
CARBON EMISSIONS AND THE PROSPECT OF DOUBLE DIVIDEND OF ENVIRONMENTAL TAXATION IN NIGERIA

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Abstract

Laws are made by the Nigerian government to reduce the impact of carbon emissions on the environment because of the damages the carbon emissions can cause. The study reviewed these laws to determine how effective they are at reducing carbon emissions. Also, the study examined the prospects of a carbon tax in Nigeria. It was revealed that Nigeria could benefit from the double dividend of environmental taxation and therefore, recommended a policy change on energy from fossil fuel to green investments by imposing a reasonable carbon tax on CO₂.

Keywords: Climate change, Carbon emissions, Carbon tax



1.0

INTRODUCTION

Environmental activities; urbanisation, petroleum production, industrialisation, farming, etc, could have both positive and negative effect on the environment. The negative effect is the emission of carbon causing climate change. The Nigerian National Policy on Environment (Revised 2016), states that for there to be any meaningful development, the country's environment must be affected – depletion of environmental foundations, the social fabric may deteriorate and the policy describes the environment as a complex and interactive system which consists of the atmosphere, land surface and bodies of water including living things.

For 130 years, since the beginning of record-keeping on weather, fourteen of the fifteen hottest years have been since the turn of the century (The World Bank, 2021) and this has led to the increase in the intensity of extreme weather-related events. The world temperature warms up to 2 per cent which could happen in 20 to 30 years then there will be devastating consequences like widespread food shortages, unprecedented heat waves (The World Bank, 2021).

Human activities cause greenhouse gases (GHG) emissions; therefore, the goal of climate change is to mitigate this (Akanonu, 2017). According to Akanonu (2017), African countries contribute minimally to climate change, however, advised that they should embrace it because they are impacted greatly such as food security, health, poverty reduction, inequality, as well as future economic growth and development. The emissions if measured per capita, Nigeria stands at about half the world average in line with Sub-Saharan Africa but in terms of per unit of GDP, Nigeria produces more than twice the world average (Cervigi, *et al.*, 2013). In 2005, it was projected that in achieving vision 2020 with the carbon intensity Nigerian carbon emissions would be five- to six-fold growths by 2030 (Cervigi *et al.*, 2013). This affects human lives and it is in light of this that Garba, *et al.* (2018) state that cement production has a devastating effect on the environment by affecting the health of the community. Also, gas flaring and other environmental activities increase greenhouse gas emissions thereby causing climate change. Ponnalru (2019); Saxena and Kumar (2019) state that climate change affects crop production. Further, some government policies exacerbate the problem, for example, the removal of subsidy causes more carbon emissions in Nigeria (Akinyemi, *et al.*, 2017).

In 2015, over 190 countries met in Paris to discuss issues challenging the human race which is known as Paris Agreement on Climate Change, where they pledged to commit to GHG reduction referred to as Intended Nationally Determined Contribution (INDC) (Akanonu, 2017). The National Policy on Environment was first formulated in 1991 and reviewed in 1999 and because of the emerging environmental concerns, it was again reviewed in 2016. The National Environmental Policy is meant to formulate a new holistic framework to guide the management of the environmental and natural resources in the country. This is in line with Section 20 of the 1999 constitution of Nigeria which states that “the state shall protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria.” On the INDC, Nigeria pledged to a 20 per cent reduction in GHG unconditionally and 45 per cent conditionally (if supported financially) by 2030 (Akanonu, 2017) this is important because of the desertification in the north and coastal flooding in the south of Nigeria.

To mitigate against this, Uwalomwa, *et al.* (2015) state that carbon tax imposition helps and according to The World Bank (2021) putting a price on carbon is now synonymous with



bringing down emissions and have cleaner investment options. The World Bank (2021) states that to place a price on carbon is to, first of all, evaluate and determine the external cost of carbon emissions, that is, the cost the carbon cause the public such as the damage to crops, health, drought, flooding and sea-level rise. Who bears the burden of a carbon tax and when it should be imposed become a question of debates. An American climate scientist, James Hansen, an advocate of carbon tax advised that for an effective carbon tax, it should be imposed on fuel fossil when produced and imported and not during consumption (Hopkin, 2015).

