

Public Sector Budget, Climate Change Finance and Climate Indicators in Nigeria: An Impact Analysis

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Abstract

Climate change is a major worry for many countries, including Nigeria, as it presents an increasing threat to human livelihoods and global ecosystems. In order to better understand the efficacy of budget allocation and the impact of climate indicators on efforts to mitigate and adapt to climate change, this study presents an impact analysis of Nigeria's public sector budget, climate change finance, and climate indicators. Nigeria is a growing nation that deals with a range of climate-related issues, including intense weather, temperature rises, and irregular rainfall patterns. Numerous industries are impacted by these issues, including infrastructure, energy, water resources, and agriculture. The Nigerian government has been putting money toward projects that mitigate and adapt to climate change as part of its public sector budget in order to allay these worries. In order to investigate the relationship between public sector budget allocation, climate change funding, and climate indicators in Nigeria, this research blends quantitative and qualitative methodologies. It measures the impact of climate indicators on the nation's reaction to climate change and appraises the efficacy of current budgetary allotments for climate-related projects. The study comes to the conclusion that climate finance comes from a range of sources, including public and private organizations. It also frequently involves cooperation between different institutions and involves funding climate change adaptation and mitigation projects across the nation through the appropriate government ministries, departments, and agencies. It suggests, among other things, that in order to facilitate a more thorough knowledge of the gaps in public climate finance, which can enhance better policy making, improved public finance and budget data and evidence collection and provision are needed.

Keywords: *Public sector budget, Climate change, Climate change finance, Climate indicators*

Introduction

Budget is unarguably a task for governments, government agencies and departments, businesses organisations and individuals do to maintain their financial cycle in shape in respect of the finances they earn, how to earn it and what they spend. Within the periscope of a nation-state, government budget, otherwise known as public sector budgeting is fundamental to keeping the nation-state going all year round, in pursuance of the constitutional functions and rightful duties of a government. However, Oguonu and Ikeanyibe (2001) observe that the laws and procedures of budget and budgeting vary across countries and departments. Some of these differences are due to the dynamic nature of budgeting, the local conditions within a geopolitical unit, and international regimes.

The Nigerian public sector budgeting has drawn debates among the academia over the years. Nwakpa and Okeke (2017: 8) argue that the Nigerian public sector budgeting is flawed from financial recklessness. The public budget should be characterised by strategies for the efficient financial management (Igbara, Tordee, Nwadike & Abuba, 2016: 2). According to Lawyer (2013:50) in consonance with Obara et al. (2013), public sector simply refers to sectors of an economy or nation-

state that are controlled by the government for the purpose of providing basic services for the masses. The means by which government facilitates the provision of services in the nation-state is budget. Public sector budget is prepared in the form of public policy to serve as a driver through which government can deliver set goals in pursuance of its responsibilities.

Since 2012, sequel to designing the National Climate Change Policy and Response Strategy, Nigeria has established a policy dedicated to planning for, and responding to, climate change (Stout & Meattle, 2022: iv). Following its rising greenhouse gas emissions since 2009 (Climate Watch, 2019), Nigeria is vulnerable to the impacts of climate change, a consequence of its fragile economy largely dependent upon ecosystems and natural resources (DCC, 2021). Therefore, the country needs to be deliberate in addressing climate change and this should reflect in its public sector financing and budgetary allocations. Climate change finance as part of climate change policies, embodies strategies and plans enacted for mapping and distribution of the flows of funds (grant, debt or equity), and how finance is ultimately used on the ground for mitigation of, and adaptation to climate change realities.

Therefore, this paper seeks to examine the relationship between public sector budget and climate change finance in Nigeria on one hand, and on the other hand, the impact of climate change finance and climate change indicators in Nigeria.

Conceptual Clarification

Budget: Budget has attracted scholarly conceptualisation across disciplines. In generic and simple terms, also, Igbara, et al (2016:1) conceptualised the term as the distribution of available monetary resources for certain purposes within a particular period of time. It may include deliberate sales volumes and revenues, resources, quantities, costs and expenses, assets, charges and cash flows. Budget “expresses strategic plans of government, business units, organizations, and activities or events in demonstrable terms,” Nwankpa and Okeke (2017:8).

