing and ensure that all labour rights are respected, and all energy investments are truly climate friendly.

- Failure of the policy to provide mechanisms for Loss and Damage finance facility and for investment in JT.

- Failure of the policy to align the New Collective Quantified Goal (NCQG) with JT principles by promoting social dialogue and sufficient public funding throughout the climate finance cycle, including feasibility, implementation and evaluation especially as captured in the Silesia

- **Oil and Gas**

The Oil and Gas sector contributes up to 14% of the country’s GDP and is responsible for 95% of the foreign exchange earnings. It also contributes to 65% of the federal budget. The main GHG emissions in the sector are from gas flaring, fugitive methane emissions, on-site fuel use (upstream and midstream) and on-site fuel use from refineries. The combined contribution of flaring and venting to the environment is about 80% of emissions in the sector. The target is to reduce flaring down to less than 10% by the year 2020 and or end it completely by 2030.

Eliminating flaring by 2030 could save around 64 million tonnes of CO2 per year and have large development co-benefits. This target is achievable if the right legislation and strategies are implemented. The Nigerian Gas Flare Commercialization Programme (NGFCP) (2016), NGP (2017), Flare Gas (Prevention of Waste and Pollution) Regulation (2018) and the Petroleum Industry Roadmap as well as the NGMP contain indications to achieve the target.

Policy Measures

i. Pursue low-carbon transition for oil and gas companies in Nigeria.

ii. Support low-cost, technically feasible solutions to reduce methane emissions in oil and gas operations, including recovery and use of escaping gas.

iii. Incentivize the deployment of natural gas as Nigeria’s major fuel for power generation, industrialization, and domestic use, particularly cooking, towards stopping gas flaring.

iv. Facilitate sustainable regulatory frameworks and incentives, as well as financial mechanisms to end gas flaring by 2030.

v. Investment and use of smart technologies in oil refining.

vi. Reduce fugitive emissions in the sector.

Issues of Concern to Nigerian Workers

- Failure of the policy to prioritise occupational safety and health deficits in the energy sector in Nigeria especially in the oil and gas branches of the economy particularly with regards to an assessment of the health impact of gas flaring and oil pollution on oil workers and their communities.

- Failure of the policy to prioritise occupational safety and health in ways that guarantee assessment and treatment of workers in the oil and gas industry whose health are already impacted by greenhouse gas emission especially gas flaring and oil pollution. This is particularly important as the NNPC declares the gradual shut down of gas flaring operations without an audit of the health status of workers and members of communities who have been impacted by inhaling flared gases.

- We call for a health impact audit of oil workers in gas flaring sites irrespective of whether those sites have been de-commissioned, in the process of being de-commissioned or still in active operation.

- Failure of the policy to capture the need for the respect of workers' fundamental rights to freedom of association, freedom to organise and freedom to engage in collective bargaining processes through their elected trade union representatives.

- Failure of the policy to adopt social protection as a cardinal tool for transition particularly in ways that guarantee unemployment benefits for workers who may not be able to get new jobs in the green economy, assured pension for workers who may wish to retire, financial and technical support resources for workers who might wish to upskill or reskill in order to be job relevant in the green economy and healthcare cum social welfare for workers whose health are already impacted and might be impacted in the future especially as a result of climate change impact.

- Failure of the policy to demand for periodic job deficits assessment in the oil and gas industry to determine the population of workers in the industry who need new skills for a seamless transition to the green economy.

5.1.1 Define Assessment and Boundary

Assessment Definition: The purpose of the assessment is to carefully examine the impact of the identified categories justify their inclusion in the quantitative assessment boundary The main objective is to assess their influence on the oil and gas industry's overall sustainability, environmental compliance, gas usage, and decrease of gas flaring.

Boundary Definition: The evaluation encompassed Nigeria's whole oil and gas industry, paying particular attention to operations pertaining to gas extraction, use, and compliance with the regulatory framework established by the rules.

Table 16: Define Assessment and Boundary

Impact Categories	Assessment Boundary			
	Specific impact identified	Feasible to quantify?	Included in the quantitative assessment boundary	Justification for exclusions or other comments
Adverse per capita environmental impact of cities	• Increased Implementation of Sustainable Urban Planning Practices	Yes	No	Limited or Fragmented Data
	• Decreased Carbon Footprint Through Green Transportation Initiatives	Yes	Yes	Included
	• Increased Green Space and Urban Forestation to Mitigate Air Pollution	Yes	No	No reliable data available
	• Decreased Energy Consumption Through Energy-Efficient Buildings and Infrastructure	Yes	Yes	Included
Climate change mitigation	• Reduced Emissions from Flaring Operations	Yes	Yes	Included
	• Increased Efficiency in Production Processes	Yes	Yes	Included
	• Development of Low-Carbon Technologies	Yes	Yes	Included

	• Expansion of Renewable Energy Investments	Yes	Yes	Included
	• Improved Environmental Monitoring and Reporting Standards	Yes	Yes	Included
	• Enhanced Carbon Offsetting Initiatives	Yes	Yes	Included
	• Development of Climate Resilience Strategies	Yes	Yes	Included
Sustainable Management of Chemicals and Waste	• Reduction of Hazardous Chemical Usage	Yes	Yes	Included
	• Adoption of Recycling and Reuse Strategies	Yes	Yes	Included
	• Implementation of Safe Handling and Disposal Protocols	Yes	Yes	Included
	• Implementation of Pollution Prevention Measures	Yes	Yes	Included
Promotion of Sustainable Land Practices	• Restoration of Degraded Landscapes	Yes	No	No reliable data available
Halting Biodiversity Loss	• Protection of Critical Habitats and Ecosystems	Yes	No	No reliable data available

Access to Safe and Affordable Drinking Water	• Improvement of Water Quality Standards	Yes	No	No reliable data available
	• Implementation of Water Treatment Technologies	Yes	No	Limited Or Fragmented Data
	• Expansion of Drinking Water Infrastructure	Yes	No	Limited Or Fragmented Data
	• Reduction of Waterborne Diseases	Yes	No	Limited Or Fragmented Data
	• Affordability and Accessibility of Drinking Water Services	Yes	No	Limited Or Fragmented Data
Occupational Safety	• Increased Implementation of Workplace Safety Protocols	Yes	Yes	Included
	• Increased Provision of Personal Protective Equipment (PPE)	Yes	Yes	Included
	• Increased Training and Education on Occupational Hazards	Yes	Yes	Included
	• Increased Implementation of Emergency Response Plans	Yes	Yes	Included
	• Increased Enforcement of Health and Safety Regulations	Yes	No	Limited or Fragmented Data

	• Increased Regular Safety Inspections and Audits	Yes	Yes	Included
	• Increased Promotion of Safety Culture and Employee Engagement	Yes	No	Limited or Fragmented Data
Revenue Generation/ Redistribution of Wealth	• Increased Revenue Generation from Oil and Gas Activities	Yes	Yes	Included
	• Redistribution of Wealth Through Social Programs and Infrastructure Development	Yes	Yes	Included
	• Investment in Education and Skills Development Programs	Yes	No	No reliable data
Promote Economic Growth	• Increased Investment in Infrastructure Development	Yes	Yes	Included
	• Promotion of Entrepreneurship and Innovation	Yes	No	No reliable data
	• Support for Small and Medium Enterprises (SMEs)	Yes	No	No reliable data
Local Community Development	• Increased Investment in Community Infrastructure Projects	Yes	Yes	Included
	• Promotion of Local Employment Opportunities	Yes	Yes	Included

