The Role of Good Governance in Driving and Promoting Sustainable Development in the Provision of Off-Grid Electricity Solutions in Nigeria

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1 Introduction

This chapter addresses the role played by public and corporate governance in promoting sustainable development in Nigeria particularly in terms of meeting the country's energy needs through the proliferation of off-grid electricity solutions. The term off-grid electricity is synonymous with the provision of electricity through means that are different to centralised grids. These off-grid solutions are sometimes referred to as mini-grids and/or micro-grids.

Ensuring access to affordable, reliable, sustainable, and modern energy for all became the seventh SDG (Goal 7)—outlined with three objectives (Goals 7.1, 7.2 and 7.3) with targets set for 2030 as follows (Bazilian et al. 2012, 2014; Sovacool 2013; Srivastava et al. 2012):

(a) 7.1—By 2030, ensure universal access to affordable, reliable and modern energy services
(b) 7.2—By 2030, increase substantially the share of renewable energy in the global energy mix
(c) 7.3—By 2030, double the global rate of improvement in energy efficiency.

Two addenda were made in 2016 by the United Nations to the targets which recognised the need to align initiatives of the United Nations with the efforts of national governments and synthesise the international cooperation efforts towards the delivery of clean energy solutions. The addendum are as follows:

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(a) 7.a—By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.
(b) 7.b—By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular the least developed countries, small island developing States, and landlocked developing countries, in accordance with their respective programmes of support (UNDP 2016).

As indicated form these addenda 7a and 7b, the successful implementation of these standalone systems relies on a good governance system which ensures that these infrastructural projects are delivered within the planned cost and time, and that the assumed benefits are realised.

Within the context of developing countries and sub-Saharan Africa in particular, the provision of energy to rural areas which are characterized by smaller community sizes, isolated physical locations and lower electrical loads have been challenging as they incur very high marginal cost of grid extension (Yadoo et al. 2011). Additionally, according to the Global Tracking framework on energy provision report of 2015 (United Nations Sustainable Energy for All programme) if the expansion for universal access is predicated on the use of conventional and traditional modern source of electricity provision that are currently prevalent in these developing and least developed countries, they will significantly add to the global greenhouse gas emission levels which are key drivers of global warming while also missing out on the target of 100% electrification by 2030 (Bazilian et al. 2012; UNSE4ALL 2014). The realities for the electricity sector with the sub Saharan African national governments through their electricity regulators have integrated national grids that have low coverage areas and as such limit the expanse of rural electrification (Bazilian et al. 2012; Tenenbaum et al. 2014), most of the national utilities also have financial difficulties which stems from being insolvent and being unable to attract investment from financiers as they do not show a clear path for tariff collection and payments as well as heavy subsidization of tariffs which create artificially low revenue and high technical or generation costs thus lacking the incentives to connect low load consumers from the rural areas. Similarly, many of the off-grid electricity projects are as a result of public and private (Corporates and Non-Governmental Organisations [NGOs]) partnerships. For the public (often the State on behalf of the society/community), it is important that there is a strong and effective governance that underpins their involvement and decision-making process. Likewise, for the private (often Corporates and NGOs), their involvement and decision-making process are often influenced by the type of organisation that they are, the underpinning corporate governance theory that drives their actions, and the governance regulatory landscape.

With this being said, good governance is required to transcend the whole spectrum for any partnership project to be a success i.e. from the boardroom of the private entity to the decision makers on behalf of the society i.e. the State. In this regard, we define good governance as the systems in place to ensure that all conflicts within such

partnerships are minimised or eliminated, thus providing the infrastructural project a greater chance of success. Within each node of this spectrum lies the principles and theories of good public and private/corporate governance. For these nodes to work together it is necessary to understand how they are linked to each other as well as where conflicts and gaps exist, including ways of addressing these gaps.