There are two types of carbon pricing: Emissions Trading Scheme (ETS) and carbon taxes (The World Bank, 2021). Putting a price on carbon is prescribed according to the Carbon Pricing Leadership Coalition (CPLC) (2019), with two considerations in mind – social and development concerns. The Stern-Stiglitz report on internal carbon pricing commissioned by the World Bank recommended \$40-\$80 per ton CO₂ (CPLC, 2019).

Carbon taxation sets the price for GHG emissions then the aggregate level of emission is determined by the market while emission trading, though the price equally determined by the market, this is done by setting a ceiling for aggregate emissions level. Imposing carbon tax has stages and equally how to know the level of implementation. The carbon tax initiatives are formally adopted through legislation and if the government has officially planned a date of commitment, this is known as scheduled for implementation. If the government has however announced its intention towards the implementation of carbon pricing and confirm through official government sources then it is known as under consideration. Nigeria is not found under any of the categories of commitments, meaning Nigeria has not committed to carbon tax pricing yet.

Akinwade (2014) states that carbon tax can only be possible if there is a legislative framework. Because of the challenges posed by climate change, as of 2014, about 40 countries and over 20 sub-national jurisdictions have implemented or scheduled emissions trading schemes or carbon taxes (The World Bank, 2021). It is encouraging that countries are embracing the idea of a carbon tax, so Mas'ud, *et al.* (2020) advised with extensive regulations and enforcement by the authority, there is a likelihood of high environmental tax compliance. The study, therefore, reviews the environmental laws in Nigeria and how they have been implemented and complied with. Also, the study intends to evaluate the possible double dividend of environmental taxation in Nigeria.

This paper helps Nigerian policymakers in enacting reasonable environmental tax laws that will reduce the negative impact of carbon emissions on the environment. The remainder of the paper will be structured into these sections: Review of related literature; The environmental laws in Nigeria; The prospects of a carbon tax in Nigeria; and the conclusion and recommendations.

2.0 REVIEW OF RELATED LITERATURE

The cost of carbon emission is high with damages to the ecosystems and health. Ponnalru (2019) on the impact of mining, stated that crop productivity was reduced during mining. Also, Saxena and Kumar (2019) equally stated that climate change affects potato yield year-in-year-out. The impact of environmental activities is huge and Garba *et al.* (2018) affirmed that air pollution is detrimental to our health and suggested that to reduce this, environmental tax imposition will help. To check indiscriminate dumping of nylons in the streets which

block the gutters and cause flooding, Uwalomwa *et al.* (2015) in a study carried out stated that environmental tax has a moderate positive correlation with flood reduction.

The importance of environmental regulations and taxation cannot be overemphasized. Mas'ud *et al.* (2020) posited that when the authority enforces environmental laws and tax, the pollutants will comply with the regulations. In line with the outcome of Mas'ud *et al.* (2020); Akinwade (2014) stated that South Africa can only achieve the proposed carbon tax if there should be a robust legislative framework for mandatory reporting of emission and there must be enforcement. Some laws are resisted by the populace; therefore, environmental tax imposition might be difficult. Garba (2017) stated that the resistance to environmental tax can be avoided when there is trust between the citizens and the political class. To achieve the objective of environmental carbon abatement, Akinyemi *et al.* (2017) stated that the removal of subsidy marginally increased carbon emission in Nigeria and advised that to reduce carbon emission the removal of subsidy should be accompanied by some policies.

Oyedokun, *et al.* (2018) however, revealed that environmental taxation and accounting have not reduced environmental problems. There is a lot of prospect in imposing a carbon tax in Nigeria as conversed by Okubor (2017) that when environmental tax is imposed, the revenue raised alone could be sufficient to finance government projects. In addition to the funds as stated by Okubor (2017), it allows the government to carry out green investments.

