
Combating Electricity Poverty in Nigeria Through Off-Grid Renewable Electricity: The Role of Financial Support Under the International Climate Change Regime

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Abstract: *There are two imperatives for the deployment of off-grid renewable electricity technologies to a greater extent than its current status in Nigeria. Firstly, off-grid renewable electricity is a viable option for providing access to a steady and reliable electricity supply in Nigeria. Furthermore, it is an option for Nigeria to mitigate the emission of greenhouse gases from the electricity sector. Notwithstanding, the development is hampered by the inability of investors to afford or access the capital needed to start off-grid renewable electricity projects in Nigeria. The United Nations Framework Convention on Climate Change (UNFCCC) 1992 commits developed countries to finance the development of Environmentally Sound Technologies (ESTS) in developing member states like Nigeria. This paper examines and analyses the adequacy of these provisions in removing the capital barrier that impedes the development of off-grid renewable electricity in Nigeria. It finds that the adoption of concessionary funding as the definition of finance for the purpose of disbursement of the financial resources under this provision in relation to Nigeria impedes the contribution of developed states in removing this barrier. In 2015, the Paris Climate Change Agreement was concluded and has entered into force on 4th November 2016. This work examines the relevant provision of this Agreement with a view to establishing that even though the Agreement had broadened the possible channels in which climate finance would flow to support the development of ESTS like off-grid renewable electricity in developing member states like Nigeria: it is not certain that it will strengthen the financial contributions of developed member states to the removal of the financial barrier that impedes the development of off-grid renewable electricity in Nigeria. The Paris Agreement just like the UNFCCC adopts concessionary funding as the definition of financial resources under this Agreement. In the first instance, this adoption of concessionary funding in relation to the financing of ESTS such as Off-grid renewable electricity in Nigeria whittles down the strength of such contributions to the removal of the financial barrier to the development of off-grid renewable electricity in Nigeria. Again, the recommendatory nature of the obligation of developed member states to take the lead in the mobilisation of climate finance means that it is not certain that it would contribute to the removal of this financial barrier.*

1. INTRODUCTION

Nigeria has a vast amount of conventional and renewable electricity sources. It holds the ninth largest natural gas reserve in the world and is currently the largest oil producer in Africa.² Studies show that the potential of renewable energy in Nigeria is twice that of oil and natural gas reserves.³ The renewable energy sources include solar, biomass, hydro and wind energy.⁴

Amidst the abundant electricity sources is the paradox of electricity deficiency in Nigeria. Currently, only 45.6% of the entire Nigerian population have access to electricity.⁵ The rural population that has access to electricity is only 18%.⁶ The population that has access to electricity get an average of four hours of electricity supply daily.⁷ Even the average electricity supply is erratic.⁸

This problem has been attributed to the nature of the Nigerian electricity grid.⁹ The Nigerian electricity sector is centralized given that electricity is generated in large gas and hydro power stations.¹⁰ Consequently, it is distributed to consumers across Nigeria through a national grid.¹¹ This nature of the electricity sector has given rise to some problems which undermine access to reliable and steady power supply in Nigeria. Firstly, the grid is unsuitable for the electrification of most of the Nigerian rural population.¹² Studies have shown that sixty five percent of rural areas in Nigeria are remote because they are either far away from the grid or have bad topography to the extent that makes it uneconomical¹³ or physically impossible to extend the national grid to them.¹⁴ Secondly, the

electricity infrastructures used in Nigeria are old and not adequately maintained.¹⁵ As a result, they frequently break down. ¹⁶Again, these infrastructures are targets for vandals. ¹⁷Owing to the interconnectivity of the grid, regular breakdowns or vandalism against a part of the infrastructure disrupts the quality of supply of power from the national grid.¹⁸ Consequently, it is desirable to deploy off-grid electricity options from sources which dispenses with the need to use a centralised grid. The decentralised electricity sources available in vast quantity in Nigeria are renewable energy sources.¹⁹