We therefore examined these theories and evaluate the effectiveness of corporate governance regulation in Nigeria. We used a matrix to analyse the synergies and conflicts/gaps within these matters, focusing on what it takes to achieve good governance within Nigeria. This mapping exercise is based on the attributes of the four main corporate governance theories (stakeholder, agency, stewardship, and resource-based) and the four World Resources Institute (WRI) indicators of good public governance (public participation, transparency and information access, accountability, and capacity). Evidences are drawn from the renewable energy sector of Nigeria in analysing how publicly funded off-grid electricity projects are governed from conception to implementation. The rationale for this choice is based on the challenges in producing real successes on these types of projects, mainly as a result of inappropriate sustainable management after the so-called "ribbon cutting" event. Finally, the chapter discusses the strategic importance of good governance mechanisms in promoting sustainable development within the renewable energy sector of Nigeria.

2 Public and Corporate Governance: Principles and Theories

Governance is an essential aspect of a functioning society and central to this is the role played by government in the relationship between businesses and society. These two entities are particularly important because the government is often the mediator between businesses and the society. The government, is responsible for the wellbeing of its residents and citizens, through the provision of policies and actions that can foster socio-economic development, health and security, and so on. Businesses on the other hand have to balance the need for profitability with organisational norms and actions that ensures that they sustain their business into the future and be held accountable for their actions. To ensure this, businesses need good governance in the way they conduct their strategic and operational activities and in the way they manage public resources, especially to ensure that these resources are not depleted. For publicly listed entities who are owned by 'shareowners' (Zenith Bank, Lafarge WAPCO, and Julius Berger are examples of this) but managed by 'managers' (i.e. an executive board of directors many of who have limited share ownership in the company) who have the task through delegation from their shareowners, having a good corporate governance structure ensures that there is accountability to both shareowners and stakeholders.

For the African context, successful infrastructure projects are often as a result of a public and private partnerships i.e. the State and the corporates or private businesses

or NGOs. Therefore, recognising the theories that drive good governance within these two areas are vital for successful partnerships. In this section, we examine the specific principles and theories that are essential for public governance within the context of decentralised electricity, as well as the key indicators for good public governance. In addition to this, we examine the theories that forms the building blocks of corporate governance, and how these links to the indicators of good public governance.

2.1 Public Governance: Principles and Theories

Effective public governance is crucial to the successful implementation of electricity reforms and by extension sustainable development benefits for electricity provision. Several studies have indicated a failure of governance especially in the rural context in the developing countries as a problem to achieving sustainable infrastructure at the desired scale (Bhattacharyya 2013; Mattes et al. 2015). It has also been established that there is a strong correlation between an enhanced decision-making process and expected outcomes of infrastructural delivery. Therefore, for public governance to be effective, importance should be placed on the investigation of these mechanisms through which governance is effected (Dixit et al. 2007).

In defining public governance of electricity infrastructure, Goldthau (2014, p. 135) and the Electricity Governance Initiative project summarised governance as "*the institutions, mechanisms and processes through which economic, political and administrative authority is exercised.*" These consist of policy processes and regulatory processes through which the infrastructure is governed from inception to implementation.

The effectiveness of these policy and regulatory processes is hinged on the principles of good governance. With regards to electricity infrastructure, the widely accepted theoretical principles are those developed by the World Resources Institute (WRI) and the United Nations Commission on Sustainable Development (UNCSD) in 2007. According to these bodies, the principles of good governance are based on four major attributes as follows:

1. Public participation,
2. Transparency and Information Access,
3. Accountability, and
4. Capacity.

2.2 Public Participation

Public participation within the scope of electricity governance refers to the availability of avenues through which useful and diverse inputs for the definition and prioritisation of issues, perspectives and options of a shared problem is facilitated

in the decision-making process (Dixit et al. 2007). The attributes for participation include but not limited to access to a relevant formal space to participate, access to a relevant format for an invitation to participate, the inclusiveness and openness for the invitation and eventual participation processes and lastly how to ensure that gathered input is put towards meaningful use.

