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The Potential of Stakeholder Engagement to Improve Outcomes of Foreign Investments in Renewable Energy Projects in Lower Income Countries

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Submitted to
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Abstract

Renewable energy projects in lower income countries have the potential to help these countries reduce their impact on and become more resilient to climate change, while also increasing their populations' access to energy and thus potential for sustainable improvement in their quality of life. These projects often rely on foreign investing, and this type of investment has dramatically ramped up in recent years. Yet, these projects still face a high failure rate, and governments and investors have not yet developed consistent frameworks for producing renewable energy projects that ensure both investor returns and positive community outcomes. This thesis predicts that better, in-depth, ongoing consultation with key stakeholders at multiple project levels can produce better outcomes. A stakeholder analysis on 2 World Bank-funded case studies in Kenya, and two in the Philippines, investigates this hypothesis. This analysis finds that certain key metrics for project success are greatly improved by stakeholder engagement, and that stakeholder engagement is a more important determining factor in project outcomes than project size or level of grid-connectivity, which contests much of the existing literature. This thesis then makes recommendations on how investors and governments can improve their stakeholder engagement during the development of renewable energy projects and thus produce better project outcomes, especially for the communities living on or-near project sights who are often sidelined during the process of renewable energy project implementation.

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Introduction

The Lake Turkana Windfarm in Kenya is the biggest wind farm in Africa and was touted as a key pillar of the country's renewable energy transition goals.[1] Yet, the project has been plagued with wide-ranging issues, from inadequate infrastructure to infringements on indigenous land rights. It also turned out that rural communities surrounding the project area, who had no access to electricity and who had expected to gain that access through the project, would not receive the electricity generated by the wind farm. Instead, the electricity would be funneled into the country's main electrical grid, which only connected to cities in Kenya that, as it turned out, did not need the extra electricity.[2] Thus, there were not nearly enough paying electricity consumers for investors to get their money back. These issues lead the initial key investor, the World Bank, to pull out its 78-million US dollar investment pledge in the early stages of project development, despite its years of initial preparation and project work.

Why did the World Bank and other investors not anticipate the many fundamental issues that arose during project implementation? As renewable energy investment booms in lower income countries, this project is just one example of many where the strong messaging about combatting climate change and improving energy security has obscured investors' views of the numerous issues that seem to commonly arise with this type of

[1] Matina Stevis, "In Kenya, the Wind and a Dream: Nothing about this long-planned giant wind farm has been easy." *Wall Street Journal*, (May 06. 2015) http://ccl.idm.oclc.org/login.

[2] Ibid.

investment, both for investors and community members. The question now becomes whether there is a better method for investing in these types of renewable energy projects.

In many lower income countries, the majority of the population does not have reliable access to energy, especially in rural areas.[3] Thus, developing increased power production capabilities is essential, and governments often look to foreign entities for support in the construction and funding of energy generation facilities. Yet, the projects that were previously most often pursued, like coal plants, have fallen out of favor with both investors and governments.[4]

Recently, as investors have taken a renewed interest in lower income countries, renewable energy has become a more politically popular target for investment. Renewable energy projects in lower income countries have the potential to be a vital solution to the converging issues of climate change and energy insecurity, while offering investors strong returns from an investment they can feel is doing a societal good.[5] Also, success of these individual projects at the "niche" level of the renewable energy economy is seen as essential to achieving broader transitions towards country-wide renewable economies.[6]

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[3] Odfred O. Boateng, Mobolanle R. Balogun, Festus O. Dada, Frederick A. Armah, "Household energy insecurity: dimensions and consequences for women, infants and children in low- and middle-income countries," *Social Science & Medicine,* 258 (2020) 113068, ISSN 0277-9536, https://doi.org/10.1016/j.socscimed.2020.113068.

[4] Ibid.

[5] Farhad Taghizadeh-Hesary and Naoyuki Yoshino. "Sustainable Solutions for Green Financing and Investment in Renewable Energy Projects." *Energies* 13, 4 (2020): 788–88. doi:10.3390/en13040788.

[6] Jens Marquardt, Karoline Steinbacher, and Miranda Schreurs, "Driving Force or Forced Transition?: The Role of Development Cooperation in Promoting Energy Transitions in the Philippines and Morocco," *Journal of Cleaner Production* 128 (2016): 22–33. doi:10.1016/j.jclepro.2015.06.080.

However, these projects have proven to be highly complex and require in-depth contextual understandings of the target location and surrounding communities.[7] When not approached correctly, they can fall short of one, or all, of the goals listed above. This failure is especially harmful to local communities that are greatly impacted by the development of these projects and rely on them for access to energy.

