

International Renewable Energy Finance Mechanisms and the Role of Local Stakeholders in Project Design and Implementation: **Perceptions from Zambia**

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Abstract

Internationally financed renewable energy initiatives play a key role in the promotion and deployment of renewable energy in Zambia. Some scholars argue that financing initiatives have largely excluded meaningful local actor participation in the process of rolling out the various interventions. This article explores the interactions that occur between some of the financing initiatives and government agencies in the energy sector in Zambia. The article presents the perceptions of experts in the sector on how the local stakeholders, have interacted with development partners in designing, implementing, and monitoring renewable energy initiatives in Zambia. The results reveal that generally most respondents were of the view that the local actors were given enough room in the project design and implementation process. However, almost 30% of the participants believed the role played by the local actors was minimal and needed to be improved. Therefore, in this era of advocating for a just transition towards clean energy, local stakeholder involvement facilitates an equally important concept of procedural justice which is essential to have a meaningful decision-making process that allows stakeholders on all sides to understand the key players in the process but also the impacts and burdens that may result from those decisions.

Keywords

Local Stakeholders, International Finance, Project, Design, Implementation

1. Introduction

The article provides an overview of the perceptions of study participants on the

interaction of local stakeholders, who in this case are government institutions mandated with the responsibility of renewable energy development, with Development Partners in the Energy Sector with regards to the designing and implementation of renewable energy projects in Zambia. While the global rate of electrification reached 89 percent, with 153 million people obtaining access to electricity annually, there was a huge challenge in most remote areas around the world. In Sub-Saharan Africa, an estimated 573 million people still have no access to electricity. Reaching these un-electrified populations which are often poor and hard to reach will require the utilization of renewable energy technologies including solar home systems, solar lighting as well as mini grids (World Bank, 2019).

For some countries, the establishment of renewable energy technologies gives an opportunity for broadening the energy mix. Renewable energy is inexhaustible and ubiquitous hence the attractiveness (U.S. Energy Information Administration, 2022).

In the Zambian case, hydropower has been the dominant source of electricity. Notwithstanding, broadening the energy mix has been one of the inspirations for promoting the inclusion of other types of renewables such as solar energy. Additionally, Zambia, especially in the rural areas, is sparsely populated, with low grid coverage and low electricity access rates. Therefore, decentralized energy solutions and off-grid renewables are regarded as alternative solutions to the expensive option of grid extension (Ministry of Energy, 2019). Zambia's total installed electricity generation capacity is estimated at 3318.43 MW, with the dominant hydro responsible for 2704.5 MW of the installed capacity. In second place is coal, accounting for 330 MW, thirdly, heavy fuel oil at 110 MW, fourthly, diesel at 84.8 MW, and lastly, solar PV at 89.13 MW (Energy Regulation Board, 2022). The electricity access levels have improved in recent years especially in the urban areas, but much work remains to be done. At national level, 32.5 percent of households are estimated to have access to electricity which is broken down into 70.6 percent of urban households and 8.1 percent of rural households (Ministry of Energy, 2022). One of the major barriers often cited as contributing to low electricity access levels and renewable energy penetration in Zambia and Africa at large is lack of access to finance and the dearth of suitable financing mechanisms (Aziz & Jahan, 2023; Oji et al., 2016; Sankoh et al., 2021). Renewable energy is expected to play a key role in Zambia's energy access agenda in particular for the rural populace. Several development partners have come up with various renewable energy financing programmes to push the renewable agenda in Zambia. This study aims to assess how the development partners interact with the state actors in the design and implementation process of the various renewable energy programmes.

The article begins by briefly reviewing some literature on the significance of stakeholder participation and institutional interaction in project design and implementation. The article then, from literature, provides a conceptual framework within which institutional interaction is framed. This is followed by the presentation of results from the administering of questionnaires on the perception of participants on the interaction between local stakeholders and development partners. Finally, the article then presents results from the questionnaires, interviews, and document review within the context of the conceptual framework of institutional framework from literature.

2. Methodology

The methodology used was administering of semi-structured questionnaires and interviews to respondents selected through judgmental sampling. Renewable energy experts particularly in government and quasi-government institutions were the main targets for questionnaires. For interviews, the main targets were project financiers and a few energy experts within the government agencies. Document analysis of relevant documents related to projects of interest was also done.