2.3 Transparency and Information Access

This attribute describes the mechanism of allowing outsiders the opportunity to scrutinise and review actions and information that will have a direct effect on them. The attributes of this include the comprehensiveness and comprehensibility of provided information, timeliness, and availability and lastly the efforts made to ensure vulnerable groups and end users are included as required.

2.4 Accountability

This includes the mechanism for which justice and redress is sought. Holding formal government officials as well as private sector involvement within the electricity space accountable is crucial for sustainable governance. Accountability elements mainly focus on the clarity of the roles of actors and these include clarity on the role of institutions in decision making processes and roles within the sector. Clarity should also be on the available systematic monitoring processes of operations, and basis for definitions which are clearly communicated, including the availability of a legal system to uphold public interests.

2.5 Capacity

Capacity refers to the formal government's ability to practice good governance based on its social, technological, legal and institutional abilities as well as the ability of the civil society particularly interest groups and Non-Governmental Organisations to engage in decision making. The attributes for measuring capacity include the autonomous and independent capabilities of the government in carrying out governance actions, availability of resources to provide access, ease and level of effective participation of civil society based on informed analysis.

The four attributes described above are crucial for effective governance both in the policy processes as well as the regulatory processes, they are guidelines to provide a systemic understanding and a diagnosis for the what and how factors that constitutes good governance and practices in the complex and multi-layered interactions with the set of institutions, laws, regulations and policies (Goldthau 2014; Mahalingam

et al. 2006). They present a theoretical toolkit based on 51 indicators through which the governance landscape for rural electrification using renewables in the off-grid areas of Nigeria can be understood.

These indicators are used in evaluating how low or highly incorporated these four indicators are within the policy and regulatory landscape governing decentralised off grid electrification solutions. Gaps in the current mechanisms can be identified and assessed with the aim of proposing structures and the role for stakeholders that can propel good governance levels based on these four attributes. This will reveal what the current governance paradigm is within the space being examined based on the decision-making processes that have driven the policy and regulatory targets or outcomes.

3 Corporate Governance: Principles and Theories

Corporate governance attempts to resolve the most common problems encountered in the management of companies i.e. managers working to advance their own interest rather than the interest of their employers (shareowners). The development of corporate governance theories has their roots in this, although there are other assumptions that are demonstrated in the development of other theories.

3.1 Agency Theory

Agency theory is one of the fundamental basis of corporate governance. The theory assumes that managers (the agent), if left alone without appropriate monitoring and control mechanisms, will work to advance their own individual interest and place such interest ahead of the interest of their employers i.e. shareowners (the principal), and possibly other stakeholders. The principal-agent theory or model was first introduced by Michael Jensen and William Meckling in a 1976 paper (Goergen 2012). The relationship between the principal and the agent is one of delegation in that the agent is there to act in the best interest of the principal. In return for this, the principal pays the agent a fee. However, this process is no longer as simple as the explanation above implies. This is because there is an increasingly grey area especially among corporations about where the true accountability lies in the relationship between the principal and the agent. However, in the world of corporates, the relationship is a lot more complex. The owners of companies tend to be individuals who have little control over the company despite being tagged as owners. Their ownership is merely in the shares they own and their ability to have a say on the affairs of the company is often limited. The nature of the stock market also means that ownership of shares can change hand several times so the 'principal' is not constant whereas there is a level of stability in the case of the 'agent'. This presents an issue in the agency theory as the principal is not necessary around for long enough to monitor the actions of the agent.

What tends to happen is that shareowners with a significant amount of share and long-term view of the company can exert a greater level of influence than many other shareowners whose ownership are less significant. Complete contracts are often used to address this principal-agent problem as a way of guiding managers in actions that are acceptable for each future contingency (Goergen 2012). However, these contracts are only useful if the predicted if the future has been accurately predicted.