Nigeria is a signatory to the international climate change regime²⁰ which is comprised of the United Nations Framework Convention on Climate Change 1992 (UNFCCC)²¹, the Kyoto Protocol 1997²² and the Paris Agreement 2015.²³ These instruments provide that member states should mitigate climate change and promote sustainable development.²⁴ The use of a centralised, gas powered electricity grid in Nigeria exacerbates the emission of greenhouse gases (GHG) which causes global climate change. ²⁵Firstly, the Nigerian domestic refineries emit GHG in the course of processing the natural gas used for electricity generation.²⁶ Secondly, those who do not have access to the electricity grid exploit wood to meet their electricity needs.²⁷ This leads to deforestation and wood burning which increases the accumulation of GHG in the atmosphere.²⁸ Thirdly, those who have access to the intermittent electricity supply from the grid use GHG-emitting self-generators²⁹ to supplement the unsteady electricity from the national grid. ³⁰If the objectives of UNFCCC could be achieved, there should be a shift to decentralised, clean, renewable electricity options generated near the point of sale and distributed without connecting to the national grid.³¹ These are called off-grid renewable electricity systems.³²

Notwithstanding the imperatives for off-grid renewable electricity, they are constrained by the inability of investors to afford or access the capital needed to start off-grid renewable electricity projects in Nigeria. A study by the Global Environmental Facility (the Facility) indicates that potential investors cannot afford or access the initial capital required to start off-grid renewable electricity technology projects in the country.³³ The international climate change regime commits developed member states to contribute financially to the development of climate friendly technologies like off-grid renewable electricity in developing member states like Nigeria.³⁴ This makes the regime relevant to the removal of this financial constraint that impedes the development of off-grid renewable electricity in Nigeria.

Thus, this work examines the adequacy of the international climate change regime in removing the problem of inability of investors to afford or access the capital needed to start off-grid renewable electricity in Nigeria. In the first instance, the work identifies and examines analytically the provisions of the UNFCCC on the separate obligation of developed member states regarding financing of climate friendly technologies. It finds that the adoption of concessionary funding as the definition of finance in relation to the financing of climate friendly technologies in Nigeria impedes the contribution of developed states in removing this financial barrier to the development of off-grid renewable electricity in Nigeria. The Paris Climate Change Agreement was negotiated in 2015 and entered into force on the 4th of November 2016.³⁵ This work will examine the relevant provisions of this Agreement with a view to establishing that even though the Agreement had broadened the possible channels in which climate finance would flow to developed member states like Nigeria: it is not certain that it will strengthen the financial contributions of developed member states to the removal of the financial barrier that impedes the development of off-grid renewable electricity in Nigeria. In the first instance, the adoption of concessionary funding as the definition of financial resources by the financial mechanism whittles down the strength of such contributions to the removal of the financial barrier to the development of off-grid renewable electricity in Nigeria. Again, the recommendatory nature of the obligation of developed member states to take the lead in the mobilisation of climate finance means that it is not certain that such mobilisation would contribute to the removal of this barrier.

2. THE FINANCIAL PROVISIONS OF THE INTERNATIONAL CLIMATE CHANGE REGIME.

2.1 Introduction

The UNFCCC 1992 is the first global instrument³⁶ which coordinates responses to the problem of climate change.³⁷ It commits member states including Nigeria to take several measures to mitigate climate change.³⁸ One of such measures is the development of technologies that control, reduce or prevent the emission of GHGs in relevant

sectors including energy.³⁹ As highlighted in the introductory part of this work, the technology that has the high prospect for controlling or preventing the emission of GHG in Nigeria is off-grid renewable electricity technology. The UNFCCC provides that:

The developed country parties... shall take all practicable steps to...*finance...* the transfer of, or *access to, environmentally sound technologies* and know-how to other Parties, *particularly developing country Parties*, to enable them to implement the provisions of the Convention.⁴⁰