	• Implementation of Skills Development and Training Programs	Yes	Yes	Included
Equality of Opportunity	• Increased Access to Education and Training Programs	Yes	Yes	Included
	• Promotion of Gender Equality and Women Empowerment Initiatives	Yes	Yes	Included
Direct and Indirect Employment Opportunities	• Increased Job Creation in the Oil and Gas Sector	Yes	No	Limited or Fragmented Data
	• Expansion of Employment Opportunities in Related Industries (e.g., Construction, Services)	Yes	No	No reliable data
	• Promotion of Local Hiring Practices and Workforce Development Programs	Yes	No	No reliable data
	• Enhancement of Skills Training and Apprenticeship Programs	Yes	Yes	Included
	• Promotion of Entrepreneurship and Self-Employment Opportunities	Yes	No	No reliable data
Access to clean water	• Increased Investment in Water Treatment Infrastructure	Yes	No	No reliable data
	• Expansion of Water Distribution Networks	Yes	Yes	Included

	• Promotion of Water Conservation Practices	Yes	No	No reliable data
Air Quality	• Reduced Emissions from Industrial Processes	Yes	Yes	Included
	• Promotion of Clean Energy Technologies	Yes	Yes	Included
	• Implementation of Air Quality Monitoring and Reporting Systems	Yes	No	No reliable data
	• Reduction of Vehicle Emissions through Transportation Policies	Yes	No	No reliable data
	• Enhancement of Public Awareness and Education on Air Quality Issues	Yes	Yes	Included
Community Health and Livelihoods	• Increased Access to Healthcare Services and Facilities	Yes	Yes	Included
Access to Electricity and Development	• Increased Investment in Electricity Infrastructure	Yes	Yes	Included
	• Expansion of Electricity Generation Capacity	Yes	Yes	Included
	• Promotion of Renewable Energy Sources	Yes	Yes	Included

	• Enhancement of Electricity Distribution Networks	Yes	Yes	Included
	• Improvement of Access to Electricity in Rural and Remote Areas	Yes	Yes	Included
	• Implementation of Energy Efficiency Measures and Demand-Side Management Programs	Yes	Yes	Included
Local Employment	• Increased Local Employment Opportunities	Yes	Yes	Included
	• Decreased Reliance on External Labor Sources	Yes	No	No reliable data
	• Increased Job Creation in Local Communities	Yes	Yes	Included
	• Decreased Unemployment Rates in Local Areas	Yes	Yes	Included
Skill development	• Increased Investment in Skill Development Programs	Yes	Yes	Included
	• Decreased Skills Gaps in the Workforce	Yes	Yes	Included
	• Increased Access to Vocational Training Opportunities	Yes	Yes	Included

	• Decreased Unemployment Due to Lack of Skills	Yes	Yes	Included
	• Decreased Dependence on Imported Skills	Yes	Yes	Included
	• Increased Innovation and Productivity Through Skilled Workforce	Yes	Yes	Included
Poverty Eradication	• Increased Access to Basic Services for vulnerable Communities	Yes	Yes	Included
	• Decreased Poverty Rates Through Economic Empowerment Programs	Yes	No	No reliable data
	• Increased Investment in Education and Skills Development for Poverty Alleviation	Yes	No	No reliable data
Equal Rights and Opportunities	• Increased Protection of Civil Rights and Liberties	Yes	No	No reliable data
	• Decreased Discrimination in Employment and Education	Yes	No	No reliable data
	• Decreased Gender Pay Gap and Promotion Disparities	Yes	Yes	Included
	• Increased Representation of Minority Groups in Decision-Making Positions	Yes	Yes	Included

End Discrimination and Violence	• Increased Awareness and Education on Human Rights and Non-Discrimination	Yes	No	No reliable data
	• Decreased Incidents of Discrimination in Employment, Education, and Public Services	Yes	No	No reliable data
	• Decreased Gender-Based Violence and Harassment	Yes	Yes	Included

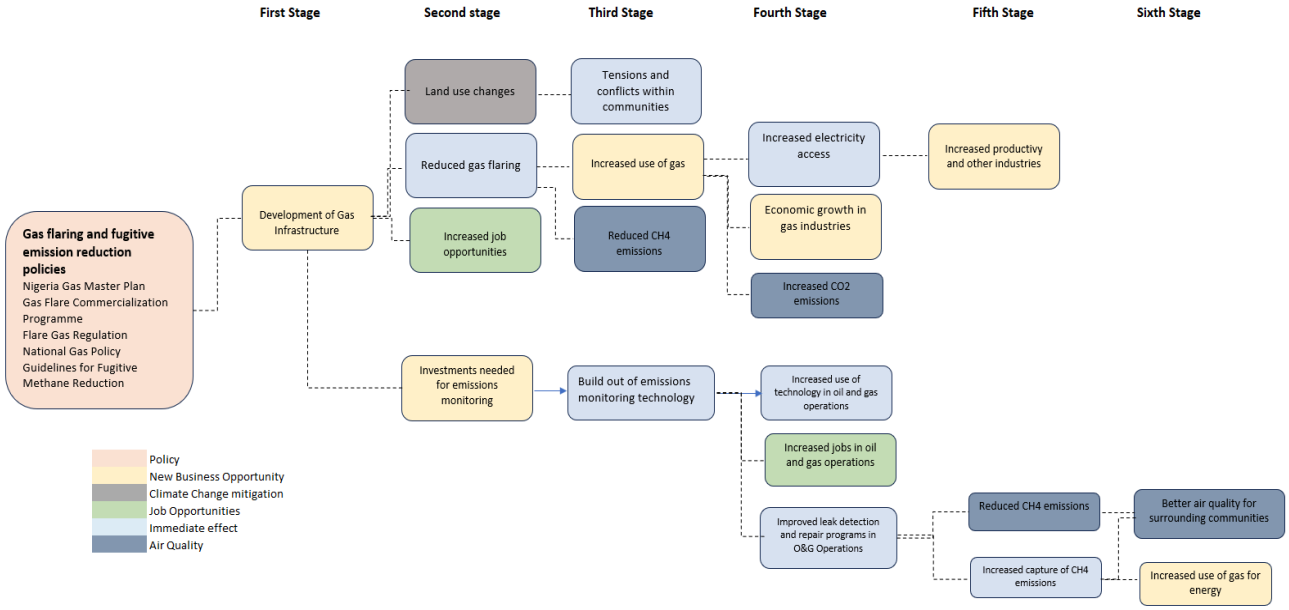
5.1.2 Identification of Data Collection Needs

Policy-Relevant Data: Gathering detailed information on the extent of gas flaring, projects involving the use of gas, metrics for environmental compliance, and industry conformity to the directives presented in the PIA 2021, the NGMP, the NGFCP, the Flare Gas Regulation, the NGP, the Guidelines for Fugitive Methane Reduction, and the Flare Gas Regulation.

Stakeholder Input: Engaging with regulatory bodies, industry stakeholders, environmental agencies, and local communities to gather comprehensive data on policy implementation and industry practices.

The information collated was used in developing the casual chain map.

Figure 4: Map of the Causal Chain for Selected Oil and Gas Policies in Nigeria



Causal Chain Map:

The NGMP, NGFCP, Flare Gas Regulation, NGP, and Guidelines for Fugitive Methane Reduction are the components of the country's Gas Flaring Reduction Policies. Taken together, they create a complex and interrelated framework that outlines the country's strategic approach to resource optimization, environmental stewardship, and international sustainability commitments in the oil and gas industry. The NGMP's implementation marks the beginning of the causal chain connecting these measures.