3.2 Stakeholder Theory

Nordberg (2011, p. 25) states "*stakeholder theory suggests a different notion to the purpose of the board and the company, according to which shareholders' interests are rather less prominent.*" This is a different school of thought to how companies should be run and is mostly prominent in Japan although gaining increasing support in other regions. The stakeholder theory infer that the boards are not only accountable to the shareholders but also to all stakeholder groups. This means that when making decisions, the board must carefully consider the interest of all stakeholder groups and make the best decision that is in the interest of all groups or one that causes the least damage to any particular group. This theory, made popular by Freeman (1984) argues that stakeholders such as employees, customers, creditors, suppliers, amongst others, can shape the direction of the company. This is the weak view of stakeholders (Nordberg 2011). The strong view is that stakeholders do have 'intrinsic value' and does have the right to be heard (Nordberg 2011). Whether each stakeholder group directly contribute to the profitability of the company or not, the mere fact that they are important for the company to continue as a going concern means that they their approval should be sought on actions that affect the company.

3.3 Stewardship Theory

Stewardship theory assumes that people choose to work at a firm because they want to do well and thus care about the company doing well likewise. This school of thought is a significant divergence from both agency and stakeholder theories. This concept of stewardship can be seen in action in Germany where employees are entitled by law to have half the seats on the supervisory board of major companies (Nordberg 2011). Essentially, the interest of the agent and the principal are aligned without the need for excessive control and monitoring. In addition, achievement of goals amongst those involved in the governance of the organisation is more important than the interest of the agent (Van Slyke 2007). The challenges associated with this theory are in the area of choices to be made by the stewards. Some choices can be relatively straightforward while others can be complex, and thus requiring parameters by which the stewards can operate. Also, situations can arise that presents conflict of interests between the company's philosophy or value and those of the stewards. Such situation ultimately

results in an agency problem (Davis et al. 1997). Despite this, stewardship theory has its usefulness in organisations such as charities and social enterprises where the ultimate purpose is not to maximise the wealth of the shareholders but to positively impact the society through their work. In this situation, the board often comprises of individuals who are in those positions because of their commitment to the work being done by the charity.

3.4 Resource Dependency Theory

The resource dependency theory is based on the resource-based view theory of the firm developed by Wernerfelt (1984) which advocates for firms to pull together their key resources to drive competitive advantage. This theory relies on board members leveraging their experiences and expertise to help the company in securing resources that can help drive performance. This resource can be a physical or non-physical strength of the firm and include resources such as proprietary technology, brand name, technical expertise, awarded contracts, and so on. With the appropriate governance structure, managers can unlock those resources so that they are able to work at the maximum level of efficiency. Wernerfelt (1984) shed light on how a focus on resources, and not just products can elevate a firm. Although this theory gain prominence several years after the original publication, it has become an integral part of strategic thinking in recent years. One of the arguments is that Board of Directors are in effect a resource that is able to unlock several paths for the firm. Pfeffer and Salancik (2003, p. 383) states that the "*provision of resources*" is a second important function of the board, after "*monitoring*". Such, the board must be able to identify resources that can be useful to the business and bring those resources into the firm. This way, directors can create value for the firm. Salancik and Pfeffer (1978) provided ways by which directors can do this providing the following:

1. Advice and counsel
2. Legitimacy
3. Communication channels for the firm with external parties
4. Preferential access to commitments from elements outside the firm.

Given the two functions of the board in this respect, the monitoring function can be seen as belonging to the agency theory while the resources function can be seen as belonging to the resource dependency theory. These two functions can become a source of conflict within businesses (Nordberg 2011). This is because individuals may very well associate firmly with their background (area of expertise) and thereby make decisions or give advices that fits with their background.

In terms of infrastructural delivery for publicly funded renewable projects, there are direct relations with the four theories of corporate governance outlined above, especially in relation to how these projects are governed and managed by the agents (i.e. project directors), on behalf of the principal (the public or donors). The resource-based view theory argued for the presence of managers who can unlock resources

that can help achieve maximum efficiency. This is necessary for ensuring that those projects are delivered on time, and to their intended objectives. As it will later be shown in this chapter, there needs to be an alignment between good public and corporate governance mechanisms which recognises the context in which the infrastructure is to be delivered and engages with all relevant stakeholders is crucial for the sustainability of such infrastructure.