It also provides that the extent to which developing member states should implement their obligation is conditional on the effective implementation by the developed countries of their commitments including this provision on financing of climate friendly technologies in developing countries like Nigeria.⁴¹ It creates a financial mechanism that will modulate the disbursement of such funding.⁴² The two bodies that were adopted by the Conference of the Parties (COP)⁴³ for this purpose are the Global Environment Facility (the Facility)⁴⁴ and the Green Climate Fund (GCF).⁴⁵

The Global Environmental Facility

The Facility was established in 1989 by the World Bank and the International Monetary Fund as a credit providing facilities for environmental projects.⁴⁶ It was adopted as the permanent financial mechanism of the UNFCCC by the COP in 1998.⁴⁷ It coordinates the transfer of financial resources from developed to developing member states within the context of the international climate change regime.⁴⁸ It is also the financial mechanism of three other Conventions.⁴⁹

There are eligibility criteria which must be met before a climate change related project is financed by the Facility.⁵⁰ Firstly, the project must be implemented in a country that is a signatory to the UNFCCC.⁵¹ Secondly, the project has to be consistent with the national priorities of the recipient country.⁵² Thirdly, the project has to involve the participation of the public.⁵³ Fourthly, the project must fall within the facilities' definition of ESTs for the purpose of climate change mitigation. Finally, the investor must be prepared to provide counterpart funding.⁵⁴

Since its adoption as the permanent financial mechanism of the UNFCCC in 1994 till August 2016, the facility has funded nine climate change related projects in Nigeria.⁵⁵ Three of the projects are related to the preparation of the documents needed to fulfil the reporting obligations under the UNFCCC 1992.⁵⁶ Another three are for the promotion of energy efficiency in the residential and transport sector.⁵⁷ Two others are designed to sponsor the formulation of renewable energy policies in Nigeria.⁵⁸ The policy formulated is the Renewable Electricity Policy Guidelines 2006.⁵⁹ The policy contains an expression of the intention of the government to boost the development of off-grid electrification in Nigeria.⁶⁰ While these guidelines has existed since 2006, it is merely a soft instrument and have not resulted in the deployment of any renewable electricity technology. In addition, it has not resulted in any law that will contribute to the removal of the financial constraint that impedes off-grid renewable electricity in Nigeria. Only one of the projects involve the deployment of small hydro off-grid electricity technologies in two communities in Nigeria.⁶¹

The power generated by these two small hydroelectricity dams is not significant compared to what is needed to mitigate climate change and achieve access to electricity in Nigeria. Regrettably, the current installed electricity capacity of these two small hydro plants is 10 kilowatt per hour.⁶² An assessment in 2013 showed that 200,000 Kilowatts per hour is needed to meet the electricity demand in Nigeria.⁶³ The current average electricity generation in Nigeria is 2462 KWH per hour.⁶⁴ The gas thermal plants are responsible for about 85 percent of this generated electricity.⁶⁵ If clean electricity were to be provided to a majority of the population, while mitigating climate change, then off-grid renewable electricity must be deployed to a much greater degree than the 10 KWH per hour supplied by these two plants.

The Green Climate Fund

The Green Climate Fund (GCF) was adopted in 2011 by the COP as an additional financial mechanism under the international climate change.⁶⁵ It has the mandate to 'promote a paradigm shift towards a low emission and climate resilient development' in least developed countries, small island countries, developing and developed countries.⁶⁶

Similar to the Facility, there are some investment criteria which must be met by an electricity project before it is funded by the GCF.⁶⁷ Firstly, it must be a low carbon electricity project; Secondly, the sustainable development potentials of the project must be set out; Thirdly, the ability of the project to meet the needs of recipient country; Fourthly, coherence with a country's existing policies or climate strategies; In addition, the ability of the project to leverage additional funding through the provision of counterpart funding.⁶⁸ The GCF requires that the investor or recipient government who is proposing such projects should provide counterpart funding.⁶⁹ This is because the finance provided by the Facility is limited to concessionary funding to the extent that will leverage such project in comparison to a conventional electricity technology.⁷⁰ Since 2011 when it was adopted by the COP till 2016, the GCF has not funded any project in Nigeria.