2.1 Environmental Activities and Climate Change

Nigeria is disposed to the severe negative impact of climate change, this is because of the nature of the country's economy, weak resilience and low adaptive capacity (National Environment Policy, 2016). The economy is dependent on climate-sensitive resources; the agricultural sector (crop production, livestock and fishery) and forestry accounting for the employment of 70 per cent of the workforce and contributes about 22 per cent of the rebased GDP. The country's National Policy on Environment is to ensure environmental protection and the conservation of natural resources for sustainable development. To achieve this objective, the National Environmental Policy has conservation and management of natural resources. This is done by highlighting activities or resources that have an impact on the environment and the government policy statement on tackling them.

The following are some human activities and their effect on the environment in Nigeria:

1. Cement industries and petrochemicals, affect air and atmospheric resources causing respiratory diseases.
2. Industrial and domestic effluents in the coastal areas and oil-producing Niger-Delta region, affect fresh water and wetland ecosystems. Also, desertification affects water body volume.
3. Urban development, oil and gas exploration and exploitation, affect the coastal and marine ecosystem.
4. Mining, overgrazing and farming activities affect the montane ecosystem in Nigeria.
5. Overgrazing and desertification affect semi-arid ecosystems
6. Oil and gas production, aquaculture, agriculture, urban development and forest clear-felling affect forest ecosystems. These are and other human activities too numerous to mention affect the environment. However, the focus will be on activities that increase carbon emission, that is, oil and gas activities.

Oil and gas contribute to major sources of foreign exchange to the country, however, the operations have both direct and indirect impact on the environment including on soil, water and air quality. Oil and gas operations are responsible for tons of GHG emissions; therefore, the government provides policy statements on combating the impact.

Some of these policy statements are to stop gas flaring and embark on prompt clean-ups of oil spills whenever they occur:

- a. To stop gas flaring through legislation, the federal government enacted a law in 1979 known as the Associated Gas Re-injection Act. The law needs to be reviewed because it cannot take care of the recent happenings. Also, entrusting the legislation and enforcement to the minister could hinder its implementation because of bias and conflicts of interest.
- b. Ensure prompt reporting of incidents and prompt clean-ups in line with the international standards as enumerated in the Environmental Guidelines and Standards for the Petroleum Industries in Nigeria (EGASPIN).

The scope of EGASPIN on effluent limitations, standards and monitoring for exploration and development operations state that; the limitations, standards and monitoring guidelines shall regulate seismic operations and control the impact and quantity of industrial effluents associated with oil drilling activities/operations. They shall ensure that these discharges do not cause any hazards to human health and living organisms (fauna and flora) and do not impair the quality to use adjacent surface waters, land and groundwater.

Unfortunately, what is on paper, that is, the policy on clean-ups is not the same as what is on the ground. Oduah (2019) states that there have been over 6,000 oil spills in the Niger-Delta region of Nigeria for over 50 years of oil operations. These oil spills have affected the likelihood of the region. To remedy this situation, a prompt clean-up was required and the Nigerian government 2016 kicked off the clean-ups (Oduah, 2019) the clean-up will cost \$1 billion and will take 25 years for a total clean-up (Vidal, 2016). This clean-up is guided by the 2011 UN Environment Programme (UNEP) and was financed by the international oil companies with an initial release of \$10 million to help set up the Hydrocarbon Pollution Remediation Project (HYPREP) (Oduah, 2019). The clean-up commenced in only 11 per cent of the planned sites after nearly ten years that the clean-up was urged for polluted areas (Amnesty International, 2020). Further, the Royal Dutch Shell Plc failed to implement most of the recommendations by the UN Environment Programme (Cloves, 2020). “everything is being shrouded in secrecy.... everything is being done the Nigerian way, they are not doing anything called clean-up” (Oduah, 2019).