4 Synergies and Conflicts Between Public and Corporate Governance

The matrix depicted in this section provides a holistic analysis of the relationship between good public governance, based on WRI's four indicators, and the four main theories of corporate governance. This analysis forms the basis for identifying synergies and conflicts between public and private/corporate governance systems (Table 1).

4.1 Areas of Synergies

Transparency and information access align with most areas of stakeholder theory in terms of consideration for all stakeholders. For example, the need for transparency is in full alignment with the stakeholder theory school of thought which advocate for the involvement of all stakeholders. Also, transparency aligns fully with the stewardship theory emphasis on non-excessive monitoring which is based on the premise that

Table 1 Comparing WRI indicators with theories of corporate governance

WRI Indicators / Governance school of thoughts			Corporate Governance									
			1. Stakeholder Theory			2. Stewardship Theory		3. Agency Theory			4. Resource-dependency Theory	
			Consideration for all stakeholders	Seek Approval from all stakeholder groups	Intrinsic value of each stakeholder (each must be heard)	Involvement of employees at all levels	Non-excessive monitoring	Remuneration of agent	Emphasis on monitoring	complete contract	Reliance on board expertise to provide resources	Unlocking the resource network for maximum efficiency
Public Governance	Transparency and Information Access	Role of donor agencies through loans and technical assistance										
		Independent power producers										
		Selection of private sector providers										
		Design and allocation of subsidies										
		Clarity on decision making process on reforms										
		Background policy information available										
		Information available to public on consultants										
		Quality of media coverage on reform decisions										
		Process of privatisation and bidding										
		Competition Policy										
	Participation	Advisory committees to the electricity ministry/department										
		Quality of public participation during policy decisions										
		Quality of participation by stakeholders and government responsiveness										
	Accountability	Annual reports of the electricity ministry/department										
		Independent review of recommendations by consultants										
		Accountability regarding subsidies										
		Methodology for asset valuation										
	Capacity	Capacity of the legislative committee										
		Independence of the electricity ministry from the executive										
		District/regional planning/policy agency										
		Capacity of organisations in the civil society										

Legends	Alignment	Part-alignment	Conflict	No relation

Matrix of WRI governance indicators against corporate governance theories

people want to do well and that the interest of the agent and the principal are aligned without the need for excessive control and monitoring. For this to work in practice, this concept of stewardship would need to be a key feature of any public-private partnership. There is a strong argument for the influence of stewardship theory in these off-grid electrification projects as the theory places emphasis on board members who are in the role primarily due to their commitment to see the project become successful rather than due to any other motive. The challenge of achieving this is the lack of employee representation or involvement in Nigeria; this is an essential component of stewardship theory.

There is a strong level of alignment between Transparency and information access indicator and the key features of agency theory which emphasises the remuneration of agent and monitoring systems. This is because such remuneration does not conflict with the principles of transparency while emphasis on monitoring of systems also ensures the agent is required to make their decision process transparent to their principal. Agency theory recommends remuneration as one of the key ways of aligning the motives and decisions of the agent with the principal's. Hence, there is a clear synergy here between the indicators necessary for good public governance and the monitoring of systems and remuneration of agents stipulated in the agency theory.

On the participation indicator, there is a strong alignment with aspects of both stewardship and agency theory. Participation focuses on advisory committee, stakeholder and government responsiveness, and public participation during policy decision. We deem this to align with stewardship concept of non-excessive monitoring but not involvement of all employees which is an issue in Nigeria. For alignment with agency theory, the remuneration of the agent does not in any way conflict with participation on the three fronts stipulated by the indicator. Having said this, our analysis in Table 1 found no relation between quality of public participation during policy debates and the remuneration of the agent.