A total of 27 semi-structured questionnaires were distributed to energy experts working in the government and quasi-government agencies responsible for renewable energy with particular focus on policy and regulatory issues. A total of 19 questionnaires were responded to. Furthermore, interviews were also done with one of the financiers and four policy experts. An attempt to interview three other financiers was not successful. As earlier alluded to, the study was part of a broader study. For this article, the analysis focusses on four questions—two structured and two unstructured. The questions are provided below:

The first two questions are structured questions with options for answers provided as Strongly Agree, Agree, Not Sure, Disagree and Strongly Disagree.

1) The role of local actors (i.e., GRZ, Regulators and other implementing agencies) is adequately catered for in the design of internationally sponsored renewable energy finance schemes in Zambia.

2) The role of local actors (i.e., GRZ, Regulators and other implementing agencies) is adequately catered for in the implementation of internationally sponsored renewable energy finance schemes in Zambia.

The following are the Unstructured questions:

1) What role did the Government or Agency play in the process of designing donor financed renewable energy finance mechanisms mentioned in number 10 above in terms of conceptualization, designing and development? Kindly describe the level of involvement.

2) What is the role of the Government or Agency in implementing and monitoring donor financed renewable energy finance mechanisms mentioned in number 10 above. Kindly explain:

In addition, the analysis also added another layer based on the institutional interaction framework presented in **Table 1** below as proposed by Sanderink & Nasiritousi (2020). This analysis is based on comments from interviews and document analysis on how the renewable energy projects highlighted are currently structured.

Table 1. Framework for analysing institutional interaction.

Type of Interaction	Description	Characteristics
Political Interaction	The sharing of a political procedure, system or resolution under mutual agreement, influences the efficiency of involved institutions in following their shared objectives.	 Collective efforts, e.g., co-arranging activities, coordinating tasks or co-writing publications. Joint decisions such as statements. Sharing of assets e.g., money or personnel.
Cognitive Interaction	The information, expertise, knowledge and proposition of an institution influence the tasks of another institution.	 Sharing of information, e.g., Linking into each other's data or citing each other's publications. Transmission or transference of concepts and procedures, e.g., applying or implementing each other's calculations or measures.
Normative Interaction	The commitments, rules and philosophy of an institution influence the execution of another institution.	 Interconnected commitments, standards and principles, e.g., pursing similar or distinct objectives, understanding the core challenge congruously or divergently, or being steered by similar or incompatible values. Re-arrangement of commitments, standards and principles, e.g., positioning targets to work towards a common goal or intersecting definitions of the key issue.
Behavioural Interaction	The practical and tactical conduct of an institution and its members incidentally influences the operation of another institution.	 (Non-) alignment of behavioral transformation that institutions seek to activate, e.g., the ratification of synergistic or conflictive incentives, or planning of beneficial or incongruous tasks, by their own members or other stakeholders. The interdependence of strategic behavior, e.g. observing, pressuring or chastening each other's achievement.

Source: (Sanderink & Nasiritousi, 2020).

3. Literature Review

Scholars have noted the need for an effective global governance mechanism to promote the deployment of renewables, recognizing the huge global populace that still needs access to electricity. They further note that for policy learning and technology transfer, collaboration is required at international and transnational levels as well as coordination of international aid for developing countries (Sanderink & Nasiritousi, 2020). At global level, the renewable energy governance system has become crowded, with the existence of many institutions ranging from private initiatives, multi-stakeholder partnerships, transnational networks and international organisations. This has led to scholars of institutional complexity pointing out the significance of coordination and institutional interactions between these many institutions to help improve performance and effectiveness (Andonova & Levy, 2003; Sanderink & Nasiritousi, 2020). This observation is not only applicable at global level but also at national level as whatever happens at global level ultimately plays out at the national level. Therefore, to promote local ownership, effectiveness and sustainability, project stakeholders both from the financiers and recipient side need to interact both during project formulation and implementation.