2.2 The Challenges of Carbon Tax in Nigeria

The ever-changing environment and other factors necessitate the need to entrench a robust and efficient tax system in Nigeria [Paragraph 1.1, National Tax Policy (NTP)]. Some of the major challenges to the Nigerian tax system are lack of robust framework for the taxation of the informal sector and high network individuals; insufficient information available to taxpayers on tax compliance requirements thus creating uncertainty and non-compliance; lack of strict adherence to tax policy direction and procedural guidelines [Paragraph 1.4, NTP]. Nigeria produced an average of 1,94 kb/d of oil in 2019 (GGFR, 2020) and the more the oil production the more the environmental impact and oil spills that could have a devastating effect on the environment. Nigeria has an interest in pursuing the GHG reduction, however, it is difficult to translate the commitments into actions because of financial constraints, lack of



public support and the regression and distributional effects that the implementation of the agreement will cause and it is estimated that Nigeria will require a quantum leap in investment in sustainable infrastructure which will amount to \$5.68 million per year for 25 years (Akanonu, 2017).

The National Petroleum Policy states that the negative impacts of the oil industry in the Niger Delta are a major threat not only to the health but also to their means of livelihood. Unfortunately, the policy states the challenge is a lack of political will and capacity to implement and enforce national regulations. To alleviate the impact of the oil and gas operation in the region, the companies embark on mostly corporate social responsibility which largely remains piecemeal and short-term, community engagement is inadequate and requirements for accountability and transparency are either insufficient or not enforced.

Some corporations report their environmental activities, however, one of the challenges of The Extractive Industries Transparency Initiative (EITI) is not making environmental management disclosure mandatory among EITI implementing countries, though, 28 countries reported on environmental issues in response to local concerns (EITI, 2017).

2.3 The Theory of Double Dividend of Environmental Taxation

Over seventy years ago Pigou suggested that governments should impose a tax on any activities that have social costs and in turn helps provides subsidies to those activities that have external social benefits (Bruce & Ellis, 1993) and further expatiate on the ‘external’ that market prices should incorporate costs caused by the environmental activities because consumers do not pay full social costs of what they consume as such, the price of what they consume appears cheaper than it is.

Pigou (cited in Freire-Gonzalez, 2017) advocated for the imposition of a carbon tax to reduce the negative externalities and equally showed that it is the best method and the most efficient instrument to reduce carbon emissions. In addition, to ensure policies on climate change work, the needed support is the imposition of the carbon tax and it helps move the nation’s economy beyond fossil fuel and also ‘decarbonise’ the economy (Chiroleu-Assouline & Fodha, 2009). Further, Schob (2003) found that environmental protection has become one of the priority topics debated in the political sphere and awareness has been growing since the seventies.

Freire-Gonzalez (2017) is convinced that the “excess burden” which is the difference between what a seller collects for a sale and what a buyer pays for a purchase helps to redistribute wealth and is referred to as a tax. Environmental taxes are better instruments for protecting the environment than the classical environmental policy instruments of command and control (Schob, 2003) and more so the double dividend hypothesis increases the enthusiasm.

Also, Goulder (1995) agrees that wherever there is a serious situation involving externalities, the best instrument of getting the price right and close to approximate marginal social cost is tax. The effectiveness of the environmental tax is dependent on the marginal rates of pre-existing distortionary taxes (Goulder, 1995), that is, the revenue from the environmental tax helps finance the reduction of other conventional taxes like income tax. The environmental tax reform (ETR) that increases environmental taxes helps in generating more revenue for the government as well as reduces other taxes which produces a double dividend by reducing the

negative externalities and therefore improves the economy (Freire-Gonzalez, 2017). Freire-Gonzalez (2017) noted that issues affecting the environment like climate change, health can be abated through a policy change in favour of a cleaner production through the imposition of environmental taxation.