Igbara, et al (2016:3) further asserted thus:

A budget is equally an authority for public officers to collect taxes, fees, charges and fines. It is also an authorization for the officials to spend public revenue as provided in the approved allocations and in accordance with the financial regulations. The authorization by the legislature promotes the principle of popular sovereignty. It also serves as an essential device for relating total expenditure to total revenue. A budget is a scientific means of quantification and measurement of services in terms of expenditure within a given period.

Historically, Igboeche (2017:52) traced the term “budget” to an old English word, “Bougett,” being a sack or pouch, from which the British Chancellor of Exchanqer extracted a paper for the government’s ensuing fiscal year, to the Parliament. Malgwi and Unegbu (2012:1) expatiated the historical antecedents to the term budget accordingly:

The word ‘budget’ originated from a French word, bougette, meaning little bag. In Britain, the word was used to describe the leather bag in which the Chancellor of the Exchequer used to carry to the parliament, the statement of government needs and sources. After several thoughts of consensus, the budget became the document contained in the bags which represent plans of government expressed in money and submitted to legislature for approval. As per Ekhaton and Chima (2015:2), budget in modern times connotes a financial scheme or statement document which contains estimates of revenue and expenditure for a year being either for financial proposal or as approved by the appropriate body.

Public Sector Budget: Budget is an elaborate system of financial management which includes both the plan of public revenue and expenditure, and the whole of material finances which are disclosed in ministerial, departmental and agency statement placed before the legislature for acceptance to guide the orderly administration of the financial affairs of the government (Nwankpa and Okeke, 2017:9). Ekhatior and Chima (2015:2) buttressed that a public sector budget is more than government estimates of revenues and expenditures, but encompasses reports regarding how government managed affairs in a fiscal year, the condition of public treasury, programme of work for the coming financial year and how public work should be financed. Therefore, the features of public sector budget are itemised to include the under-listed:

Clear identification of all activities to be carried out within the budget period; Accurate estimate of the resources required to carry out the activities identified; Allocation of funds amongst competing departments and activities along predetermined priorities; and Formulation of appropriate policies to guide and support the implementation of the budget.

Therefore, summarily, Ugoh and Ukpere (2009: 837) posit that public sector budget is a comprehensive outline of what economic and non-economic activities a government would undertake or has undertaken with germane attention on policies, objectives and strategies for accomplishments, that are substantiated with revenue and expenditure projections of a particular period of time, usually one year. It is a framework for annual revenue and expenditure outlays and an instrument stipulating policies and programmes aimed at realising the development objectives of a government, adds Lawyer (2013:50).

Theoretical Framework

According to Bandyopandhyay and Singh (2023: 238 – 57), there are two major theories of public expenditure. These theories are the Wagner's Law and the Peacock-Wiseman's Hypothesis.

Wagner's Law was propounded by Adolph Wagner. Wagner's law is also called the Law of Expanding State Activity and/or the Law of Increasing Public Expenditure. The theory emerged from the observation of growing public expenditure in industrial countries of Europe in the 1860s. The countries in that period were characterised by industrialisation and temporal growth of GDP per capita as also increase in population. Wagner, observed a positive long-run co-movement in the two variables: public expenditure and national income. The pace of rise in public expenditure was generally higher than that of economic growth. Hence, it was argued that the long-run elasticity of public expenditure is above unity, which implies that public expenditure is increasing absolutely as well as relatively to the economy as a whole. The theory posited that there would be increasing political pressure for State activities and industry would be willing to cooperate.

The theory further argues that there would be both extensive increase (that is new activities) as also intensive increase (which are more of same activity) which determine public expenditure. In other words, three main factors attributed to Wagner's proposition are: (i) expansion of social activities of the state, (ii) increase in administrative and protective actions and (iii) assumption of welfare functions. Others factors pointed out are: (i) technological and institutional changes and (ii) democratisation along with rising per capita income. In brief, therefore, social progress, income effect, rising population, urbanisation, technology, etc. (some of them on demand side and others on supply side) contribute to increasing public expenditure.

The law has been examined empirically for different countries, for different data sets and for different periods using different techniques. Other variants of public expenditure considered in such studies

include: public consumption expenditure, expenditure of total public sector, total employment by government and companies, et cetera. The law is generally found to hold. Some contrary hypotheses surrounding the causation factor are indicated. This takes the form that as the governments implement counter-cyclical policies to reduce the impact of business cycles, it tends to spend more and more (i.e. as its own proportion than the growth it stimulates as proportion of GDP) argues Bandyopandhyay and Singh (2023).