Policy makers and scholars regard inclusive stakeholder participation as one of the key ingredients required to facilitate an equitable and effective transformation towards renewable energy systems. Antwi and Ley therefore recommends that in order to promote acceptance of interventions by stakeholders, a bottom-up approach that provides an opportunity for the local people to be part of the main actors from the project inception through to monitoring and evaluation is essential. They argue that providing opportunities to communities to lead projects not only promotes acceptance but also sustainability and ownership, ingredients which are essential to the successful implementation of projects (Antwi & Ley, 2021). In trying to improve the outcomes of decision making in the environmental public domain, scholars and administrators are frequently embracing participatory and collaborative types of governance. They explain that the justification of public participation has historically revolved around the idea of emancipation and legitimacy but has however experienced a shift towards the notion of increased effectiveness in governance (Newig et al., 2018). Participatory approach is therefore promoted as it paves the way for inclusive decision making and integrating the perspectives of various stakeholders and local know-how (Edelenbos et al., 2011).

The assumption is made that a participatory approach as opposed to a topdown approach promotes the incorporation of environmental values while integrating stakeholder understanding. At the same time, the approach results into more creative solutions which serve the common good rather than vested interests. However, there are also contrary views on the effectiveness of participatory approaches, with some arguing for example that participants may not have environmental preferences or capacities. Furthermore, decision making based on participation many inhibit transformational change with regards to environmental sustainability (Newig et al., 2023). The principles of participatory approach though largely applicable or described in relation to community type of projects are still relevant to the stakeholders at institutional or organizational level and development partners at global level or transnational level. The essential role of international public finance to supplement domestic finance, especially in developing countries is emphasized by the 2030 Agenda for Sustainable Development (United Nations, n.d.). The OECD also recognizes that at the heart of country ownership is the need for programme alignment of development partners to country priorities. As such development partners have generally committed to avoiding the proliferation of parallel implementation systems, where this can be avoided (OECD/UNDP, 2019).

4. Conceptual Approach

In undertaking an assessment of how local stakeholders interact with internationally financed renewable energy projects, the paper draws on the analytical framework proposed by (Sanderink & Nasiritousi, 2020) who argues that while the concepts where originally developed to understand, international regimes: institutional interactions and effectiveness, they are useful for comprehending multi-stakeholder partnerships. The framework describes different types of interactions ranging from political, cognitive, normative and behavioural as illustrated in **Table 1** above.

Institutional interactions have been studied extensively, and therefore a variety of typologies has been presented to grasp the causal mechanisms behind such interactions (Sanderink & Nasiritousi, 2020). These typologies include political, ideational or cognitive, and normative (Oberthür & Gehring, 2006; Stokke, 2001). They are described below:

1) Firstly, political interaction refers to a scenario in which institutions are formally linked via a political system, process or decision. An example would be when two institutions decide to share resources or cooperate to more efficiently seek common goals. The shared system, process or decision emanating from a political interplay can be linked to the output level of effectiveness, and the enlarged capacity to seek common goals is anticipated to influence the result and impact levels of effectiveness. An example is where institutions pool their resources to attain new or stronger outputs, for example, two or more institutions can pool resources for new or stronger outputs, and substantial outreach and enlarged impacts of their shared activities. Such shared activities supposedly do not materialize based on the aspiration to oppose the activities of other institutions.

Therefore, an expectation that emerges is that political interactions have a positive effect on the effectiveness of institutions by contributing to complementary outputs and improved outcome and impact. Nonetheless, for the sake of clarity and the risk of endless connections, this paper distinguishes institutional interactions based on the actual observable exchange, excluding underlying factors. Finally, it is important to consider that establishing institutional interactions requires resources, and that the magnitude of the costs as well as benefits of institutional interactions may vary. Some institutions may benefit more from interactions than others. The aim of the analysis below is not to measure such effects; however, rather it serves to illustrate how different types of interactions are perceived to affect the effectiveness of multi-stakeholder partnerships and of three specifically. The analysis can thereby guide future research into the overall effects of institutional interactions on different institutions (Sanderink & Nasiritousi, 2020).