Aside from the revenue generated by taxes, taxes are meant to reduce the effect of consuming certain goods so Freire-Gonzalez (2017) likens environmental tax to a conventional economic theory that states that an increase in prices of goods and services is meant to dissuade consumption. The theory of double dividend of environmental taxation shows that in addition to the revenue generation and dissuading pollutants from polluting the environment, there is a second benefit that the tax brings which is referred to as the double dividend. Schob (2003) argues that the green tax reform does not only improve the environmental impacts but the non-environmental welfare as well. Though Schob (2003) further noted that the non-environmental welfare may not work in an economy with a functioning labour market, this, however, might succeed in an economy with involuntary unemployment. When the problems of the environment become severe, the consumers may resort to defensive buying of goods in the bid to protect themselves from the consequence of pollution (Schob, 2003).

Goulder (1995) argues that the hesitance by policymakers to introduce environmental tax is borne out of the fears that the benefits that will come out of the swaps. It is stated that the magnitude of the first dividend is very important and it is more appealing if the swap is costless (Goulder, 1995). The adequacy of an environmental tax can be determined by the Pigouvian taxation where it is stated that optimal tax on emissions has to equate to the marginal environmental damage (Schob, 2003). Unfortunately, the double dividend of environmental tax does not exist (Zho, Zhang, Pan, Hu & Pu, 2020) and that an increase in environmental tax helps in reducing the consumption of the polluting goods, however, it will have a negative impact on employment, family income and growth.

3.0 ENVIRONMENTAL LAWS TO REDUCE CARBON EMISSIONS IN NIGERIA

In 1979, the Nigerian government passed a law, Associated Gas Re-injection Act, to reduce gas flaring in the country and some excerpts from the Act below. Section 2 is the duty to submit detailed plans for implementation of gas re-injection:

- 1) Not later than 1 October 1980, every company producing oil and gas in Nigeria shall submit to the Minister detailed programmes and plans for either
 - a. the implementation of programmes relating to the re-injection of all produced associated gas; or
 - b. schemes for the viable utilization of all produced associated gas.
- 2) The fact that some of the gas produced in association with oil has been earmarked for some alternative utilization shall not exempt compliance with section 1 of this Act and subsection (1) of this section.

Section 3 of the Act stipulated the deadline when flaring of gas to cease:

1. Subject to subsection (2) of this section, no company engaged in the production of oil or gas shall after 1 January 1984 flare gas produced in association with oil without the permission in writing of the Minister.
2. Where the Minister is satisfied after 1 January 1984 that utilization or re-injection of the produced gas is not appropriate or feasible in a particular field



or fields, he may issue a certificate in that respect to a company engaged in the production of oil or gas:

- a. specifying such terms and conditions, as he may at his discretion choose to impose, for the continued flaring of gas in the particular field or fields; or
- b. permitting the company to continue to flare gas in the particular field or fields if the company pays such sum as the Minister may from time to time prescribe for every 28.317 Standard cubic metre (SCM) of gas flared:

Provided that, any payment due under this paragraph shall be made in the same manner and be subject to the same procedure as for the payment of royalties to the Federal Government by companies engaged in the production of oil.

The Penalty for a breach is in section 4 of the Act and states that:

1. Where any person commits an offence under section 3 of this Act, the person concerned shall forfeit the concessions granted to him in the particular field or fields concerning which the offence was committed.
2. In addition to the penalty specified in subsection (1) of this section, the Minister may order the withholding of all or part of any entitlements of any offending person towards the cost of completion or implementation of a desirable re-injection scheme, or the repair or restoration of any reservoir in the field per good oil-field practice.

To create trust and avoid the abuse of power of the individual, the government would have had a robust law to tackle the challenges, however, the Act gives the power to make regulations to the Minister in section 5 of the Act which states that the Minister may make regulations prescribing anything requiring to be prescribed for this Act.

Below is a list of countries that impose a carbon tax and amount in Euro per ton of CO₂.