Peacock-Wiseman's Hypothesis propounded by Alan T Peacock and Jack Wiseman emerged as a critique of Wagner's Law. Peacock and Wiseman observed some missing jerks and jumps in Warger's Law. They argue that when the ratio of Public Expenditure to GDP against time is plotted, for a fairly long period of time like half a century, sudden jumps and jerks would be found. Social upheaval such as climate change, drought, floods, et cetera, can cause an upward shift in public expenditure which is different from that of the time of normalcy. This upward shift is referred to as the 'displacement effect'. Hence, their hypothesis is also known as 'displacement effect hypothesis'.

Accordingly, public expenditure is not necessarily determined by the notion of desired level but by the limits of bearable taxation burden. A divergence between people's ideas of 'desired level of expenditure' and 'tolerable tax burden' persist under normal circumstances. But in times of social upheaval, divergence narrows down. In times of crisis, people will accept methods of raising revenue previously thought to be intolerable. At the same time, in normal times government may not feel confident to implement what they thought was desirable. After upheaval, it becomes possible for the government to implement those schemes as people are adjusted with new levels/rates of taxation. People also become conscious of their obligations which is termed as the 'inspection effect'. There is also a 'concentration effect' whereby the share of central government increases with each upheaval as the performance of stabilisation function is to be shouldered by the central government.

Literature Review

Scholarly analyses of Nigerian public sector budget exist with contributions from Odeh and Okoye (2012), Lawyer (2013), Iloh and Nwokedi (2016), Nwankpa and Okeke (2017), et cetera. Odeh and Okoye argue that budget is prerequisite for national development as it promotes accountability and transparency in public fund management, while serving as a fiscal self-assessment instrument. However, poor budget implementation has truncated the object of public sector budgeting as evidenced in the prevailing indices of underdevelopment in Nigeria which include rising unemployment, poor public infrastructure, lack of accountability, et cetera (Odeh & Okoye, 2012:71).

For budget implementation to lead to good governance, there must be a paradigm shift in budget preparation to include performance measurement information. The budget should include expenditure tracking as an institutional framework for tracing the utilisation of budgetary allocations in order to ensure the funds are channelled towards what they are meant for, suggests Olomola (2006). This is in addition to effective monitoring and evaluation to minimize corruption, promote transparency and accountability and ensure that the expected benefits of the budgets are derived thereupon. The place of public institutional synergy in pursuance of effective budget management is also emphasised (Odeh & Okoye, 2012:95)

In another contribution, Lawyer (2013) reviews the practice of budgeting and budget implementation in Nigeria. The treatise argues that in order to secure best value in terms of allocation and utilisation of Nigeria's scarce financial resources, the concept of value Money Audit, due process and cost Audit must be put in place. If the concepts are properly applied alongside good public expenditure

framework, the Nigerian public sector budget will be robust and effective. To that end, professionalism in post project review technique of value for money concept, performance measurement and benchmarking for the continuous process and improvement should be imbued as a national corporate culture (Lawyer, 2013: 50).

Iloh and Nwokedi (2016), examined Nigeria's budget process in line with the imperative of participatory budgeting. The piece identified participatory budgeting as the missing link for effective budget governance in Nigeria. By adopting the Marxist theory of the state as our theoretical framework, it argued that participatory budgeting is difficult in Nigeria due to the vested interest of the ruling class. By making a comparison with Latin America countries, it shows that participatory budgeting is the remedy to the myriads of problems bedevilling budgeting in Nigeria.

The work of Stout and Meattle (2022), extends the debate on public sector budget to the aspect of climate change financing. The work observed that Nigeria has a National Climate Change Policy and Response Strategy dating back to 2012. Nigeria is vulnerable to the impact of climate change as the country is dependent on natural resources as major economic activity and revenue source. With its rising greenhouse gases emissions annually, the country needs to ensure prospective growth follows a low emissions strategy to prevent carbon emissions (Stout & Meattle, 2022: iv). The work contends that specific finance policy with a view of increasing the quantity and quality of climate finance is needed in Nigeria's public sector climate finance framework.