There are general problems that have been identified by other authors as affecting the general functionality of the financial mechanism. Thompson writes that an overlap in the function of the Facility and GCF undermines the effective implementation of this provision for financing generally.⁷¹ Some other authors write that the absence of a monitoring system for the financial flow of funds affects the effective implementation of this provision.⁷² These problems would not be discussed in this paper as they have no peculiar bearing to the development of off-grid renewable electricity in Nigeria.

However, the adoption of concessionary funding as the definition of finance in relation to the financing of climate friendly technologies in Nigeria impedes the contribution of developed states in removing the problem of inability of investors to afford or access the capital needed for the development of off-grid renewable electricity technology in Nigeria.

2.2 Concessionary funding and Off-grid Renewable Electricity in Nigeria.

As previously stated, the international climate change instrument provides that developed member parties shall finance the development of ESTs in developing member countries. In relation to Nigeria, this translates to an obligation on developed states to contribute to the removal of the problem of inability to afford or access the capital needed to develop off-grid renewable electricity in Nigeria. The UNFCCC and the Kyoto Protocol did not define the meaning of finance as used in the above provisions.⁷³ This has led to varied interpretations of the word 'finance'.⁷⁴

It has been argued that the word finance entails the provision of grants that would fund in entirety the deployment of the relevant ESTs project in developing member states like Nigeria.⁷⁵ This argument is premised on the provisions of the UNFCCC, which recognises 'that the largest share of historical and current global emissions of GHG has originated in developed countries'⁷⁶ and 'hence they should take the lead in combating climate change and the adverse effects thereof'.⁷⁷ This principle is called 'common but differentiated responsibility' and recognised by the UNFCCC as a guide to the enforcement of its provisions.⁷⁸ Commenting further on the above provision of the UNFCCC, Christopher Joner writes that:

A key principle contained in Articles 3 and 4 of the 1992 UN Framework Convention on Climate Change (FCCC) is "common but differentiated responsibility" (CDR). Under this concept, the industrialized, developed states would assume the lead in addressing the climate problem...The principle of CDR is grounded in notions of fairness, guided by the presumption that developed countries are disproportionately responsible for the historical emissions of greenhouse gases and have the greatest capacity to control them.⁷⁹

On one view, in relation to Nigeria, the definition of 'finance' as a grant for the purpose of financing the development of off-grid renewable electricity technologies is justifiable by a reference to the provisions of the UNFCCC. First, there is a requirement that such finance shall be to the extent *that is needed* by developing member states to meet the agreed full incremental cost of mitigating climate change.⁸⁰ There is no clarity on the meaning of the later qualification that such fund shall cover the *incremental* cost of mitigating climate change.⁸¹ However, the UNFCCC further provides that the implementation of this commitment on financing shall take into account 'the need for adequacy in the flow of funds'.⁸² It adds that the extent to which developing country parties will effectively implement their commitment is dependent on the effective implementation by developed country parties of their commitments under the convention related to financial resources and transfer of technology.⁸³ The combined

reading of the above provisions would mean that there is an expectation that the finance provided by the Facility and the GCF in relation to the development of ESTs such as off-grid renewable electricity should be adequate to the extent that will drive the deployment of such projects approved by them. As already highlighted, the major barrier to the development of off-grid renewable electricity is the problem posed by the inability of investors 'to afford the initial capital cost of kick-starting such technologies and restricted access to capital'.⁸⁴ As such, whatever funding that will be adequate to facilitate the development of off-grid renewable electricity must be to the extent that will be sufficient to solve the problem of inability of investors to afford or access the capital for the development of such projects. This means that a grant is what is needed as the definition of 'finance' in relation to Nigeria.⁸⁵

A contrary view is that the term finance entails only the provision of concessionary funding. This is also justifiable within the provisions of the UNFCCC 1992. The UNFCCC established the financial mechanism by providing that 'A mechanism for the provision of financial resources on a grant or concessional basis...is hereby defined'.⁸⁶ The term grant means a sum of money given to a person or body to fund in entirety a specific purpose without expectation of a refund whereas concession is defined as a partial grant that confers certain privileges on a product or service.⁸⁷ The word 'or' is a link between two possibilities, either or both of which may happen.⁸⁸ This has been interpreted to mean that the facility can disburse funds to the extent that would reduce the cost of development and deployment of such technologies to make it viable in comparison to other technologies⁸⁹ or disburse grants to fund the development of such EST involved.⁹⁰ Hence, it can be argued that this provision gives room for the possibility of a full grant as well as a concessionary funding.