Table 1
Comparison of Carbon Tax Among Countries in 2019

Country	Average Effective Carbon Tax €/CO ₂
Netherlands	39.6
Denmark	33.3
Argentina	8.8
Germany	6.7
United Kingdom	9.8
Colombia	3.8
South Africa	2.2
United States	0.7

Source: OECD, 2019a

Furthermore, one of the Acts enacted by the Nigerian government to limit the impact of environmental activities is the Environmental Assessment Act of 1992. Section 1 states the goal of the Act which states that it shall be to establish before a decision is taken by any person, authority, corporate body or unincorporated body, including the government of the

federation, state or local government intending to undertake or authorise the undertaking of any activity, those matters that may likely or to a significant extent affect the environment or have an environmental effect on those activities and which shall first be taken into account.

The punishment for breaching any sections of this Act can be found in section 62 of the Act and states that: Any person who fails to comply with the provisions of this Act shall be guilty of an offence under this Act and liable on conviction in the case of an individual to ₦100,000, five or to five years imprisonment and in the case of a firm or corporation to a fine of not less than ₦50,000 and not more than ₦1,000,000.

The EITI policy has always emphasized using the national resource wealth to be an engine for sustainable economic growth. The EITI standard encourages the implementing countries to key national priorities into the multi-stakeholder group (MSG) objectives. Some member countries have used the EITI reporting tool to increase transparency in environment management and some of these countries are Colombia, Germany, Kyrgyz Republic, Niger, Philippines and Seychelles. These countries have their environmental issues' work plan aligned to EITI objectives (EITI, 2017). It remains to be seen, Nigeria with a lot of environmental pollutions has not yet included in the work plan report on environmental tax.

In 2015 the EITI implementing countries are increasingly covering environmental taxes, levies and other payments as reported in the EITI international secretariat (EITI, 2017). And there is an expression of more desire for further transparency on environmental payments, obligations, etc. There are gaps in publicly available information on environmental payments as such EITI is encouraged to address this.

In achieving the INDC commitment, Nigeria is left with two options: either adopt the emission trading schemes where emission ceiling is set or carbon taxation where there is double dividend; the GHG reduction and generating revenue for infrastructural development. Akanonu (2017) states that it is easier to implement carbon tax than the other option and it is critical to reducing GHG emission, however, Chiroleu-Assouline and Fodha (2009) argue that the cap-and-trade mechanism helps achieve the environmental objective as well as minimize the global cost. The double dividend of the tax helps to decrease other distortionary taxes. Mas'ud *et al.* (2017) state that comprehensive regulation and environmental tax enforcement will improve environmental issues in Nigeria. James Hansen however disagrees on the regulation statement and stated that the failure of President Obama's *clean power plan* was due to their focus on regulations and suggested a \$55/ton carbon tax and he equally advised that powerful nations like the US and China should lead by proposing global carbon tax rather than allowing individual nations to have their local ground rules and further argues that (Kaye, 2017).

4.0 THE PROSPECTS OF CARBON TAX IN NIGERIA

To reduce the impact of human activities on the environment, it is advised to have regulation and authorisation before embarking on any extractive activities that could affect the environment. Nigeria is one of the implementing countries of the EITI requirements of the legal framework governing extractive industries (EITI, 2017). The main challenge for Nigeria according to National Policy on Environment is having the political will to enact laws on carbon tax and enforce them. Countries like Colombia, Seychelles, Germany, etc have gone beyond mere commitment to the implementation of laws on environmental-related taxes to curb GHG emissions.

Colombia: On the Environmental Performance Review (EPR) on Colombia, OECD (2014) states that the country enjoys impressive economic growth in recent years, it is very rich biodiversity and ecosystems, however, they are under severe pressure from activities like extractive industries, grazing, road traffic and urbanisation. In the report, OECD (2014) equally states Colombia has low CO₂ emissions from fuel combination per unit of GDP. This is due to their heavy reliance on hydropower. Despite these low carbon emissions, Colombia pledged to commit to the Paris climate change and this is done to reduce the GHG emission (Tellez, 2019). In 2016, Colombia enacted Green Tax Law. The tax for pollutants to pay \$5 per ton of CO₂ (Tellez (2019); Monge (2018)) and the collection of the carbon tax is to “fund Colombia in peace” (investments of rural and environmental development projects) and ecosystem preservation. The tax will help in 4.3 million tons of CO₂ reduction, which is equivalent to 7 per cent of Paris commitment (Tellez, 2019) and by 2017 \$167 million was collected representing 65.7 per cent of the total environmental tax in the country.