The cornerstone of the causal chain is the NGMP, which represents a forward-thinking strategy for the nation's shift from an oil-based economy to one that is more diversified and focused on gas. The NGMP places a strong emphasis on minimizing gas flaring and maximizing the useful use of associated gas, laying the groundwork for further policies to build on and implement this goal. It serves as the cornerstone, outlining the broad objectives and tenets around which further policies are built.

The NGFCP, which operationalizes the NGMP's concept, comes next in the causal chain. Gas flaring is an environmental problem, but the NGFCP turns it into an economic opportunity by encouraging private sector involvement through a competitive bidding procedure. This program supports economic growth and technological advancement in addition to being in line with the NGMP's objectives. By utilizing its strategic vision and objectives, the NGMP laid the groundwork for the NGFCP's success.

The Flare Gas Regulation, which offers a strong legislative framework for minimizing gas flaring, appears as a crucial link in the causal chain that supports these measures. This regulatory mechanism sets standards for the measurement and reporting of flared gas and imposes fines for noncompliance. The Flare Gas Regulation guarantees industry-wide adherence to the goals set forth in the NGMP and operationalized by the NGFCP by integrating regulatory control. It creates a framework of regulations that promotes responsible behaviour and provides another level of accountability.

Within the causal chain, the National Gas Policy offers a comprehensive framework for policy that improves the overall sustainability of the gas industry. This policy, which emphasizes the reduction of gas flaring and the advantageous use of gas resources within the larger framework of economic development and resource optimization, is in line with the goals of the NGMP and supports the NGFCP's initiatives. It acts as a unifying factor, balancing the many facets of the growth of the gas industry.

The Guidelines for Fugitive Methane Reduction, which indicate an extension of environmental concerns beyond conventional gas flaring reduction initiatives, mark the pinnacle of the causal chain. These recommendations address the release of methane, a powerful greenhouse gas, and establish requirements for reducing fugitive emissions along the whole gas value chain. The standards improve the overall sustainability of the gas sector and support Nigeria's larger climate action goals by incorporating environmental considerations into operational operations.

The PIA of 2021, which is a legislative milestone that complements the Gas Flaring Reduction Policies, works in tandem with the gas reduction activities. The sector is given a clear, competitive framework by the PIA, which makes it easier for the gas reduction programs to be implemented successfully. It ensures the long-term viability and expansion of Nigeria's oil and gas industry by providing the institutional and legal framework required for the efficient implementation of the policies delineated in the Gas Flaring Reduction framework. As a legislative anchor, the PIA upholds the promises made by the gas reduction measures and makes it easier for Nigeria to transition to a more responsible and sustainable energy industry.

5.1.3 Estimation of Baseline Values

Baseline Data Definition: this procedure included a thorough examination of past data that was collected before the chosen policies and the PIA 2021 were put into effect. Benchmarks for evaluating the effects that follow include gas flaring rates, utilization statistics, and environmental impact indicators.

Historical Data Analysis: Careful study of historical trend yielded performance data about the industry and served as a benchmark for evaluating the policies' effects.

Estimation of Emission Baseline

Table 17: Baseline Emission in Oil & Gas

Parameter	Baseline value(s) applied over the GHG assessment period	Methodology and Assumptions to estimate value (s)	Data sources
Gas flare in the country	241.1 million standard cubic feet		This is based on satellite mapping of flaring points in the country and validated by the records from IEA and ground measurement made in some flare points
Fugitive methane emissions from		On the assumption of 5% leaks from annual gas production, this implies that	

pipeline network			
Natural gas calorific value	48 MJ/Kg	Expected to remain constant or relatively within same range. While the range in the country is ascertained, the IPCC default value is commonly used	IPCC Guidelines for National Greenhouse Gas Inventories (2006), Table 1.2
Natural gas emission factor	0.0561 $kgCO_2/MJ$	Expected to remain constant or relatively within same range. While the range in the country is ascertained, the IPCC default value is commonly used	IPCC Guidelines for National Greenhouse Gas Inventories (2006), Table 1.4

Box1: Baseline Emissions from Gas flare:

241.1 mmscf = 241.1 X 0.0283168 scm = 6.82718 Mscm

- 1mmscf is 0.0283168 (Beck, 2019)
- Natural gas calorific value is 48 MJ/kg (IPCC, 2006)
- Natural gas emission factor is 0.0561 $kgCO_2/MJ$ (IPCC, 2006)
- Natural gas density is 0.68 kg/scm^3 (Dutt, 2003)

Natural gas (in kilogram) is Density X Volume of gas = 0.68 kg/scm3 X 6.82718Mscm = 4642482.4kg

Emissions as a result of gas flare in 2023 = 4642482.4 X 48 MJ/kg X 0.0561 $kgCO_2/MJ$

= 12,501,276.6$kgCO_2$

= 12.5$MtCO_2$

Table 18: Baseline information data

	Parameter	Methodology and Assumptions to estimate value (s)	Data sources

Employment	Workers in O& G	• Total employment in the sector for 2018, 2019 and 2020, was 19,820, 18,856 and 18,712 respectively.	Three-year oil and gas audit report of the Nigerian Extractive Industry Transparency Initiative (NEITI)/ Nigeria Tribune (August 1, 2022)
	Workers in Renewable Energy	• 32, 000 people employed in 2019, 50,000 in 2022 and 76, 000 expected in 2023	Africa Oil + Gas report
	Women in O&G	• 2018, women took 3,595 of the total employment at various levels, while 16,225 went to men. • 2019, 3,407 women were employed compared to 15,449 men. • 2020, 3,446 females against 15,266 men.	Three-year oil and gas audit report of the Nigerian Extractive Industry Transparency Initiative (NEITI)/ Nigeria Tribune (August 1, 2022)
	Women in Renewable Energy	For every renewable energy company with 100 staff, there are about 30 women. 64 per cent, women were employed in non-STEM roles which is the highest, 28 per cent in administrative positions while the share women in STEM roles was at 8 per cent. That is out of the 30 women, 19 are non-STEM roles, 8 women in administrative positions and 3 women were in STEM roles.	Women in renewable Energy baseline Report 2021
Social Impact	Social spending by O&G in Producing communities	40 Oil firms spent over $2.2 billion on Corporate Social Responsibilities (CSR) Projects between 2018 and 2020	Nigerian Tribune August 15, 2022
	Stakeholder engagement and	The Structure of Stakeholder engagement and Public Engagement involves the following processes.	Egbon, O., & Nweze, A. (2018).