In the light of the lack of clarity on the definitive meaning of finance, the COP has adopted the definition of finance as concessionary funding in relation to Nigeria in their Guidance to the Facility.⁹¹ The Guidance to the Facility provide that grants shall be the definition of financial resources in relation to all funding decision as it relates to least developed countries.⁹² It further provides that in relation to other developing countries that grant shall be the definition of financial resources.⁹³ Nigeria is not categorised as a least developed country.⁹⁴ As a result, the definition of financial resources in relation to projects funded by the GEF in Nigeria is concessionary funding to the extent that will leverage such project in comparison with conventional technologies in the same genre.⁹⁵ Consequently, a major requirement for the Facility to finance an off-grid renewable electricity project in Nigeria is evidence of the provision of counterpart funding by the investor who is applying for the fund through the designated national authority.⁹⁶ Commenting on this, Mrs Halima Abdullahi (the Desk officer for the Facility in Nigeria) writes that:

The benefiting country was supposed to pay, counterpart funding, if GEF approves a project for one dollar, Nigeria (or the private investor) is supposed to give out two dollars as counterpart funding.⁹⁷

In the same vein, the instrument used by the COP to adopt the Green Climate Fund (GCF) in 2011 provides that the GCF will provide financing in the form of concessionary funding and '*Financing will be tailored to cover the identifiable additional costs of the investment necessary to make the project viable.*'⁹⁸

Consequently, a major requirement for an investor to access GCF Fund for Off-grid renewable electricity projects is evidence of the participant's possession of counterpart funding.⁹⁹ This means that the relevant funding that will be provided by the GCF in relation to off-grid renewable electricity projects in Nigeria is concessionary fund that would be additional to the counterpart fund raised by the potential investor.¹⁰⁰

The adoption of concessionary funding by the Facility and GCF does not help in solving the financial problem that impedes the development of off-grid renewable electricity in Nigeria. The Nigerian electricity market was privatised¹⁰¹ in 2005.¹⁰² The consequence of this privatisation is that most investment in ESTs including off-grid renewable will be by private investors.¹⁰³ These investors face the problem of inability 'to afford the initial capital cost of kick starting such technologies and restricted access to capital'.¹⁰⁴ This is due to the fact that Nigerian banks perceive electricity sector related projects as non-bankable given that they have in the past loaned out money to investors in the sector who defaulted in meeting with the conditions of such loans.¹⁰⁵ Commenting on this, the Nigerian Electricity Regulatory Commission (NERC) writes that:

Despite huge assistance from government, the private companies are still begging for more interventions. Not only that the private companies lack capital to sustainably develop the power sector, they are unable to pay back N750 billion borrowed from banks.¹⁰⁶

This is caused by low electricity revenue occasioned by the inability of most consumers to afford a tariff price that would enable the investors to make adequate returns.¹⁰⁷

Even foreign investors are also unwilling to invest in the electricity sector given that they are not guaranteed a return on their investment. During the electricity privatization in 2005, it was recorded by NERC that no foreign investor invested in the Nigerian electricity sector.¹⁰⁸ This was based on a general fear by such investors that they would not recover their money if they were to invest in the sector because of the general inability of consumers to pay electricity tariffs.¹⁰⁹ Hence 'only Nigerians and Nigerian banks funded the power privatization program...'¹¹⁰ As highlighted, investors in the electricity sector defaulted in meeting with the conditions of the loan given to them by the Nigerian banks during privatisation of the sector in 2005. Given this history, the likelihood of foreign investors agreeing to invest in off-grid renewable electricity or lend to potential investors is even further diminished.¹¹¹

The provision of concessionary finance to leverage climate change related projects by the Facility and GCF is based on the assumption that investors already have the initial capital to invest in electricity projects, but may be driven by maximisation of profit to invest in cheaper fossil fuel initiatives.¹¹² This is not the case in the Nigerian context, where the problem is inability to afford or access such capital that would enable an investor invest in the sector and also meet up with the requirement of counterpart funding under the facility. Consequently, this concessionary funding provided by the Facility and GCF is not a cure for this financial problem faced by off-grid renewable electricity potential investors.