Udoma and Bello-Osagie (2023) argue that to have a sustainable environment, businesses need to adopt transaction activities which are environmentally friendly to mitigate the impact of climate change. While the passage of the Climate Act in 2021 is a welcome development in providing Nigeria with a framework for climate change financing to meet the goal of net-zero emissions by 2050 – 2070, the Nigerian government and private sector companies need to put measures in place to meet the requirements of the Climate Act. Pertinently, the fight against climate change is a collective task and financial institutions need to put Nigeria's developmental needs in respect of climate change adaptation and mitigation (Udoma & Osagie, 2023: 11).

Other assessments of the phenomenon of climate change in Nigeria and climate change finance in Nigeria including Fatoki and Sasona (2015), the United Nations Framework Convention on Climate Change (2020), Haider (2019), and Okediya (2023), among other works, did not cover the impact of climate change financing on climatic indicators in Nigeria. Hence, there is a lacuna in the available knowledge on climate change financing in Nigeria, which this study seeks to fill, while building on the existing body of knowledge.

Methodology

This study is conducted using a qualitative research method, using the descriptive and narrative techniques. Primary and secondary sources of data were collected and interpreted through desk analyses of white papers, policy documents, expert reports, and published works. The works used for the study were eclectically selected and their contents were carefully analysed. The sources of information are acknowledged in line with required ethical considerations.

Climate Change Response Profile of Nigeria

There are a number of initiatives taken by Nigeria to respond to climate change and the challenges of the phenomenon in the country. These include international and national response initiatives. The nation response initiatives taken by Nigeria to combat and address the challenges of climate change fall within areas categorised into: climate change institutional framework; enabling climate policies;

nationally determined contribution; climate change financing; and donor-supported initiatives (National Climate Change Policy for Nigeria, 2021: 11).

The institutions which contribute to climate change response in Nigeria include federal government institutions, state government institutions, and non-state institutions like International Governmental Organizations and Non-governmental organisations. At the federal level, the Department of Climate Change and its parent ministry - the Federal Ministry of Environment, co-ordinate the national response activities towards tackling climate change at the national and international levels. The Department of Climate Change functions in collaboration with other Ministries through the Inter-Ministerial Committee on Climate Change (Badru, 2020: 200). At the state government level, State Emergency Management Agency and other state ministries with environmental protection mandate provide the institutional efforts to address climate change.

There have been enabling policies and programmes in Nigeria which evolved over the years, specifically related to climate change mitigation and adaptation. Among the adopted enabling policies and programmes are the National Forestry Action Plan (NFAP) 1996; the National Policy on Drought and Desertification (NPDD) 2007; the National Forest Policy (NFP) 2010; the National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN) 2011; the National Policy on Environmental 2016; Nigeria Agricultural Policy 2001; the Great Green Wall for the Sahara And Sahel Initiative National Strategic Action Plan (GGWSAP) 2012; National Water Policy (2012); National Climate Change Policy and Respond Strategy (NCCPRS) 2012; Agricultural Promotion Policy (APP) 2016 – 2020; National Agricultural Resilience Framework (NARF) 2013; National Health Policy (2016); National Transport Policy (2016) Nigeria Industrial Revolution Plan (2014) National Gender Policy (2006); et cetera. Although there is the National Climate Change Policy and Response Strategy of 2012, the policy and strategy alone does not suffice to combat climate change as climate change is an environmental issue which deserves to be addressed holistically.

Nigeria's nationally determined contribution response to climate change was developed in 2015 towards the ratification of the Paris Agreement on Climate Change. By this, Nigeria seeks to curb its greenhouse gas emissions by 20% by 2030 relative to the emissions intensity base period of 2010 to 2014 on an unconditional basis. A further 45% reduction of greenhouse gas emissions will be pursued on a conditional basis consequent upon receiving climate response finance, technology transfer and capacity building from the developed countries. The goal of the nationally determined contribution is to address climate change by improving standards of living, promoting clean energy access and food and water, making the country more resilient to climate impacts, and enabling Nigeria to be able to contribute to the goal of keeping the global temperature increase to less than 20C.

Suffice to note that climate change response activities and initiatives have taken off in Nigeria and have financial implications for the government. The government's financial contributions to climate change are essentially subject to public budgeting. Hence, public sector climate change finance with attention to budgeting forms to crux of the proceeding section of the paper.