Similarly to the participation indicator, we found the accountability indicator to have a strong alignment with aspects of both stewardship and agency theory. Accountability focuses on reporting, independent review, accountability regarding subsidies, and methodology for asset valuation. For these indicators, we deem them to align with stewardship emphasis of non-excessive monitoring, as well as with agency theory emphasis on the remuneration of the agent to mitigate principal-agent problems. Also, corporate governance regulations in Nigeria promotes full disclosure of companies' operations and decisions in the annual reporting process thus promoting the spirit of accountability. There are a range of corporate governance guidelines available to organisations which helps promotes accountability. For example, the Central Bank issued a mandatory Code of Corporate Governance for banks in 2006 to ensure that the ultimate accountability of banks' affairs rest with the CEO. The code also addresses matters relating to board composition, non-executive directors, risk management, and the role of the internal auditor (Adewale 2013). Other codes include the SEC code for Shareholders, which is a voluntary code established in 2007; the PENCOM code (Code of Corporate Governance for Licensed Pension Operators) which was established as mandatory in 2008 to govern licensed operators; and the NAICOM Code which was established in 2009 as mandatory to governs Insurance

companies. Many of these codes were developed to assist the relevant sector or group in engaging with best practice corporate governance code relevant to them, as well as being a way to addressing shortcomings of companies to satisfy their shareholders (Osemeke and Adegbite 2016).

For the capacity indicator, there are synergies with aspects of stakeholder theory which emphasises the need for consideration of all stakeholders. For example, the capacity indicator requires district/regional planning or policy agency, and the capacity of organisations in the civil society. These aspects of the capacity indicator effectively promote the involvement of all stakeholders which the stakeholder theory advocates. Also, we deem the capacity indicator to be in alignment with both views of monitoring of the agent either with regards to stewardship theory (non-excessive monitoring) and agency theory (which places stronger emphasis on monitoring).

4.2 Conflicts and Gaps

Stakeholder Theory Versus Indicators: With regards to governance, the major conflict between the stakeholder school of thought is the difficulty in achieving quality participation and responsiveness in the process of policy making and regulation, this is manifested as a lack of absence of communication of policy outcomes in the local media or translating documents into the local language of the areas where the off-grid projects is going to be provided, which tend to have high levels of illiteracy. Accountability regarding subsidies and the methodologies for asset valuation is also a major conflict with the stakeholder theory school of thought as the consideration, approval, and intrinsic involvement is entirely absent across the spectrum due to the heavy reliance on foreign subsidies for most of the off-grid energy projects therefore, most of the valuations are done by the donors with very little public information or disclosure during the process of valuation or disbursement.

Stewardship Theory Versus Indicators: With the stewardship theory, as explained above there is full alignment with regards to the non-excessive monitoring attributes however, the success of non-excessive monitoring is heavily reliant on the involvement of all stakeholders at all levels in the decision-making process however, this is not the case with off grid electricity delivery in Nigeria. The consumers and society are hardly involved in the financial disbursement or decision making nor is there a clear channel of communication in place as illustrated in the discussions on transparency and accountability above. Therefore, for this element, there is a total divergence between public governance and corporate governance of off-grid electricity solutions as far as the stewardship theory requirement of involving all stakeholders is concerned.

Agency Theory Versus Indicators: The requirement of complete contract for corporate governance do not currently align with the public governance levels of infrastructure delivery in Nigeria. This is because the field of off-grid electricity is an emerging concept therefore, there is limited data available for unintended consequences to be evaluated and by extension the required mitigating measures to be

implemented by the CEO as need be. Although all other elements of the theory align in spirit with the requirements on policy, this is hardly the case as it manifests in Nigeria, there exists a lot of gaps in aligning the agency theory with public governance principles. This is largely due to a lack of clarity on the role of the agent and principal within off-grid electricity delivery space, there are a multitude of actors that tend to assimilate both roles (of agent and principal) due to the minimal scale of off-grid projects usually less than 1 MW (which cost about a few thousand pounds) therefore the role separations are not apparent.