3. THE PARIS AGREEMENT AND OFF-GRID RENEWABLE ELECTRICITY IN NIGERIA.

3.1 Introduction

The Paris Climate International Agreement (the Paris Agreement) was concluded in the 21st COP meeting held in Paris in December 2015.¹¹³ It entered into force on 4th November 2016.¹¹⁴ It has the objective of holding the global temperature below 2°C and to make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.¹¹⁵ Consequently, it obliges member countries including Nigeria¹¹⁶ to formulate and communicate long term, low GHG emission development strategies¹¹⁷ in the form of National Determined Contribution (NDC) according to their respective capacities and responsibilities.¹¹⁸ The Nigerian government has submitted an intended NDC prior to the conclusion of the Paris Agreement which shows an intention to develop off-grid renewable electricity technology to an ambitious extent.¹¹⁹ The government is yet to communicate its NDC as required in this provision.¹²⁰

The Paris Agreement contains provisions on financial support for the development of climate friendly technologies such as Off-grid renewable electricity technologies in developing member countries like Nigeria. The Agreement provides that:

Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation *in continuation of their existing obligations under the UNFCCC*.¹²¹

Such support for mitigation includes for the implementation of low greenhouse gas emission strategies adopted by developing member states in mitigation of climate change.¹²² There is no definition of low greenhouse gas emission under the Agreement.¹²³ However, Paris Decision (the Decision of the COP adopting the Paris Agreement) contains indication that renewable energy including off-grid has a role to play in this low greenhouse gas strategies.¹²⁴ The Decision provides that the COP acknowledges 'the need to promote universal access to sustainable energy in developing member states, in particular in Africa, through *the enhanced deployment of renewable energy*'.¹²⁵ This means that it is expected that such financial support would contribute to the development of renewable energy including off-grid renewable electricity in Nigeria.¹²⁶ The Facility and the GCF are the financial mechanism designated under the Paris Agreement to disburse these financial resources.¹²⁷

In addition to this financial support, the Agreement mandates developed countries to mobilise climate funding from various sources. It provides that 'Developed member countries should continue to take the lead in mobilising climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions... taking into account the needs and priorities of developing country Parties.'¹²⁸ It further enjoins developing countries who can do so to voluntarily join in mobilising climate fund.¹²⁹ The annual target of such mobilisation is a floor of \$100 billion dollars by 2020.¹³⁰ This target would be achieved by voluntary pledges from member states.¹³¹ Commenting on this, Zahar writes that 'as with mitigation effort itself, the plan for raising climate finance is voluntary pledging, plus peer pressure'.¹³² The Agreement requires developed member states to report their individual contributions to such mobilization of climate finance.¹³³ They can justify such contributions to climate finance by showing that it is just and fair in the light of their national circumstances.¹³⁴

This obligation on developed member states on mobilisation of climate finance increases the possibility of finance coming from various channels for the benefit of off-grid renewable electricity in Nigeria. The nature of this mobilisation is not the traditional climate finance aid, it is expected to be in various forms including private and public foreign investment packages.¹³⁵ There is also an expectation that such flow of finance would take into account the peculiarity of the national circumstances of developing member states.¹³⁶ This would mean that there might be a consideration of peculiar impediments to the development of climate friendly technologies such as off-grid renewable electricity in Nigeria. Consequently, there may be possibilities that this provision may benefit the development of off-grid renewable electricity in Nigeria.