	Public Engagement	• Identification of Stakeholders (government agencies local communities industry players, civil society organizations, investors, and financiers). • Establishment of Consultation Forums (formal meetings, public hearings, workshops and seminars, educational sessions, online platforms). • Engagement throughout Project Lifecycle (pre-project planning, project implementation, post-project closure) • Consultation on Key Issues (Environmental Impact Assessments, regulatory Changes) • Conflict Resolution and Mediation (dialogue, negotiation, and mediation) • Monitoring and Evaluation (Assessing effectiveness, tracking progress, and reporting outcomes	Ogbeide, F. O., & Uche, O. C. (2020).
	Infrastructure and Social Amenities	• Poverty and Unemployment: Approximately 80% of people live in poverty, while 70% of them are unemployed. • Health and the provision of health-care services: Primary healthcare: one medical facility for every 9,805 people, covering an area of 44 square kilometres per facility. There is only one facility serving a 583-square-kilometer area for every 131,174 people. A single facility serves 48 communities on average. • Education: Based on statistical estimations, 80% of kids go to elementary school, which is a positive comparison to the anticipated 54% national average. But	World Journal of Advanced Research and Reviews, 2022

		almost all of the area's educational facilities are in such disrepair that they require extensive renovations. In one region of the Niger Delta states, which covers 30,000 squares kilometres and is home to an estimated eight million people, there are just 2,169 primary schools. In a 14 square kilometre area, this translated to one primary school for every 3,700 inhabitants and one school for every two communities. With one school per 14,679 residents and one school every seven villages, secondary schools cover an area of 55 square kilometres on average. ● Water Issues: Unsafe supply facilities, such as rivers, lakes, or ponds, unprotected wells, and boreholes, provide water to most of the Niger Delta states. In five of the nine states in the region—Akwa Ibom, Bayelsa, Cross River, Ondo, and Imo—there are readily available sources of potable water for household consumption, including pipe-borne, untreated pipe, bore-hole, protected well, unprotected well, river/lake/pond, vendor trucks, and other categories. These states have extremely severe water problems, which lead to the supply of unsafe water in more than half of the cases. ● Transportation: most Niger Delta highways are poor. While the growth of urban road transportation has received some attention, rural transportation—particularly water	

		transport—which is essential to the bulk of the rural population—has received less attention.	

5.1.4 Scope for JGIT Impacts against Selected Policy Targets/Goals.

This comprehensive assessment aims to provide a detailed and nuanced understanding of how JGIT initiatives align with and contribute to the achievement of specific policy targets and goals related to gender inclusivity, community engagement, local empowerment, capacity building, and inclusive employment practices within the Nigerian oil and gas sector.

- ✔ **Gender Inclusivity Targets:**

Policy Target: The National Gas Policy reflects JGIT's commitment to establishing complete gender inclusiveness in the oil and gas sector. JGIT shares this general goal. The project is to establish a setting that provides women and men with equal opportunity at all industry levels.

Assessment:

Representation Analysis: Analyse the presence of women in JGIT-sponsored projects, paying special attention to jobs involving leadership, technical expertise, and decision-making. This includes a thorough examination of the proportion of women working on these initiatives in different roles.

Career Advancement Impact: Evaluate how JGIT affects women's career progression by considering things like promotions, involvement in leadership development programs, and availability of mentorship opportunities made possible by JGIT activities.

- ✔ **Community Inclusivity and Impact on Vulnerable Groups:**

Policy Target: JGIT is designed to contribute to an inclusive transition by prioritizing the needs of vulnerable groups within local communities, as outlined in the NGMP.

Assessment:

Positive Impact Evaluation: Assess the tangible positive impacts of JGIT initiatives on vulnerable groups, paying specific attention to indigenous populations and marginalized individuals within local communities. Consider both quantitative and qualitative aspects of improvement.

Benefits Accessibility: Evaluate the accessibility of benefits and opportunities provided by JGIT initiatives to these vulnerable groups. This would include an analysis of employment opportunities, skill development programs, and community development initiatives supported by JGIT.

- ✔ **Local Content and Empowerment:**

Policy Target: JGIT supports the goals of the Flare Gas Regulation and the National Gas Flare Commercialization Programme, which include empowering local people and encouraging their involvement in the oil and gas industry.

Assessment:

Community Engagement Analysis: Analyze how involved the local community is in JGIT-related projects, paying particular attention to women. This entails determining the degree to which women actively participate in project participation and decision-making processes.

Impact on Local Businesses: Examine how JGIT programs affect nearby companies, especially those run or managed by women. Analyze how these companies have been incorporated into the supply chain and calculate the level of empowerment attained with the help of JGIT.

- ✔ **Capacity Building and Training:**

Policy Target: JGIT, in accordance with the Guidelines for Fugitive Methane Reduction, incorporates training and capacity-building programs aimed at enhancing the skills and capabilities of both men and women.

Assessment:

Gender Participation in Training Programs: Measure and analyze the participation of women in JGIT-sponsored training programs and capacity-building initiatives. This involves assessing the diversity of participants and the effectiveness of these programs in addressing gender-specific needs.

Professional Growth Opportunities: Evaluate the effectiveness of JGIT projects in providing equal opportunities for skill development and professional growth, with a specific focus on supporting women in entering or advancing within the oil and gas sector.

- ✔ **Inclusive Transition in Employment Practices:**

Policy Target: JGIT aims to contribute to an inclusive transition in employment practices, avoiding discrimination and ensuring equal opportunities, aligning with the goals of the PIA 2021.

Assessment:

Inclusive Hiring Practices: Analyze how JGIT projects are implementing inclusive hiring practices. Pay close attention to how gender-neutral job descriptions, equitable recruitment procedures, and systems that guarantee equal compensation for comparable work are developed and applied.

Employee Satisfaction and Perceptions: Evaluate staff satisfaction and attitudes toward gender inclusion in JGIT-sponsored programs using in-depth questionnaires, focus groups, and one-on-one interviews. This comprehensive strategy guarantees a sophisticated comprehension of the workplace and the influence of JGIT on employee experiences.

5.1.5 Assessment of Just and Gender Inclusive Transition (JGIT) Impacts against Selected Policy Targets/Goals

The **Table 19** below provides a comprehensive overview of the results from the qualitative impact assessment of the measures, targets and relevant policies linked to the revised NDC 2021 and Energy transition plan. The table also presents the data sources used in the assessment and explains the rationale behind excluding specific impacts from quantitative analysis.

Table 19: Qualitative Impact Assessment of Oil and Gas Policies

Impact Categories	Specific impact identified	Likelihood	Magnitude	Positive or negative impact	Significant?	Summary of qualitative assessment results for each impact category	References
Climate change mitigation	Eliminate emissions from Flaring Operations	Very Likely	Major	Positive	Yes	Major Positive impact through reduction of emissions from gas flaring, venting and fugitive methane.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Increased Efficiency in Production Processes	Very Likely	Major	Positive	Yes	Increased efficiency in production processes will see a decrease of carbon emissions and other GHGs.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Development of Low-Carbon Technologies	Very Likely	Major	Positive	Yes	Major increase in GHGs due to the development of low-carbon technologies. Capacity-building is	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation

						still needed in this area as technical know-how is still lacking.	
	Expansion of Renewable Energy Investments	Very Likely	Major	Positive	Yes	Major Positive impact in energy availability due to expansion of investment in renewable energy. Major investment still needed to actualize this.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Improved Environmental Monitoring and Reporting Standards	Likely	Moderate	Positive	Yes	Positive impact however this impact is considered to be moderate. Reporting frameworks still in its early stages.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Enhanced Carbon Offsetting Initiatives	Very Likely	Major	Positive	Yes	Major Positive impact in carbon emission reductions. However, the country is in its early stages of setting up a carbon market scheme.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation

	Development of Climate Resilience Strategies	Very Likely	Major	Positive	Yes	Major positive impact in the reduction of carbon emissions.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
Sustainable Management of Chemicals and Waste	Reduction of Hazardous Chemical Usage	Very Likely	Major	Positive	Yes	Positive impact expected in the reduction of carbon emissions.	2021 updated NDC, Stakeholder consultation
	Adoption of Recycling and Reuse Strategies	Very Likely	Major	Positive	Yes	Positive impact expected in the reduction of carbon emissions. Recycling space is a progressively growing in the country.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Implementation of Safe Handling and Disposal Protocols	Very Likely	Major	Positive	Yes	Positive impact expected in the reduction of carbon emissions.	2021 updated NDC, Stakeholder consultation
	Implementation of Pollution Prevention Measures	Very Likely	Major	Positive	Yes	Positive impact expected in the reduction of carbon emissions.	2021 updated NDC, Stakeholder consultation