Partial Alignment: The holistic analysis also revealed that seeking approval from all stakeholders as well as the intrinsic value of stakeholder inputs were partially fulfilled by corporate governance theories in the areas of off-grid electricity infrastructure, the policy and regulatory processes did allow for the inclusion of stakeholders and the approval but this groups were mainly the experts and government agencies involved in the design and finance of the projects which are mainly within the formal government spectrum, there were no alignment of these needs with the consumers and citizenry who had an equally important stake in the use, maintenance and operation of the projects. The resource dependency theory also had partial alignment with all the public governance indicators largely due to the truism that the theory relies heavily on the expertise of the corporate governing board to provide resource as well as maximise the efficiency of resource use. However, although this is possible, the composition of the board itself within the Nigerian space is one-sided. As evidenced in the stewardship theory analysis, board compositions are fraught with corruption and nepotistic tendencies. A review of several cases on the effectiveness of corporate governance regulations in Nigeria accedes to this trend. In the study a series of corporate failings led to a series of measures by the Security Exchange Commission [SEC] to instil some confidence into the country. However, it was found that there were multiple codes of corporate governance which creates challenges for organisations and breeds inefficiencies on the dependence and reliability of the board. This is due to conflicts that exists within the codes thus creating interpretation challenges for businesses. Osemeke and Adegbite (2016; p. 17) found conflicts on recommendations on "*board size, directors' independence, CEO duality, board membership and audit committees.*" A notable example is on the recommendation of board independence where the SEC, PENCOM, and NAICOM codes recommended the presence of at least one independent director whereas the CBN code recommended a minimum of two (Osemeke and Adegbite 2016; p. 20). In addition, the CBN code found that multiple concurrent directorships lead to conflict of interests and could interfere with the director's ability to discharge his/her responsibilities, whereas the SEC code places no limit on the number of boards that directors can serve on (Osemeke and Adegbite 2016). The works of Osemeke and Adegbite (2016) and Adewale (2013) propose a mandatory code of corporate governance for Nigeria, to advance the enforcement mechanisms of the code. One reason for this could be because the Nigerian society is not based on the common law for which the principles-based "comply or explain" approach of the UK was built on. It may very well be more appropriate to follow the US rules-based system which is more prescriptive and required compliance from firms.

No Relationships: The public and corporate governance indicators selected in this analysis had no relationships only within the areas of 'remuneration of the agent' under the agency theory based on the context and level of our analysis. For off-grid energy projects which are mainly driven by small scale electricity needs, there is rarely a central agent that is relevant to driving performance. The ownership of off-grid electricity infrastructure is mainly very small scale and subsidy driven because of the non-competitive nature of off-grid electricity tariffs. Therefore, we found no relationship of the element of this theory with the context of our analysis.

5 Achieving Good Governance Within Nigeria

The analysis performed was an holistic evaluation based on 210 indicators as a scorecard for the off grid electricity governance processes and to identify gaps within the policy documents that is weak according to corporate governance principles and by extension the public governance of off-grid electrification in Nigeria. We hope it gives an insight into the strategic importance of good governance for the renewable sector.

From our analysis, the stakeholder theory has the most relevance as a corporate governing principle with the off-grid public governance nodes. Of the 60 analytical indicators, only 8 within our analysis reveals conflicting mechanisms in policy and regulatory procedures representing about 13% level of non-alignment. Transparency and information access seems to be very aligned in terms of the requirements of public and corporate governance processes and requirements however, there needs to be a lot more accountability and participation in the policy making process, it seems that there is too much trust placed in independent and private consultants to speak for the consumers and the citizenry in terms of rural electrification and there is a lack of mechanism through which complaints can be addressed. The process is also highly secretive until the end of the process which makes accountability difficult. This has given rise to a situation where actors influencing the processes through which an innovative technological evolution is to occur have been fragmented and disconnected and do not maximise the full potential of what can be done in the governing of the rural electrification infrastructure in the enacting of policies in both the policy making process and the institutional elements to carry out these processes.