Though there are possibilities, it is not certain that the above provisions of the Paris Agreement would result in the removal of the problem of inability to afford or access the capital needed to start off-grid renewable electricity projects in Nigeria. Firstly, the adoption of concessionary funding under this provision in relation to Nigeria means that just like the UNFCCC whatever financial resources that will be provided through the financial mechanism cannot solve the problem of inability of investors to afford or access the capital needed for the development of off-grid renewable electricity in Nigeria. Furthermore, the obligation on developed member states to take the lead in mobilizing climate finance is recommendatory.

3.2.1 Concessionary Funding as the definition of financial resources under the Paris

Agreement.

The Paris Decision adopts concessionary funding as the definition of financial resources under the Agreement. The Paris Agreement provides that 'the financial mechanism of the convention... shall serve as the financial mechanism of this Agreement.'¹³⁷ The Paris Decision further provides that:

The guidance to the entities entrusted with the operations of the Financial Mechanism of the Convention in relevant decisions of the COP, including those agreed before the adoption of the Agreement, shall apply *mutatis mutandis* to the Agreement.¹³⁸

This means that the definition of finance in the Guidance of the COP to the Facility and the GCF would apply to the Agreement. As stated in the earlier part of this chapter, the definition of finance in this Guidance in relation to Nigeria is concessionary funding.¹³⁹ This definition would validly be the meaning of 'financial resources' for the purpose of the funding to be disbursed by the Facility to support off-grid renewable electricity projects in Nigeria.¹⁴⁰ In the same vein, the instrument used by the COP to adopt the Green Climate Fund (GCF) in 2011 defines finance in mitigation project including off-grid renewable electricity to be concessionary funding.¹⁴¹

Just like the UNFCCC, the adoption of concessionary funding as the definition of financial resources in relation to the disbursement of funds to Nigeria by the Facility and the GCF means that the provision on financial support in the Paris Agreement would not contribute to the removal of the problem of inability of investors to afford or access the capital needed to start off-grid renewable electricity projects in Nigeria.¹⁴²

3.2.2 The Recommendatory Nature of the Obligation on Finance Mobilisation

The Obligation created on developed member states to take the lead and mobilise climate finance is non-binding. The Agreement provides that 'developed member countries *should* continue to take the lead in mobilising climate

finance from a wide variety of sources... taking into account the needs and priorities of developing country Parties.¹⁴³ The use of the word *should* in the above provision means that there is no legal obligation created on developed member states to take the lead in mobilising climate finance (a minimum of \$100 billion a year.¹⁴⁴) Commenting on this, Rajamani writes that the use of the word 'should' in any provision of the Paris Agreement means that a party is merely encouraged rather than mandated to fulfil the obligation created in the provision.¹⁴⁵ Bodansky also writes that:

The particular character of a provision is usually determined by the choice of verb: for example, 'shall' generally denotes that a provision in a treaty creates a legal obligation, 'should' (and to a lesser degree, 'encourage') that the provision is a recommendation, 'may' that it creates a licence or permission.¹⁴⁶

...The Agreement recommends that developed member states continue to take the lead in mobilising climate finance.¹⁴⁷

In the light of the recommendatory nature of this obligation, it is not certain on the strength of this provision alone that such mobilisation would contribute to the removal of the financial barrier that impedes the development of off-grid renewable electricity in Nigeria. The non-binding nature of this provision implies that it is entirely up to individual developed states to elect to voluntarily join in the mobilisation of climate finance.¹⁴⁸ This renders the possible outcome of this provision given that it is not possible to envisage the direction of such voluntary behaviour of sovereign states. Consequently, it is probable rather than certain that whatever finance that would be mobilised would certainly be of such a nature or degree that would contribute to the removal of the problem of inability to afford or access the capital needed by investors to start off-grid renewable electricity projects in Nigeria.