Germany: In 2015, Germany did not have an explicit carbon tax but specific taxes on energy use although to some extent permit prices from EU ETS (OECD, 2015). Seeing that the effort is not yielding the desired results, Germany proposed a complete shutdown of a coal-powered plant and imposed carbon price on transport in 2021 (France 24 live news (2020); Hansen (2019)). It is reported that starting from 2021 January, the government will charge €25(\$30)/ton of carbon dioxide emissions from the initial €10 by transport and heating sector (France 24 live news, 2020) and this will reserve to €55 by 2025 which will then be decided by auction in 2026. In the next four years, the government is projecting €52.6 billion from companies buying the new carbon certificates or polluting rights. One of the disadvantages according to RWE which has been operating the coal plant since 1968 is 300 jobs will be lost.

South Africa: Reed (2021) states that the South African carbon tax may be failing because it is not sufficient to provide enough deterrent to emitters. The tax began in 2019 with \$8.5 per ton of CO₂ and will fall to \$0.42 - \$3.4 for phase 1 until the end of 2022 (Reed, 2021). To trigger abatement experts, say carbon prices in other markets like the EU, California, New Zealand and South Korea have to rise to the level of at least \$15 - \$20 (Szabo, 2021). To reduce the atmospheric pollution, the South African Parliament drafted a bill in 2015 aimed to impose a tax on businesses emitting a high level of carbon (IEA, 2020) and was signed and came into effect from 1 June 2019.

The recent report from OECD on 2020 tax reforms reveals an increase in tax policy on environmental tax in 2020 compared to 2019 (Enache, 2020). The carbon tax may improve revenue but Enache (2020) advised that in carrying the tax reforms and reviews, taxpayer's behaviour is important because of the Covid 19 impact. The momentum towards carbon pricing is growing, however, the price per ton of CO₂ has been less than \$10, far below the High-Level Commission on Carbon Price recommendations of \$40 to \$80 by 2020 and \$50 to \$100 per ton by 2030 needed to encourage transformational change (The World Bank, 2017).

The green growth policy is an instrument to encourage broad-based actions to reduce environmental damage. This is done by shifting in consumption pattern and encourage green investment and innovation (OECD, 2015) the environmental-related taxes can shift the burden of tax from more destructive taxes like corporate and personal income and can drive growth-oriented reforms (OECD, 2015) and a well-designed tax policy can encourage citizens and investors to favour clean energy over polluting energy (OECD, 2019b).

It is advised that the traditional way of measuring growth (Multifactor Productivity) should be revisited because GDP is the only way to measure growth (OECD, 2021) if the end product which is pollution is not considered then the measurement is misleading. Pollution abatement effort is very important at measuring the economic growth of a country (OECD, 2021).

As of 2017, 46 Nationals and 24 Sub-National Governments are pricing carbon and in two consecutive years, carbon pricing raised more than \$20 billion in doing this almost 1400 companies incorporate internal carbon price into their business plans (The World Bank, 2017). A country with good technological know-how will use the gas reserve in Nigeria to develop the economy. Unfortunately, most of the gas is flared causing Nigeria to lose a lot of money and also, the gas flared increases the CO₂ thereby contributing to climate change (The World Bank, 2020). The programme manager of the National Gas Flare Commercialisation Programme (NGFCP) Justice Derefaka, states that Nigeria loses approximately \$1 billion of revenue yearly through gas flaring (Fidelis, 2018) and this is a result of its inability to capture and commercialise it in the country. It is projected that if the flared gas is properly harnessed, could create 300,000 jobs, produce 600,000mt of Liquefied Petroleum Gas per year and generate 2.5GW of power from new and existing IPPs, as approximately 700mmscf is flared at 178 sites in Nigeria (Fidelis, 2018).