As this more popular form of energy investment has gained dominance, investors, governments, and researchers are still trying to learn how to produce the most successful renewable energy projects in developing contexts. Investors continue to generally prefer large-scale on grid projects, like the Lake Turkana windfarm, over smaller-scale off-grid projects because they are perceived as being less-hands on and as offering greater returns per project.[8] However, there is a new trend in scholarship that advocates that the smaller-scale, off-grid renewable energy investments are more successful and should be preferred by investors.

New research also pursues the idea that the success of projects should be evaluated not only on investor returns but also on community benefits and satisfaction. This is both because community satisfaction and cooperation are often key to ensuring investor returns, but also because these projects often impact energy insecure communities, and their gains from these projects ought to be a moral imperative.

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[7] Kyeongseok Kim, Hyoungbae Park, Hyoungkwan Kim, "Real options analysis for renewable energy investment decisions in developing countries," *Renewable and Sustainable Energy Reviews* 75, (2017) Pages 918-926, ISSN 1364-0321, https://doi.org/10.1016/j.rser.2016.11.073.

[8] Joshua Mugisha, Mike Arasa Ratemo, Bienvenu Christian Bunani Keza, Hayriye Kahveci, Assessing the opportunities and challenges facing the development of off-grid solar systems in Eastern Africa: The cases of Kenya, Ethiopia, and Rwanda."

This paper argues that community and investor gains should both be considered when evaluating success, both from a moral standpoint and in terms of accurately evaluating projects. Yet, evaluating which type of project is more successful, small off-grid projects or large on-grid projects, is perhaps not the right approach. A more contextual analysis reveals that a factor that is more important than project type is the level of stakeholder involvement in projects. Projects that engage in thorough and ongoing consultation with key stakeholders such as local community members, representatives from local and central governments, local organizations, agencies and companies that manage power and electrical infrastructure, and others, are more likely to be successful, both for investors and communities.

This paper will first provide a brief background on renewable energy investing in lower income countries, then it will carry out a review of the relevant literature on strategies for foreign investments in renewable energy. Next, it will go over a methodology and theory for evaluating the stakeholder engagement and success of its project cases, and then will engage in a qualitative comparison of four key renewable energy project case studies. Finally, it will provide key recommendations for investors and governments, and summarize its conclusions.

Background

Renewable energy investment is on the rise, especially as countries and even private parties strive to meet renewable energy transition goals set in the UNFCC Paris Agreement.[1] Investment in renewable energy first started to ramp up in the early 2010s, by about 2 % each year, but investment levels stalled and then began to drop slightly after 2015.[2] However, in the wake of the height of the Covid 19 pandemic, renewable energy investment has had a resurgence and increased by 12 % in 2020.[3] In 2021, renewable energy investing hit a new high at 371 billion USD invested in renewable energy.[4] Consistently, over half of this investment goes to lower income countries.[5] Also, the vast majority of this investment comes from private investors.[6]

The process of transitioning to renewable energy addresses a number of major international issues. First, of course, the transition is key to reducing carbon admissions and combating climate change. Countries that do not yet have fully developed power

[1] Dalia Fadly, "Low-Carbon Transition: Private Sector Investment in Renewable Energy Projects in Developing Countries," *World Development* 122 (2019), https://doi.org/10.1016/j.worlddev.2019.06.015.

[2] "Low-Carbon Transition: Private Sector Investment in Renewable Energy Projects in Developing Countries."

[3] International Energy Agency, "Record Clean Energy Spending is Set to Help Global Energy Investment Grow by 8% in 2022," *IEA* (June 22, 2022) Accessed October 18, 2022 iea.org/news/record-clean-energy-spending-is-set-to-help-global-energy-investment-grow-by-8-in-2022

[4] International Energy Agency, "World Energy Investment 2021 Executive Summary" *IEA* (No Date) Accessed October 18, 2022 https://www.iea.org/reports/world-energy-investment-2021/executive-summary

[5] Dalia Fadly, "Low-Carbon Transition: Private Sector Investment in Renewable Energy Projects in Developing Countries."