4. CONCLUSION

The provisions of the international climate change regime on the contributions of developed member states to the removal of the financial barrier that impedes the development of off-grid renewable electricity in Nigeria is diminished by the definitional vagueness of the words used in the provision. Although the Paris Agreement has been termed a milestone in the global fight against climate change,¹⁴⁹ its provisions would not certainly drive contributions of developed member states to the removal of the problem of inability to access or afford the capital needed to develop off-grid renewable electricity in Nigeria. It is important to note that the Paris Agreement is the beginning of a process. It is still probable that such contributions of developed states to the development of ESTs such as off-grid renewable electricity in Nigeria might be strengthened subsequently by the decisions of the COP. In the absence of such a clear future on what will be in relation to this agreement, it is right to conclude that still missing is an international climate change regime that will certainly drive the contributions of developed countries to the removal of the capital problems that impedes the development of off-grid renewable electricity in Nigeria.

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- [6] The electricity supply is erratic given that the Nigerian population who have access to the national grid cannot predict when electric power would be available for their consumption. Furthermore, the electricity current is always fluctuating to the extent that sometimes causes damage to the technologies that are powered by the equipment. See Ohajianya A, 'Erratic Power Supply in Nigeria: Causes and Solutions' (2014) 3(7)IJESI 51.
- [7] It is important to highlight that the Nigerian Electricity Industry was privatised in 2005. Hence the operators in the sector are all private companies except for the Transmission industry which is managed by a private company acting in the stead of the Nigerian government. See Zubairu Gabugel Usman and Serkan Abbasoghu, 'An Overview of Power Sector Laws and Reforms in Nigeria' (2014)4(2) Asian Transaction on Engineering 9. Electricity generation and distribution is undertaken by private companies. The six public limited liability companies granted the license to generate electricity in Nigeria are Ugheli Power Plc, Shiroro Hydro Power Plc, Sapele Power Plc, Kainji Hydro Power Plc, Egbin Power plc, Afam Power Plc. It is important to note that there are also independent power producers who are also licensed to generate power in small units for diverse purposes. There are also eleven distribution companies. See NERC, 'PHCN Successor Companies' <<http://www.nercng.org/index.php/industry-operators/licensingprocedures/phcn-sucessor-companies>> accessed 31 September 2016.
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no connection between such places and the remaining part of Nigeria except by means of water transportation boats, rafts and ships. Those places include Bonny in River State, Brass in Bayelsa, Banana and Bishop Kodji in Lagos and a host of other places. These are places that have no connection to the main lands and such the possibility of extending the grid to such areas is ruled out. See Bugaje I M, 'Remote Area Power Supply in Nigeria: the Prospects of Solar Energy' (1999)18 RE 491, 492. See also Rural Electrification Agency of Nigeria, 'Framework for Off-Grid Power Generation: Status Report and Plan For 2013-2015' 6 <<http://www.rea.org./rural-electrification-status-report/>>accessed 9 January 2016; Reiche and Others, 'Expanding Electricity access to remote Areas: Off-Grid Rural Electrification in Developing Countries' [2000] World Power 52, 54.

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- [134] The Paris Agreement (n 123). This is contained in the later clause of Article 9(3) of the Paris Agreement 2015, there is a provision that such mobilisation shall take into account the needs and priorities of developing country parties.
- [135] The Paris Agreement 2015 (n 123) Art 9(3).
- [136] The Paris Decision 2015 (n 126) para 62.
- [137] UNFCCC Initial Guidance to the GEF 1995 (UNFCCC Decision 11/CP 1) 34-35.
- [138] Ibid.
- [139] The Governing Instrument for the GCF (n 41) para 54 (emphasis added).
- [140] Martin Stadelmann and Others, 'Efficiency of the CDM and the GEF in Leveraging Funds and Reducing CO2'(2011)11Working Paper CS 2-4
- [141] The Paris Agreement 2015 (n 167) Art 9(3). See Daniel Bodansky, 'In Brief: Legal Options for U.S. Acceptance of A New Climate Change Agreement' (2015) < <http://www.c2es.org/>>accessed 21 September 2016.
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- [143] Rajamani Lavanya, 'The 2015 Paris Agreement: Interplay Between Hard, Soft and Non- Obligations' (2016)28 JEL 331,343.
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