Promotion of Sustainable Land Practices	Restoration of Degraded Landscapes	Very Likely	Major	Positive	Yes	Positive impact expected in the areas of afforestation which overall results to can sequestration.	2021 updated NDC, Stakeholder consultation
Halting Biodiversity Loss	Protection of Critical Habitats and Ecosystems	Very Likely	Major	Positive	Yes	Positive impact expected due to protection of ecosystems.	2021 updated NDC, Stakeholder consultation
Access to Safe and Affordable Drinking Water	Improvement of Water Quality Standards	Very Likely	Major	Positive	Yes	Positive impact as water quality will be improved. However, this would be monitored by the Ministry of Water Resources.	2021 updated NDC, Stakeholder consultation
	Implementation of Water Treatment Technologies	Very Likely	Major	Positive	Yes	Positive impact as water quality will be improved. However, while this be spearheaded by the Ministry of Water Resources, operating companies can directly	2021 updated NDC, Stakeholder consultation

						implement the technologies.	
	Expansion of Drinking Water Infrastructure	Very Likely	Major	Positive	Yes	Positive impact as water quality will be improved. However, while this be spearheaded by the Ministry of Water Resources, operating companies can directly implement.	2021 updated NDC, Stakeholder consultation
	Reduction of Waterborne Diseases	Very Likely	Major	Positive	Yes	Positive impact as water quality will be improved. Operating companies will have to work with the Authorities in charge.	2021 updated NDC, Stakeholder consultation
	Affordability and Accessibility of Drinking Water Services	Very Likely	Major	Positive	Yes	Positive impact as water quality will be improved. Operating companies will have to work with the Authorities in charge.	2021 updated NDC, Stakeholder consultation

Occupational Safety	Increased Implementation of Workplace Safety Protocols	Very Likely	Major	Positive	Yes	Major Positive impact due to implementation of safety protocols which will reduce fatalities.	2021 updated NDC, Stakeholder consultation
	Increased Provision of Personal Protective Equipment (PPE)	Very Likely	Major	Positive	Yes	Major Positive impact due to implementation of safety protocols which will reduce fatalities.	2021 updated NDC, Stakeholder consultation
	Increased Training and Education on Occupational Hazards	Very Likely	Major	Positive	Yes	Positive Impacts due to awareness creation on occupational hazards.	2021 updated NDC, Stakeholder consultation
	Increased Implementation of Emergency Response Plans	Very Likely	Major	Positive	Yes	Positive Impacts due to implementation of response plans during emergencies.	2021 updated NDC, Stakeholder consultation
	Increased Enforcement of Health and Safety Regulations	Very Likely	Major	Positive	Yes	Positive impacts due to implementation and enforcement of Health and Safety Regulations. This will be implemented by the regulatory bodies.	2021 updated NDC, Stakeholder consultation

	Increased Regular Safety Inspections and Audits	Very Likely	Major	Positive	Yes	Positive impacts due to regular inspections. This will be implemented by the regulatory bodies.	2021 updated NDC, Stakeholder consultation
	Increased Promotion of Safety Culture and Employee Engagement	Very Likely	Major	Positive	Yes	Major positive impact through awareness creation and promotion of safety cultures.	2021 updated NDC, Stakeholder consultation
Revenue Generation/ Redistribution of Wealth	Increased Revenue Generation from Oil and Gas Activities	Likely	Moderate	Positive	Yes	Moderate positive impact as the sector is transitioning to more cleaner energy alternatives.	2021 updated NDC, Stakeholder consultation
	Redistribution of Wealth Through Social Programs and Infrastructure Development	Likely	Moderate	Positive	Yes	Positive impact if projects would be implemented as planned.	2021 updated NDC, Stakeholder consultation
	Investment in Education and Skills Development Programs	Very Likely	Major	Positive	Yes	Major positive impact as knowledge gap will be bridged through education and skills development programs	2021 updated NDC, Stakeholder consultation

Promote Economic Growth	Increased Investment in Infrastructure Development	Likely	Moderate	Positive	Yes	Positive impact if projects would be implemented as planned.	2021 updated NDC, Stakeholder consultation
	Promotion of Entrepreneurship and Innovation	Very Likely	Major	Positive	Yes	Positive Impact as implementation will reduce poverty	2021 updated NDC, Stakeholder consultation
	Support for Small and Medium Enterprises (SMEs)	Very Likely	Major	Positive	Yes	Positive Impact as implementation will reduce poverty	2021 updated NDC, Stakeholder consultation
Local Community Development	Increased Investment in Community Infrastructure Projects	Very Likely	Major	Positive	Yes	Positive Impact as implementation will grant access to basic community needs	2021 updated NDC, Stakeholder consultation
	Promotion of Local Employment Opportunities	Very Likely	Major	Positive	Yes	Employment opportunities will increase standard of living and reduce poverty	2021 updated NDC, Stakeholder consultation
	Implementation of Skills Development and Training Programs	Very Likely	Major	Positive	Yes	Skill development and trainings would enhance the reduction of poverty.	2021 updated NDC, Stakeholder consultation

Equality of Opportunity	Increased Access to Education and Training Programs	Very Likely	Major	Positive	Yes	Positive impact but would be driven by all concerned stakeholders	2021 updated NDC, Stakeholder consultation
	Promotion of Gender Equality and Women Empowerment Initiatives	Very Likely	Major	Positive	Yes	Major Positive impact. It is expected that this would be driven by the JT and inclusion initiatives.	2021 updated NDC, Stakeholder consultation
Access to clean water	Increased Investment in Water Treatment Infrastructure	Likely	Moderate	Positive	Yes	Positive impact as water quality will be improved. However, while this be spearheaded by the Ministry of Water Resources, operating companies can directly implement.	2021 updated NDC, Stakeholder consultation
	Expansion of Water Distribution Networks	Likely	Moderate	Positive	Yes	Positive impact as water quality will be improved. However, while this be spearheaded by the Ministry of Water Resources	2021 updated NDC, Stakeholder consultation

	Promotion of Water Conservation Practices	Likely	Moderate	Positive	Yes	Positive impact as water quality will be improved. However, while this be spearheaded by the Ministry of Water Resources	2021 updated NDC, Stakeholder consultation
Air Quality	Reduced Emissions from Industrial Processes	Very Likely	Major	Positive	Yes	Major Positive Impact as this can increase overall livelihood due to reduced emissions.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Promotion of Clean Energy Technologies	Very Likely	Major	Positive	Yes	Major Positive Impact as this would reduce carbon and other GHGs emissions	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Implementation of Air Quality Monitoring and Reporting Systems	Likely	Moderate	Positive	Yes	Positive impact however standards need to be implemented/enforced	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Reduction of Vehicle Emissions through Transportation Policies	Very Likely	Major	Positive	Yes	Positive impact however this outcome would also be implemented by the transport sector	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation

	Enhancement of Public Awareness and Education on Air Quality Issues	Likely	Moderate	Positive	Yes	Public awareness and education will drive good air quality which will overall have positive impacts on health of individuals and other live stocks.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
Community Health and Livelihoods	Increased Access to Healthcare Services and Facilities	Likely	Moderate	Positive	Yes	Access to health services would have positive impacts on individuals and their live stocks	2021 updated NDC, Stakeholder consultation
Access to Electricity and Development	Increased Investment in Electricity Infrastructure	Very Likely	Major	Positive	Yes	Increase investment in electricity infrastructures will increase energy access.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Expansion of Electricity Generation Capacity	Very Likely	Major	Positive	Yes	Positive impact as expansion of electricity generation capacity would increase energy access	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Promotion of Renewable Energy Sources	Very Likely	Major	Positive	Yes	Major positive impact. This would be driven by the transition.	2021 updated NDC, Energy Transition Plan

							(ETP), Stakeholder consultation
	Enhancement of Electricity Distribution Networks	Very Likely	Major	Positive	Yes	Major positive impact however this would be spearheaded by the Ministry of Power	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Improvement of Access to Electricity in Rural and Remote Areas	Very Likely	Major	Positive	Yes	Major positive impact as this would increase energy access. However, this would be spearheaded by the Ministry of Power	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Implementation of Energy Efficiency Measures and Demand-Side Management Programs	Very Likely	Major	Positive	Yes	Major positive impact as this would increase energy access. However, this would be spearheaded by the Ministry of Power	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
Local Employment	Increased Local Employment Opportunities	Very Likely	Major	Positive	Yes	Increase employment will reduce poverty	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Decreased Reliance on External Labor Sources	Likely	Moderate	Positive	Yes	Positive impact however capacity	2021 updated NDC, Stakeholder consultation

						building to get to this level	
	Increased Job Creation in Local Communities	Very Likely	Major	Positive	Yes	Major Impact as increased job creation would reduce poverty and improve standard of living	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Decreased Unemployment Rates in Local Areas	Very Likely	Major	Positive	Yes	Major Positive impact as decreased unemployment will reduce poverty and increase standard of living	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
Skill development	Increased Investment in Skill Development Programs	Very Likely	Major	Positive	Yes	Major Positive impact as increased skills will increase employment opportunities	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Decreased Skills Gaps in the Workforce	Very Likely	Major	Positive	Yes	Major Positive impact as outcome will reduce skill gaps within the sector	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Increased Access to Vocational Training Opportunities	Very Likely	Major	Positive	Yes	Increased access to vocational training will impact positively as it will bring knowledge	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation

						gap and create employment opportunities	
	Decreased Unemployment Due to Lack of Skills	Very Likely	Major	Positive	Yes	Major positive impact as decreased unemployment will reduce poverty rates and improve standard of living.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Decreased Dependence on Imported Skills	Very Likely	Major	Positive	Yes	Major positive impact as this would increase employment opportunities.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Increased Innovation and Productivity Through Skilled Workforce	Very Likely	Major	Positive	Yes	Major positive impact as this would increase employment opportunities.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
Poverty Eradication	Increased Access to Basic Services for vulnerable Communities	Very Likely	Major	Positive	Yes	Major Positive impact as individuals have equitable access to essential services	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
	Decreased Poverty Rates Through Economic Empowerment Programs	Very Likely	Major	Positive	Yes	Major Positive impact as standard of living will be improved and	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation

						poverty would be reduced.	
	Increased Investment in Education and Skills Development for Poverty Alleviation	Very Likely	Major	Positive	Yes	Major Positive impact as investment in education and skills will reduce poverty and improve standard of living.	2021 updated NDC, Energy Transition Plan (ETP), Stakeholder consultation
Equal Rights and Opportunities	Increased Protection of Civil Rights and Liberties	Likely	Moderate	Positive	Yes	Positive impact but this need to be enforced and monitored to achieved desired results	2021 updated NDC, Stakeholder consultation
	Decreased Discrimination in Employment and Education	Very Likely	Major	Positive	Yes	Major Positive impact as gender discrimination will be reduced due to employments and education	2021 updated NDC, Stakeholder consultation
	Decreased Gender Pay Gap and Promotion Disparities	Very Likely	Major	Positive	Yes	Major Positive impact would be seen due to decreased gender pay gap and promotion	2021 updated NDC, Stakeholder consultation

	Increased Representation of Minority Groups in Decision-Making Positions	Very Likely	Major	Positive	Yes	Major Positive Impact due to increased representation of minority Groups in the oil and gas sector	2021 updated NDC, Stakeholder consultation
End Discrimination and Violence	Increased Awareness and Education on Human Rights and Non-Discrimination	Very Likely	Major	Positive	Yes	Major positive impact due to increased awareness on human rights	2021 updated NDC, Stakeholder consultation
	Decreased Incidents of Discrimination in Employment, Education, and Public Services	Very Likely	Major	Positive	Yes	Major positive impacts as incidents on discrimination in employment would be decreased hence creating equality opportunities for women.	2021 updated NDC, Stakeholder consultation
	Decreased Gender-Based Violence and Harassment	Very Likely	Major	Positive	Yes	Major positive impact as gender-based violence and harassments would be reduced	2021 updated NDC, Stakeholder consultation

5.1.6 Identification of Methodology, Data, and Results Limitations

Examining the nuances of the methodology, data limitations, and potential limitations in results interpretation within the specific context of this multifaceted industry is crucial when assessing the impact of JGIT initiatives on the specific policy targets. Acknowledging and addressing these constraints guarantees a more precise and significant assessment of JGIT endeavors in advancing gender parity and inclusive shifts in Nigeria's oil and gas sector. Some of the limitations are discussed below.

Methodology Limitations in the Nigerian Oil and Gas Sector within JGIT Assessment:

- **Specific Challenges:** The process for evaluating the effects of JGIT in Nigeria's oil and gas industry faces difficulties with data consistency and accessibility amongst various stakeholders. Because JGIT is an all-encompassing program, it entails working with a variety of organizations, from small businesses to major corporations. It's important to establish a uniform system for data collecting and analysis because disparities in reporting standards can give rise to methodological issues.

- **Gender Data Challenges:** An extensive methodology that considers the subtle differences in gender within the industry is needed to evaluate the impact of JGIT on gender inclusion. Limitations may arise from difficulties in getting complete and reliable gender-related data, especially in historically underrepresented sectors. To fully capture the complex effects on women's representation and career development within JGIT programs, a gender-sensitive methodology must be used.

Data Limitations Specific to JGIT in the Nigerian Oil and Gas Sector:

Inclusivity Data Gaps: There are data limitations in the JGIT effect evaluation, particularly when assessing inclusion in local communities. There are difficulties due to the paucity of historical data on the empowerment of disadvantaged groups and the effect on local companies, especially those run or controlled by women. To close data gaps and provide a thorough assessment, close contact with local communities and entities involved in JGIT projects is essential.

- **Reliability of JGIT Reporting**: Data reliability within JGIT initiatives is critical for an accurate assessment. Variations in reporting practices among different projects may impact the reliability of aggregated data. Rigorous validation processes and collaboration

with JGIT stakeholders are essential to enhance the reliability and accuracy of the data used for the assessment.