2) Secondly, ideational or cognitive interaction refers to the generation of ideas, information and knowledge under one institution, but which affect the development of another (Sanderink & Nasiritousi, 2020). This type of interaction is premised on the assumption that the exchange reinforces the tasks of the institutions involved (Oberthür & Gehring, 2006; Stokke, 2001). In this interaction, one institution can support the potency of another by bringing political at-

tention—internationally or domestically—to certain issues that are of importance to the recipient institution. The supporting institution may also provide solutions to different types of issues which can be emulated or adopted by the recipient institution. However, it is noted that cognitive interaction may not always lead to institutional effectiveness as it may in some cases lead to crowding out more appropriate alternative solutions to problems (Stokke, 2001). Interaction may also come about when latest and beneficial technological understanding shared by an institution leads to an alteration of strategy of another institution or when an ingenious approach of one institution is utilised by another. Again, the assumption is made that the exchange of ideas, information and knowledge is done with the objective of achieving mutual benefits. In this type of interplay, the expectation is that the interactions have a positive influence on the effectiveness of institutions through increased precision and/or efficiency of product.

3) Thirdly, normative interaction, also called interaction through commitment refers to a scenario where the norms, principles and commitment of at least two institutions are divergent or overlap (Sanderink & Nasiritousi, 2020). Stokke (2001), explain that for the interplay to happen, the norms, principles and commitments need to be legally binding and require an overlapping membership. However, it is noted that even in the absence of overlapping membership and no binding legal agreements, the norms, commitments, and principles can display conflict or overlap, or voluntarily be aligned or adopted. The intersection of norms, commitments, and principles (be it in a conflictive or synergistic manner) consequently influences the implementation levels of respective institutions and influences whether results are attained or not.

Therefore, the conclusion that emerges is that normative interplay influences institutional effectiveness either positively when the intersection is synergistic or negatively when the intersection is conflictive, consequently influencing outcome and degree of impact. It is acknowledged that the three types of institutional interplay can be interdependent. For example, embracing a technique developed by another institution to determine the share of renewable energy in the energy mix denotes a cognitive interplay. Notwithstanding, concurrently, the definitions which form the basis of the technique are passed on (normative interplay) and the interchange may form part of a fundamental political process (political interplay) (Sanderink & Nasiritousi, 2020).

5. Results

The results presented are in two parts. The first part is a presentation of an overview of the perception of respondents on the interaction of government institutions and the development partners in the design, implementation and monitoring of renewable energy projects. The second part is a presentation of four development partner financed projects in the context of the institutional analytical framework by (Sanderink & Nasiritousi, 2020), based on document review and interview/semi-structured questions.

5.1. Overview of the Perception of Respondents on the Interaction of Government and the Development Partners in the Design, Implementation and Monitoring of Renewable Energy Projects

A total of 19 participants, responded to the question on whether the government and its related agencies were fully catered for in the design process of projects financed by development partners. The majority of respondents, 12, agreed that this was so, but 7 disagreed. The results are presented in **Figure 1** below.

To unpack the response to the structured question that was posed above, a similar semi-structured question was posed. The semi-structured question sought to understand the actual role that government or related government agency played in the process of designing some of the projects that have been implemented. The responses to the question on the involvement of local stakeholders in the project design of renewable energy projects financed by development partners were grouped in four categories: 1) involved in project design, 2) coordinates stakeholders, 3) plays advisory role, and 4) plays minimal role. The majority of those who responded to this question had a positive perception, with 33 percent indicating stakeholder involvement in project design, 13 percent indicating an advisory role and 27 percent indicating a coordination role. However, the responses from 27 percent of the respondents were in the category of local stakeholders playing a minimal role in the design process. The responses are presented in the graph in **Figure 2** below.

A total of 19 participants also responded to the question on whether government and related agencies were fully catered for in the implementation of projects financed by development partners. The majority of participants (15) were of the view that government and its agencies were fully catered for in the implementation of projects while (4) were of the opinion that the government was not fully catered for. The results are depicted in **Figure 3** below.

The second part of the question was semi-structured which sought to find out the role that the government and related agencies played in the implementation and monitoring of internationally financed projects. The responses were grouped in the following four categories: 1) Involved in implementation and monitoring 2) Coordination and oversight of stakeholders 3) Advisory role 4) Minimal involvement. Overall, the majority of participants had a positive impression towards the role of the government and its agencies with 35 percent indicating that the government was involved in implementation and monitoring, 12 percent indicated that the government role was in coordination and oversight of stakeholders while 24% indicated that the role played by the government was advisory. Lastly, 29 percent of the respondents indicated that the government had minimal involvement. The results are presented in **Figure 4** below.