Although there have been some alignments, our analysis also reveals that 67% of the time, there are no alignments between public governance and corporate governance principles in terms of how the off-grid electricity infrastructure is governed, 141 out of the 210 relationships in the matrix fall under (part alignment, conflicts or no relationship). This has translated into a key challenge for the sector which remains the lack of a formal power market model for rural electrification which is lacking and not provided for in any of the legislations. This is providing a major constraint in terms of the ability of private sector involvement due to the ambiguity and inconsistencies of government policies with respect to the corporate market model and user market rule consistency. The current regulatory framework do not

also allow mechanism to provide financial, legal and techno-economic recognition and assistance to the weaker and marginal sections of the consumers as well as to the active civil society groups within the renewable electricity sector space to enhance participation as well as enhance the space for participatory contribution and redress where necessary. Having said all these, studies have shown that communal power and other infrastructural projects are already existing in the country (Akinola 2007), the absence of rigid institutional arrangements that facilitate and encourage beneficiaries of localised rural infrastructure to find ways of financing, constructing, operating and maintaining infrastructures provided by central governments while attempting to rent seek or even run down the infrastructure shows an evident de-alignment of motives and a fragmentation of priorities when it comes to public governance from consumers towards corporate provided infrastructures within rural landscapes. This fragmentation on how the processes of corporate regulation enshrines the four key governance principles leads to a stagnation in the formation of networks and a parallel structuration which weakens both institutional structures around the governance of infrastructures. The governance structures thus create an 'unregulated' governance of infrastructure that prevails with the consumers in the rural landscapes.

6 Conclusions

Through this chapter, we have critically evaluated the role played by public and corporate governance in the promotion of sustainable development in Nigeria and by extension the fulfilment of sustainable development goal 7 for ensuring global energy access from a governance point of view. For public governance, we evaluated the components on good public governance based on four WRI indicators of public participation, transparency and information access, accountability, and capacity. The use of the governance principles of transparency, participation, accountability, and capacity as indicators of good governance along with their respective indicators and attributes were used to present a snapshot of the governance principles in the policy making process and identify gaps and the shortcomings of good governance in the process. We also compared the main theories of corporate governance, focusing on the rationale behind each theory and their implications for businesses. Through this, we were able to map the attributes of the four main corporate governance theories against the four WRI indicators of good public governance to create an evaluative criterion for good governance in Nigeria, within the context of decentralised electricity infrastructure projects.

The mapping exercise found key areas of alignment between the good public governance indicators (WRI) and the different theories of corporate governance. However, we also found a large number of areas where there may be conflicts that require reconciliation for such public-private engagement towards energy access provision to be a success.

We found that stakeholder theory has the most relevance as a corporate governing principle within off-grid public governance nodes, with conflicts in only 13% of the

60 indicators for this. Particularly in alignment were aspects of stakeholder theory which places emphasis on consideration for all stakeholders. Similar alignment was found in aspects of stewardship theories which places emphasis on non-excessive monitoring although not at the levels found in relation to stakeholder theory.

We found a reasonable level of alignment between aspects of agency theory and the four indicators of good governance. Particularly, agency theory's emphasis on monitoring agents' actions and remuneration of agents is found to be in alignment with each WRI indicator of transparency, participation, accountability, and capacity. However, we found conflicts between all WRI indicators and stewardship theory's emphasis on the involvement of employees at all levels, as well as the use of complete contracts as emphasised in the agency theory. These conflicts are due to insufficient due process in Nigeria which often exclude employees, coupled with short-term approach of many organisations which is a major issue for off-grid electrification of rural areas which requires a longer-term approach. Furthermore, we found major gaps in accountability, while only partial alignment was found with many aspects of both stakeholder and resource-dependency theories.

Finally, we propose that these conflicts and gaps are reconciled in order to ensure the success of such public-private partnership in off-grid electrification projects in Nigeria.

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