Results Limitations Tailored to JGIT in the Nigerian Oil and Gas Landscape:

- **Community Dynamics and Local Context:** JGIT works in a variety of Nigerian communities, each with its own dynamics therefore, limitations in the results are as a result of difficulties fully reflecting the impacts on the community, particularly on disadvantaged groups. Cultural quirks and community-specific elements affects how JGIT results are interpreted. Providing findings that are culturally relevant and nuanced requires an appreciation of the value of community engagement and an awareness of local settings.
- **Policy Evolution and JGIT Impacts:** The Nigerian oil and gas industry undergoes regulatory changes and policy evolution. Hence, results limitations stem from shifts in regulatory frameworks during the assessment period, impacting the interpretation of JGIT impacts against selected policy targets. Continuous collaboration with regulatory authorities and adaptation to evolving policies is crucial for providing accurate and contextually relevant results.
- **External Influences on Gender Dynamics within JGIT Initiatives:** External factors, such as societal norms and cultural dynamics, influences gender representation within JGIT initiatives. Results limitations arise from external influences beyond JGIT's control. Therefore, acknowledging and addressing these external factors in the assessment ensures a more comprehensive understanding of the impact of JGIT on gender dynamics in the Nigerian oil and gas sector.

6.0 Conclusion and Recommendations

The carbon footprint from Nigeria Oil & Gas industry is highly significant. The nature of operations of typical Oil and Gas industry leads to release of substantial amounts of carbon dioxide and methane, which are both potent greenhouse gases. The industry's policies to decarbonize are quite adequate to achieve low carbon but there has to be political will to implement these policies. The industry will need to enhance and implement effective Environmental Management Systems, aggressively implement mitigation projects that are capable of reducing greenhouse gas emissions, implement renewable energy projects, encourage efficiency improvement, and carbon sequestration (either growing of forests or technology for carbon capture).

These transition implementation programme need to be inclusive and safeguard against job losses.

6.1 Recommendations to Track Just and Gender-Inclusive Impacts in Oil and Gas Sectors

Tracking JGI impacts in Oil and Gas sector need to be matched with measures and targets set in the sector. For example, policies and measures listed on gas flare elimination needs to be tracked on its gender inclusiveness, job creation, opportunities, and losses upon transition.

6.2 Summary of JGIT Impact Assessment of Selected Policies on Oil and Gas sector

The policies considered in the assessment exhibit a commitment to sustainable development. While these policies primarily address economic and environmental aspects, their implications for gender equality and inclusive transition were considered for the impact assessment.

In integrating gender perspectives, the NGMP emphasized workforce development with an inclusive approach, promoting equitable opportunities for both men and women in the gas sector. The NGFCP also acknowledges the value of inclusive community engagement and guarantees women's involvement in decision-making processes related to gas flare reduction projects.

The Flare Gas Regulation demonstrates a commitment to inclusivity in the application of policy by acknowledging the need to address any gender-specific effects of gas flaring on local communities. Gender mainstreaming measures are also incorporated into the National Gas

Policy to encourage women to participate in the gas value chain and guarantee that benefits are distributed to all societal sectors.

The Guidelines for Fugitive Methane Reduction and the PIA extend this commitment, incorporating measures to assess and address gender-specific impacts of emissions and promoting equal opportunities within the industry.

Going forward, to ensure that the advantages and disadvantages of the oil and gas industry are shared fairly among the various genders and groups, gender and inclusive transition impact assessments need to be incorporated as an essential part of policy implementation. This strategy is in line with international best practices for sustainable development, acknowledging that inclusion and gender equality are essential tenets for accomplishing long-term socioeconomic and environmental objectives in Nigeria's oil and gas industry.

6.3 Lessons Learnt on Impact Assessment Process

There are several lessons learnt on impact assessment process. Some of the important lessons include the need to carry out the impact assessment early during the scoping stage. The stakeholders and the public must be involved in the process.

As impact assessment could be positive or negative, it is expedient to de-risk the negative elements of impacts of policies assessed in the oil and gas sector. For example, while the gas policy of the country is meant to encourage the utilization of gas which is low carbon fossil fuel and dissuade the use of liquid fossil fuels, it has the possibility of leading to job losses.

It is important to always assess and measure the extent of change that is expected from the process and quickly develop a way to track the difference of ‘’before and ‘after’ the transition process to enable proper stakeholder engagement with the oil and gas community to allow efficient implementation.

Annexes

A. Glossary of Terms

Community Inclusivity: Focuses on the inclusion of vulnerable groups within local communities, aligning with the goals of JGIT and the NGMP.

Corporate Social Responsibility: Business practices involving initiatives that benefit society, including philanthropy, ethical labour practices, and environmental sustainability.

Economic Diversification: This term refers to the process of broadening **the** country's economic base by reducing dependence **on the** oil and gas **sector**. The goal is to create a more resilient and sustainable economy by fostering the development of various sectors.

Economic Impact Assessment: An analysis that evaluates the financial implications of a specific event or policy, such as the impact of a gender transition on the economy.

Environmental Sustainability: This concept involves using resources in a way that meets current needs without compromising the ability of future generations to meet their own needs. It emphasizes responsible and balanced resource management to preserve ecosystems and minimize negative environmental impacts.

Equity: In the context of a JT, equity ensures a fair distribution of benefits and burdens among different groups. It aims to prevent disproportionate effects on specific individuals or communities, addressing historical inequalities and promoting social justice.

Flare Gas Regulation: Regulations governing the reduction of gas flaring in the oil and gas industry.

Gender Equality: The goal is to achieve equal rights, opportunities, and treatment for individuals of all genders, eliminating discrimination and promoting inclusivity in various aspects of life, including the workplace.

Gender Inclusion: The integration of gender perspectives into policies and decision-making processes, promoting equal opportunities for individuals of all genders.

Gender Inclusivity Targets: Specific goals outlined in the National Gas Policy and JGIT initiatives to establish complete gender inclusiveness in the oil and gas sector.

Green Growth: An economic approach that emphasizes sustainable development and environmental responsibility. In the oil and gas sector, it involves adopting practices that reduce environmental impact and promote long-term sustainability.

Guidelines for Fugitive Methane Reduction: Prescribed principles and practices aimed at reducing the release of methane, a potent greenhouse gas, during various stages of oil and gas operations.

Host Communities Development: Initiatives aimed at fostering the economic and social development of communities directly affected by industrial activities, including establishing funds to support local projects and infrastructure.

Hydrocarbon Tax and Companies Income Tax (CIT): Taxation systems specific to the petroleum industry, where hydrocarbon tax is levied on certain oil and gas activities, and **companies'** income tax is applied to the profits of oil and gas companies. This was newly introduced through the PIA 2021.

Inclusivity: A principle emphasizing the active participation and consideration of diverse voices and perspectives during a transition, fostering collaborative decision-making, and avoiding exclusions.

Indirect and Induced Jobs: Employment opportunities that arise beyond the core activities of the oil and gas industry, including jobs indirectly created through supply chains and induced jobs resulting from increased consumer spending.

JGIT Initiatives: Projects/programmes aimed at promoting gender inclusivity, community engagement, local empowerment, capacity building, and inclusive employment practices within Nigeria's oil and gas sector.

Just Transition: A comprehensive framework ensuring a fair and equitable shift from high-carbon to low-carbon economies, considering social, economic, and environmental justice.

Labor Rights: Fundamental rights and protections for workers, ensuring fair treatment, safe working conditions, and the right to organize, essential principles in the context of a JT.

Methodology Limitations: Challenges and constraints associated with the methodology used to assess the impact of initiatives in the oil and gas sector, providing transparency about potential limitations.

Multifaceted Journey: A comprehensive and diverse approach to overcoming challenges, especially those related to social inclusion and empowerment during a transition.

Stakeholder Engagement: Involving various stakeholders, including the public sector, governmental organizations, and local communities, in decision-making processes.