Figure 1. Perception on whether government institutions are fully catered for in the design of internationally financed renewable energy projects.

Role played by local stakeholders during project design process







Figure 3. Perception on whether government institutions are fully catered for in the implementation of internationally financed renewable energy projects.



Figure 4. Response regarding the actual role played by government or its agency in the implementation of internationally financed projects.

5.2. Interaction between Local Stakeholders and Some Renewable Energy Projects in the Context of Sanderink and Nasiritousi Institutional Analytical Framework

The second part is a presentation of four high profile projects in the light of the institutional analytical framework by Sanderink & Nasiritousi (2020) in Figure 1 above. These projects are the Electricity Sector Access Project (ESAP), the Global Energy Transfer Feed in Tariff (GET-FiT) Programme, the Increased Accessed to Electricity and Renewable Energy Project (IAEREP) and the Beyond the Grid for Zambia Project (BGFZ). A brief overview of the projects is provided below.

5.2.1. Electricity Sector Access Project (ESAP)

Three components were initially proposed under the ESAP project as follows:

1) Component 1 which would provide an Output Based Aid (OBA) subsidy for customer connections and fund network strengthening and extensions for grid-based electrification;

2) Component 2 was meant to address regulatory barriers for private sector involvement in off-grid electrification, capacity building at key institutions. It would also include the design, and potentially the piloting of 17 financial mechanisms to support private sector-driven electrification through stand-alone solar systems and renewable energy mini-grids; and

3) Component 3 would finance the development of a detailed National Electrification Strategy as well as timely and efficient project implementation. (World Bank Group, 2017). The policy and regulatory focus of component 1 was removed to avoid overlap with the IAEREP Project.

The ESAP is implemented through a project implementation staffed with experts from the REA and the Ministry of Energy (Interview, REA Official, August 2nd, 2023).

5.2.2. The Global Energy Transfer Feed in Tariff (GET-FiT) Programme The GET FiT Zambia project was designed to help the Zambian Government implement its Renewable Energy Feed-in-Tariff (REFiT) Strategy. The project aimed to procure and support privately developed projects up to 20 MW (GET-FiT Zambia, 2023). The project aims to help create a conducive environment for private sector participation in small scale, on-grid renewable energy development (GET FiT 2019 Annual Report, 2023). The programme has established a secretariat, managed by a consulting firm to manage the programme implementation (About GET FiT—GET FiT Zambia, n.d.).

5.2.3. Beyond the Grid Fund for Zambia (BGFZ)

The fund was launched in 2016 with the objective of providing access to clean, reliable and affordable off-grid energy to over 190,000 households, translating into an estimated one million Zambians. By 2022, the fund had achieved this objective. The BGFZ is financed by Sweden through Sida, the development agency and implemented by the Renewable Energy and Energy Efficiency Partnership (REEEP). The fund promotes access to energy by providing catalytic funding to private companies to work in parts of the country they would not normally venture. BGFZ was awarded a 2019 UN award on Global Climate Action, the 2019 Ashden Innovative Finance Award and the Energy Globe Prize for Zambia for the year 2020 (Beyond the Grid Fund for Africa REEEP, n.d.; BGFA Zambia, n.d.).

5.2.4. The Increased Access to Electricity and Renewable Energy Project (IAEREP)

The objective of the IAEREP programme is to promote increased access to clean, reliable and affordable energy by promoting the use of renewable energy (RE) and energy efficiency (EE) technologies. The IAEREP programme has three components as follows:

1) Supporting public organizations to establish and/or review the legal and regulatory system for implementation of renewable energies and energy efficiency in Zambia.

2) Building capability of both public and private institutions involved in the implementation of renewable energy and energy efficiency; and

3) Supplying initial-stage seed money in form of grants, through requests for proposals, for triggering the origination of sustainable business examples for energy services to encourage the utilization of renewable energy and energy efficiency at country level and catalyze private sector involvement in rural electrification ventures (National Authorising Office-EDF, n.d.).

The interaction among the above projects is illustrated in **Table 2** below.

Table 2. Inter	action between	local stal	keholders an	d some renew	able energy	projects in	the context	of Sanderink	and	Nasiritousi
institutional a	nalytical framev	work.								