Public Sector Climate Change Finance Framework in Nigeria

Public sector climate change financing in Nigeria stems from the recognition that responding effectively to climate change mitigation and adaptation challenges requires a critical mass of financial resources. The financial resources to be committed to this effect surpasses what the Nigerian government across levels can provide. Therefore, the government of Nigeria launched and issued Green Bonds as an innovative means and alternative way of raising climate change response finance,

with requisite guidelines for the Green Bonds, targeting approximately \$250 million in climate finance to support projects in related key area over a ten year period covering 2021 to 2030. The key areas include environment, agriculture, power and energy efficiency-transportation. The government also intends to continue to mobilize national, regional and global climate finance resources to tackle the challenge of climate change over the period and beyond (National Climate Change Policy for Nigeria, 2021: 11).

Within the periscope of institutional framework response to climate change with specific response to NEMA, it was observed that over a period of eleven years. The agency was reported to had spent N112.13 billion from Consolidated accruals and ecological fund utilisation on disaster management in the country from 2011-2022 (BusinessDay, 2022). The agency reached out to over 1,427,370 persons displaced by the flood disaster across the nation (Mustapha, 2022). This implies there is and will continuously be an increase in the public budget as the government addresses climate change, just as the Wagner's Law suggested.

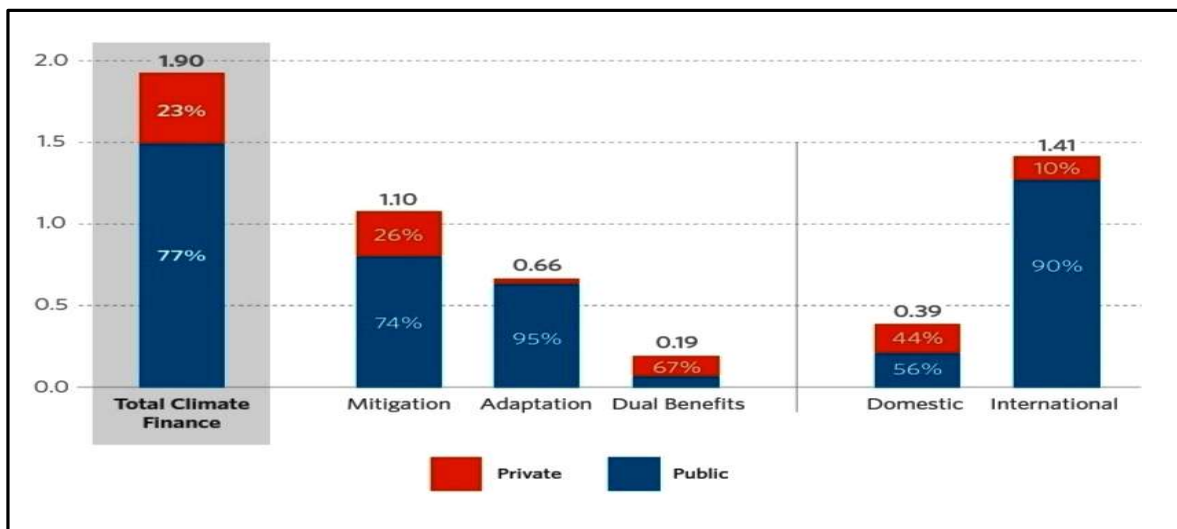
It has been observed that Nigeria is the third top recipient of climate finance in Africa, with Egypt and Morocco being ahead of the country. However, the tracked USD 1.9 billion of climate finance flowing to and within Nigeria is minimal relative to the size of the economy and opportunities in the country for low-carbon development. This is in part, the country's national budget plan and climate change financing. In 2019/2020, climate finance in Nigeria accounted for 7% of tracked climate finance in Africa with USD 29.5 billion, and 27% of West Africa's flows of USD 7 billion. In spite of that record, climate investment is insufficient in comparison with the estimated levels needed to achieve Nigeria's nationally determined contribution to climate action, with the overall of USD 15.8 billion annually (Stout and Meattle, 2022:15).

Pertinently, the precise sectoral breakdown of needs in Nigeria remains unquantified in Nigeria's nationally determined contribution for climate action. However, the aggregated estimate of USD 17.7 billion needed annually to achieve the conditional nationally determined contribution exceeds tracked climate finance of 2019/2020 which was USD 1.9 billion, with a wide margin. Moreover, in the aspect of clean energy investment, the tracked flows of USD 798 million are thwarted by fossil fuel financing with Nigeria ranking second in Africa between 2016 and 2021, based on the number of projects financed. One liquefied natural gas (LNG) project alone received USD 2.77 billion which was more than the total climate finance tracked in 2019/2020 (Geuskens & Butijn, 2022).