B. Stakeholder Mapping List and Description of Method and Frequency of Engagement

The junior, middle management, and some senior management staff are stakeholders engaged in the oil and gas companies, the unions, and consumers. In the course of the work, selected people were picked from various cadres of the industry in the Oil and gas sector.

The interview session was a hybrid approach, which included physical meetings with the stakeholders, phone calls and group discussions. Physical interviews were conducted once for different stakeholder groups, while phone calls were sometimes repeated, especially for stakeholders who could not give full attention due to other activities. It should be stressed that there is strong resistance to use of their names and phone numbers. While some do not mind mentioning their organizations, some are reluctant to have the names of their institutions known in published articles.

Physical interviews were conducted in the offices of stakeholders as listed below.

Table 20: Categories of Interviews Conducted.

	Category	Type of Oil Company	Mode of Interview	Remarks
1	Junior, Senior and Management Staff*	Marginal oil companies	Physical meeting in stakeholders' office	Reached out to 3 companies
2	Junior, Senior and Management Staff**	National Oil Company/JV company	Physical meeting in stakeholders' office	Reached out to a company
3	Union Executive	Petroleum and Natural Gas Senior Staff Association of Nigeria (PENGASSAN)	Phone call/Office	Reached out to 2 members
4	Union Executive	Nigeria Liquified Petroleum Gas Association (NLPGA)	Phone call	Reached out to 1 member
5	Union Executive	Renewable Energy Association of Nigeria (REAN)	Met at Conference	Reached out to 4 members
6	Consumers	Users of pms and diesel	Physical on the streets around gas stations	Reached out to 5 consumers

*Selected members of the Junior, Senior and Management teams were met, and questions were asked, while the junior staff in the three marginal oil companies (small O&G) companies were not expressive. Still, there is the worry as to what the future holds for them should there be a transition from their regular industry. The management and some senior staff are comfortable with the fact that the transition pathway for the country is Gas. Several of them were worried for the future generation, but there is a collective idea that this may not affect them as most of them would have retired before the transition to renewables took full force.

** Most people who attended this session were middle management staff, while junior and senior staff were met on the oil field. The Middle management staff thought that the government of Nigeria would not dare as they believe it is the country's source of cash. When asked how they would react to it if it then happened, they unanimously agreed that change is a constant. Some thought this was not their first job and that by their training (primarily engineers), they could fit into any industry so long it involved equipment. The junior and senior staff were not concerned so much about the change but worried about the ability of the renewable energy industry to pay the same salaries. They asked if the IOCs will be involved in Renewable energy and if their own company (National company) will also be involved.

List of Questions Asked.

Marginal Oil Companies (Small O&G Company):

- Are you aware of the energy transition plan of the country?
- What do you think this implies for your industry?
- Are there internal plans by your company to later become more of a gas company?
- How do you see this impacting on your company?
- What is your view of the Renewable energy industry in Nigeria?
- Do you see yourself working in the renewable energy industry in the next few years?
- What would you advise the government to do on these policies, as the country must get it right?
- How many ladies are currently in your company, and what is your view of increasing the female gender in the company as we transition to gas and later to the renewable energy industry?

National Oil Companies (Big O&G Company):

- You have participated in several workshops and are engaged in the country's energy transition plan; what are you doing about it?
- How do you think this will impact your industry?
- With such a large footprint on crude oil production by your company, are there internal plans to become more of a gas company later?
- As one of the country's biggest gas-producing companies, how do you intend to capitalize on this?
- You have already changed your company name to reflect an integrated energy company. What is your view of the Renewable energy industry in Nigeria?
- Do you see yourself taking the lead in the renewable energy industry in the next few years?
- What would you advise the government to do on these policies, as the country must get it right?
- How many ladies are currently in your company, and how do you view increasing the female workforce as we transition to gas and later to the renewable energy industry?

PENGASSAN:

- You have conducted workshops on energy transition awareness for your members; what are the next steps for you and your members?
- Is there resistance among your members, and what do you intend to do to position them as this process begins to be implemented?
- What would your role as the country transitions to natural gas and renewable energy?
- What role would you play on awareness and providing insights to the industry stakeholders?
- What is your view of the potential of the Renewable energy industry in Nigeria?
- Would your Union need to change its name to reflect energy, considering the switch to gas and later renewables?
- What would you advise the government to do on these policies, as the country must get it right?
- Is the insignificant number of ladies in the oil and gas industry a concern for you? What role would you play in increasing the female workforce as we transition to gas and the renewable energy industry?

Nigeria Liquified Petroleum Gas Association (NLPGA):

- What is your members' level of energy transition awareness?
- Do you consider this impacting your LPG traders' industry, considering that gas is a transition fuel, but its final destination is non-fossil fuel energy sources?
- What would your role be as the country transitions to natural gas and renewable energy?
- What role would you play in awareness and providing insights to the industry stakeholders?
- What is your view of the potential of the Renewable energy industry in Nigeria?
- Given the planned switch to gas and renewables, would your association need to change its name to reflect energy?
- What would you advise the government to do on these policies, as the country must get it right?
- Is the insignificant number of ladies in the oil and gas industry a concern for you? What role would you play in ensuring we increase the female workforce as we transition to gas and the renewable energy industry?

Renewable Energy Association of Nigeria (REAN)

- I am aware that your members are aligned and know so much about the level of energy transition awareness. It looks like a dream come true, doesn't it?
- Do you consider this impacting your industry positively, thinking that renewable energy is the final destination, which is a non-fossil fuel energy source?
- How organized is REAN in absorbing professionals and non-professionals from the oil and gas industry?
- What role are you playing in awareness and providing insights to the industry stakeholders?
- What is your view of the potential of the renewable energy industry in Nigeria as we have yet to domesticate the manufacturing of renewable energy equipment?
- What is the number of REAN memberships? What are you doing to attract international members?
- What would you advise the government to do on these policies, as the country must get it right?
- What is the level of involvement of women/females in the renewable energy industry in Nigeria today? What are you doing to encourage more women's participation?

Consumers:

Questions centred mainly on the impact of subsidies on consumers and their view of replacing fossil fuels with renewable energy.

Key Challenges: Several people are careful not to speak about the energy transition as they are not sure of how that impacts their jobs. The few that spoke demonstrate little understanding of the process.

C. Specification of How Vulnerable Groups were Meaningfully Engaged

The stakeholders engaged were asked questions ranging from their views on oil subsidy removal, transition from oil dominance to gas, impacts of gas flaring, methane emissions.

Considering the apathy to responding to formal interview or sessions on questioning stakeholders, the approach considered was informal where names and phone numbers were not requested from the people interviewed (see details in section B).

D. Additional Data and Analysis

As analysed by NOSDRA; the total volumes of gas flared by the country as at 2023 is estimated to be 241.1 MSCF which cost about $843.7 million which is equivalent to about N702 billion at the Central Bank of Nigeria's, CBN official exchange rate of N832.32/$ as of December 2023. This great loss is about 3% of the 2024 appropriation bill (budget).

The fines from the oil and gas companies defaulting the country amount to about $482.1 million which is equivalent to N401.3 billion. This implies that recoverable amount from flare fines if paid is about 50% of the value of the gas flared. The estimated flare is equivalent to 673,100 tCO2 and could generate potentially is 24,100 gigawatts hour, GWh which is about equivalent of installing about 2.75GW power plant.

It is noted that the volumes of gas flared are almost same ratio between the offshore companies and onshore companies. O&G companies operating offshore flared 132.9 mmscf while O&G companies operating onshore flared 108.1 mmscf (Vanguard, 2023).

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