Project Name	Characteristics	Interaction category
ESAP-World Bank/SIDA	 Joint development of project concept Financing/Implementation Agreement with Government Project Implementation Unit embedded in REA 	Political

Continued		
GET-FiT (KfW)	 Joint development of Project Concept Financing/Implementation Agreement with Government Project Implementation Outsourced to international Consulting Firm Interaction with GRZ through Steering committee and Investment Committee 	Cognitive and Normative
BGFZ-SIDA	Implementation outsourced to International Private CompanyInteraction with GRZ through steering committee	Cognitive
IAEREP-EU	 Joint development of project concept Financing/Implementation Agreement with Government One Project Implementation Unit embedded in REA, One stand alone 	Political and cognitive

Source: Author.

6. Discussion

The results show that generally most respondents were of the view that the government and its agencies were given enough room to have a role in participating in the design, implementation and monitoring of renewable energy financed by development partners. However, almost 30% of the participants believed the role played by the government and its agencies was minimal and needed to improve. Furthermore, even within the positive affirmation category, the levels of participation were categorized into different levels ranging from actual participation in either designing or implementation, coordination and advisory. The wide variation in outlook is an indication that much still needs to be done to have an inclusive process in terms of project design, implementation and monitoring. From the perspective of some respondents with a negative perception, some projects are designed and implemented entirely by the financiers themselves or by firms hired by the financiers themselves without the inclusion of local stakeholders, and in cases where local stakeholders are included, they are merely expected to rubber stamp the process.

Again, the level of interaction or involvement differs from project to project or financier to financier depending on the objectives of the project or financier at a particular time. The same financier may choose different modalities of implementation, depending on the objectives of the project, which may affect the level of interaction. Participants also seem to place importance on the interaction of the projects and the relevant government authorities. For instance, a few respondents cited the BGFZ as being detached from mainstream government efforts of renewable energy promotion with the point of contact only being through the Off-grid task force, which is a committee comprising the government, government agencies, private companies and some financiers in the off-grid space. This observation is echoed by Elsner et al. (2022). However, some participants appreciated the role of the off-grid task force in bringing all the key players in the sector together, including paving the way for the renewable energy customs energy handbook which paved the way for exemption of duty for renewable energy components (Interview, REA Official, 7 May 2023; Interview, Ministry of Energy Official, 1 May 2023). The BGFZ has achieved some wonderful results and has won international accolade due to its innovativeness and impact (REEEP, n.d.; BGFA 2019). Perhaps it has even inspired some design elements of the other projects cited above which have come after it, seeing the strong private sector focused incentives embedded in the projects. However, what is apparent is that from a local stakeholder perspective, the interaction part needs to be strengthened to promote stakeholder awareness and appreciation. Overall, study participants appreciated the positive impact that development partners have had on the renewable energy environment through the various initiatives.

7. Conclusion and Recommendations

The interaction of local stakeholders and development partners in project design, implementation and monitoring is important for cross pollination of ideas, sustainability, ownership and alignment of objectives. Implementation outside of established structures may achieve quicker results, bringing positive change in the lives of beneficiaries but may also miss out on strengthening the capacity of traditional structures, which are there for the long haul. It is apparent that interactions occur at various levels depending on the objectives of the parties involved. A fully engaged participative approach facilitates procedural justice which is essential to have a meaningful decision-making process that allows stakeholders on all sides to understand the key players in the process but also the impacts and burdens that may result from those decisions (Ryder, 2018).

The following recommendations for follow-up studies are made:

1) The study sought to shed light on a few aspects of interaction. However the OECD criteria is much more detailed and it would therefore be the recommendation of the author to undertake research for the renewable energy sector in Zambia that takes into consideration a number of the aspects that are taken into consideration in the OECD reporting (e.g. the link between development partner country strategy and national development plans, and the use of national results matrix) (OECD/UNDP, 2019).

2) The accessibility and impact of incentives provided by both local and international finance programs to local companies in the renewable energy sector needs a closer study as many respondents indicated that foreign companies tend to be the main beneficiaries.

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Conflicts of Interest

The author declares that he has no known competing financial interests or per-

sonal relationships that could have appeared to influence the work reported in this paper.

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