It has been observed that public climate finance in Nigeria has been primarily committed via Multilateral Development Finance Institution in form of Development Finance Institutions (DFIs), accounting for approximately 55% of the country's climate change financing efforts. Bilateral DFIs account for approximately 20%. The government contributes about 19%, with majority of it serviced as debt. Nigeria's public climate finance needs to be deliberately increased especially in the budgetary allocation, for the country to meet up to the conditional nationally determined contribution target by 2030 and ensure that other climate action goals and objectives are met (CPI, 2022b).

The major sources of Nigeria's public climate finance are the World Bank Group and the French Development Agency (AFD) (Stout & Meattle, 2022: 11). In 2019/2020, the World Bank Group and AFD serviced 41% and 17% of the public total respectively, through low-cost project debt. The United States of America, Canada, Denmark, and the United Kingdom were other key bilateral providers, each providing approximately USD 36 million in 2019/2020. Also, 93% of all climate finance which is USD 1.3 billion, from multilaterals and bilateral development finance institutions and partner countries was provided through loans. While 75% of the loan was concessional, 25% was non-concessional (Onyeiwu, 2021).

Figure 1: Public and Private Source Breakdown of Climate Finance in Nigeria at 2021



Source: Stout and Meattle (2022: 10).

Nigeria’s Federal Ministry of Environment provided for a Climate Public Expenditure and Institutional Review (CPEIR) in its 2017 budget (BUR2, 2021). Onyimadu and Uche (2021) used an OECD DAC climate budget tagging framework to estimate public financial resources committed to climate adaptation from 2013 to 2020. It was found that approximately USD 88 million in total was expended by the government within the period. The majority of programmes targeted flood control, erosion control or irrigation projects, with a view towards reducing the vulnerabilities in agriculture (Stout & Meattle, 2022: 11).

Nigeria has provided an institutional framework for green bonds through the Federal Ministry of Environment (FME), Federal Ministry of Finance (FMF) and the Federal Ministry of Finance, Budget and National Planning (FMFBNP). The programme has committed USD 165.1 million in climate finance through local as well as international funds (DCC, 2020). For the programme, projects funded via the bond proceeds are required to clearly and quantifiably show environmental benefits and eligible projects in the national budget must comply with the internationally accepted Green Bond Principles. Consequently, the Nigerian Government has commenced budget tracking and tagging to build a full climate budget tagging review framework.

Figure 2: Green Bonds Market Profile of Nigeria in 2021

Year	Amount (USD mn)	Green Bond Issuer	Use of Proceeds
2017	29	Federal Government of Nigeria	Solar energy and afforestation
2019	49	Federal Government of Nigeria	Wind & solar energy; rural electrification; afforestation/ reforestation
2019	23.5	North South Power Company Limited	Hydropower
2019 ²³	41	Access Bank PLC	Flood defenses; solar energy
2021	15.3	North South Power Company Limited	Solar energy
2021	7.3	One Watt Solar Limited	Solar energy
Total	165.1		

Source: Stout and Meattle (2022: 13).

Challenges to Public Climate Change Finance in Nigeria

The public sector of Nigeria faces capacity constraints to adequately implement, manage, and report on climate action. The awareness and understanding of the challenges posed by climate change, and the possible cost-effective solutions the climate challenge in Nigeria are not sufficient. In the second Biennial Update Report (BUR2, 2021), it was observed that Nigeria does not have the necessary technical capacity for greenhouse gas control and management systems. The government does not have the capacity and control protocols for estimating greenhouse gases emissions (ICAT, 2022). Therefore, there is heavy reliance on international partners on this dimension of climate action.

There is also a low level of accountability and transparency in the aspect of public climate change financing in Nigeria, which Stout and Meattle (2022) conceptualised as disclosure challenge. Some efforts have been made by the Central Bank of Nigeria and the Nigerian Stock Exchange, but the results are yet to be achieved. Tracking and reporting public climate finance remains necessary for effectively managing climate finance flows. Therefore, the current information asymmetries seemingly stifle investment and prevent a comprehensive assessment of the landscape of public climate finance in Nigeria (Stout & Meattle, 2022: 22).