Table 2

Gas Flaring Volumes 2015 – 2019 (Billion Cubic Metres)

Year	Billion Cubic Metres	Tons 'Billion	2020 @\$40/ton 'Billion	2030 @\$70/ton 'Billion	GDP \$'Billion	% of 2020 expected carbon tax to GDP
2015	7.66	0.34	13.76	24.09	486.80	2.83
2016	7.31	0.33	13.14	22.99	404.65	3.25
2017	7.65	0.34	13.75	24.06	375.75	3.66
2018	7.44	0.33	13.37	23.40	397.19	3.37
2019	7.83	0.35	14.07	24.62	448.12	3.14
Total	37.89	1.70	68.08	119.15	2,112.51	3.22

Source: NOAA, Colorado School of Mines, GGFR; World Bank Data – Nigeria, 2021

Columns 1 and 2 in Table 2 represent the year and volumes of gas flared in Nigeria from 2015 to 2019 in billion cubic metres as reported by the NOAA Colorado School of Mines, GGFR. Column 3 represents gas flared in Nigeria in tons converted from cubic metres to tons by multiplying each cubic metre by the carbon dioxide density which is 1.977g/l and dividing the result by its mass which is 44.01g/mol while columns 4 and 5 represent the revenue Nigeria would have generated and the projected revenue Nigeria would have collected from carbon tax in 2020 and 2030 respectively had Nigeria charged \$40 and \$70 per ton for each period as recommended by the High-Level Commission on Carbon Price recommendations of The World Bank (2017). Columns 6 and 7 represent the country's GDP in billions of dollars and the percentage of the 2020 expected carbon tax revenue to the GDP.

From the projected carbon tax at \$40 per ton of carbon emission and converting it to Naira at the rate of a dollar to ₦381 as of 11 April 2021, Nigeria would have generated ₦25.9 Trillion from 2015 to 2019 more than the total tax revenue of ₦21.7 Trillion generated under the



same period. Imagine the huge potential Nigeria has from generating revenue from the carbon tax and in return reduce the pollution on the environment with a double dividend of reducing the distortion caused by others taxes like the income tax.

For Nigeria to be on the same page with other countries with the world best practices, Nigeria needs to take into consideration the effect of pollution in measuring economic growth. Since Nigeria is a member of some international organisations, for example, EITI, it should implement strict policies of these bodies to promote environmental best practices same as some OECD member countries and embrace carbon tax and environmental-related taxes to curb harmful practices by some individuals, groups and multilateral organisations.

5.0 CONCLUSION AND RECOMMENDATIONS

Human activities have an impact on the environment through carbon emissions which cause climate change. Nigeria agreed to participate in the Paris Agreement to reduce the carbon emissions, however, Nigeria is faced with myriads of challenges in implementing the Paris climate change agreement due to financial constraints and the lack of political will to use the most effective instrument; carbon tax, to reduce pollution. Similar to James Hansen statement on the President Obama administration's failure on clean power plan due to too much focus on regulation, Nigeria enacted different laws to reduce the impact of extractive activities harmful to the environment, however, the efforts did not yield meaningful result. Therefore, this is an opportunity for Nigeria to seize by imposing a price on the carbon content to generate enough money for investment in sustainable infrastructure to address environmental and health concerns. Also, the environmental taxes present better business opportunities, that is, investment inefficient technologies. So many countries like the US, European countries, etc are investing heavily in green energy and with Nigeria's huge potential to generate funds from carbon tax it is recommended that Nigeria makes effort to move from fossil energy by imposing environmental-related taxes and benefit from the double dividend of environmental taxation.

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