There is a seemingly ineffective coordination efforts for assessing public climate finance in Nigeria. The Inter-Ministerial Committee on Climate Change facilitates the cross-sector coordination between ministries and other stakeholders. However, this function is insufficient and the committee is somewhat little for the task as the climate challenge in Nigeria demands a “whole of government” approach to ensure policy frameworks are directly connected to public climate change finance involve all relevant ministries. More broadly, a “whole of society” approach is required across institutional arrangements that connect actors across sectors and spatial settings in concerting climate challenge awareness efforts and facilitating vital partnerships in that regard (Itua & Esambe, 2021).

Furthermore, there is the lack of necessary technological resources and expertise in relation to data which inhibit Nigeria's capacity to adopt more advanced solutions to climate change, for example, early warning systems for adaptation or renewable energy technologies. As a technology consumer, fostering technology transfer adds financial burdens on the government (NDC, 2021). The technology gap is also inhibiting the country's ability to adapt, where data and analytics are needed to identify vulnerabilities and to facilitate the design of context-specific, locally-feasible solutions (Stout & Meattle, 2022: 22).

Impact of Public Climate Finance on Climatic Indicators in Nigeria

In spite of that efforts of Nigerian government towards climate finance, the challenges faced in that aspect have led to some observations with dire consequences on climatic indicators in Nigeria. These climatic indicators include precipitation and temperature.

Precipitation: There has been a continuous increase in precipitation by approximately 5-20 percent, leading to rainfall flooding in some regions of Nigeria (Olapido, 2010: 7). In the coastal region, it is projected that flood will be exacerbated by rising sea level (Akande et al., 2017). The rise in average sea levels at 2022 was 0.1m and will double to 0.2m by 2050 due to climate change. This could reach 1m by 2050 (Federal Ministry of Environment, 2014: 14). A sea level rise of 1m could result in loss of approximately three-quarter of the coastal landmass area of the Niger Delta (Olapido, 2010, 38), thereby submersing parts of the coastal states. In the northern part of the country, dwindling precipitation will lead to drought.

Temperature: Climate projections indicate a significant increase in temperature in Nigeria. Temperature will rise with an increase of 0.4 to 1°C between 2020 and 2050, and could even get to 3.2°C by 2050 (Olapido, 2010: 38). Such rise in temperature will have negative effects on agriculture and food security in Nigeria (Akande et al., 2017).

Conclusion

Climate finance can be sourced from either public or private actors, with an array of different institutions operating and indeed collaborating therein. The public sector of Nigeria has contributed enormously to climate financing. Public climate financing in Nigeria dates back to several years before the enactment of a concise policy on climate change in Nigeria. This has been through the funding of climate change adaptation and mitigation related activities in the country through related ministries, departments and agencies of the government. With the enactment of the climate policy in Nigeria, public climate change finance in Nigeria has become a policy issue which cannot be neglected, overemphasised, or taken for granted by the government.

However, due to the current absence of federal and/or state budget tagging on Nigeria, the landscape of domestic public climate finance could not be fully assessed in this study. Also, a considerable portion of tracked private climate finance in Nigeria amounting up to USD 192 million (44%) could not be traced to specific sources due to data limitations. Improving on the transparency of data – via more stringent reporting requirements – is needed across the entire, national climate finance periscope of Nigeria, in order to better account for action by the public sector of the country actors (CPI, 2021).

Recommendations

Based on the findings of this study, it is recommended that better public finance and budget data and evidence collection and provision for the public are required. This will enable a more comprehensive

understanding of the gaps in the public climate finance for better policy making it regards. Also, adequate Measure, Verify and Report systems are needed to assess progress relative to established public climate finance baselines.

The Sustainable Banking Principles of Nigeria should be improved upon, so as to integrate operational definitions and methodological guidance of green finance. This should be in tandem with international practice and should focus more on formal/stringent requirement which will improve the quantity and quality of public climate finance reporting. Signatory banks should work towards formal assessments of portfolio climate risk, with accompanying climate risk management strategies.

The effects of climate change in Nigeria requires a holistic government approach to ensure policy frameworks directly connected to public climate finance and cross-cutting issues are always included in annual budgets. Policymakers need to ensure there is synergy between work streams rather than addressing interconnected issues (for example, air quality and climate) in isolation. There should be an institutional framework for a nation-wide approach which will connect actors across sectors through necessary partnerships for concerted awareness creation on climate change effects.

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