[6] Ibid.

infrastructure have a particularly strong potential for an easier transition to renewable energy. If the governments in these countries prioritize renewable energy capacity as they are building out their grid, they do not have to go back later and transition their system from fossil fuels to renewable energy, which can be a much more costly and intensive process than prioritizing renewables in the first place. This process is called avoiding "Carbon lock-in."[7]

Renewable energy projects also have unique advantages for many poorer countries that are still developing their power infrastructure and working to increase their population's energy security. Renewable energy projects are often a lot faster to implement than fossil fuel projects: many renewable energy projects tend to take a year or less while fossil fuel projects like coal plants require several years for development.[8] Also, some renewable energy technologies, like solar, can be much cheaper than fossil fuel energy production, and the technology continues to get cheaper as new innovations arise.[9]

Renewable energy projects are also an excellent way to address the ongoing issue of energy insecurity that plagues much of the world. As of 2019, 759 million people did not have access to electricity,[10] and the vast majority of them live in rural areas in poor

[7] Ibid.

[8] A. Donastorg, S. Renukappa, and S. Suresh, "Financing Renewable Energy Projects in Developing Countries: A Critical Review," *IOP Conference Series: Earth and Environmental Science* 83 (August 2017): 012012, https://doi.org/10.1088/1755-1315/83/1/012012.

[9] Ibid.

[10] "Report: Universal Access to Sustainable Energy Will Remain Elusive Without Addressing Inequalities," *The World Bank* (June 7, 2021) https://www.worldbank.org/en/news/press-release/2021/06/07/report-universal-access-to-sustainable-energy-will-remain-elusive-without-addressing-inequalities

countries.[11] Improving access to electricity makes a massive difference in the lives of people without secure access to electricity. Directly, electrical access increases access to the TV and radio, which improves access to information and levels of enjoyment. Electricity often significantly improves the productivity of small businesses and agricultural practices as well. Studies also show improved health outcomes and reduced mortality due to the electrified community's ability to transition away from polluting methods of power production, such as burning kerosene. There are also numerous benefits of electrification that have particular benefits for women in rural communities, such as reducing the time and work spent on household chores. Also, one study showed that increased knowledge on fertility from channels accessed through electricity decreased the levels of childbearing for rural women.[12]

There are two main types of renewable energy projects implemented in lower income countries. The first are large-scale, on-grid projects like large windfarms, solar farms, hydro-power dams or geothermal plants. These projects require the national grid to be extended so that it connects to the project and can funnel the large amounts of energy it produces to multiple groups of consumers.[13] Sometimes, these projects also entail that the national grid is extended to communities that were previously not on the grid so as to

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[11] Susann Stritzke and Prem Jain, "The Sustainability of Decentralised Renewable Energy Projects in Developing Countries: Learning Lessons from Zambia," *Energies* 14, 13 (2021): 3757. https://doi.org/10.3390/en14133757

[12] "Independent Evaluation Group, "The Welfare Impact of Rural Electrification : A Reassessment of the Costs and Benefits," Washington, DC : World Bank. © World Bank. (2008.) https://openknowledge.worldbank.org/handle/10986/6519 License: CC BY 3.0 IGO.

[13] Palit, Debajit, and Kaushik Ranjan Bandyopadhyay. 2016. "Rural Electricity Access in South Asia: Is Grid Extension the Remedy? A Critical Review." *Renewable and Sustainable Energy Reviews* 60: 1505–15. doi:10.1016/j.rser.2016.03.034.

increase the number of paying consumers to match the new, higher levels of energy being produced.[14] However, these projects do not always include grid extension to new communities. This is important to note because, often, investors, governments, and other international actors equate the development of renewable energy in poorer countries with increases to energy security, yet this is not always the case.

The second key type of renewable energy project is small-scale, off-grid or mini-gird projects that utilize solar, wind, biofuel, or micro-hydro power.[15] These projects focus on separate villages and communities, and place technologies either near or in individual households. These projects typically entail an educational program so that residents can learn how to operate and maintain their technologies.[16] These projects tend to produce much less energy than larger-scale projects, but investors do sometimes bundle large amounts of these projects together. Also, off-grid projects almost always increase access to electricity for energy insecure populations.

Despite this drastic rise in renewable energy project investing in lower income countries, and the numerous, expansive benefits that can come from it, many of these projects have fallen short of their goals. Research is ongoing into how investors can pick and create projects that ensure secure returns and benefit local communities in project areas.

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[14] Ibid.

[15] Rohit Sen and Subhes C. Bhattacharyya, "Off-Grid Electricity Generation with Renewable Energy Technologies in India: An Application of HOMER," *Renewable Energy* 62 (2014): 388–98, https://doi.org/10.1016/j.renene.2013.07.028.

[16] Ibid.

Methods

This paper evaluates the influence of stakeholder engagement on renewable energy project success by comparing the development and outcomes of four case studies of renewable energy projects in lower income countries. The World Bank is a key investor in all four of the projects. This helps ensure standardization across projects and provided access to project documents, including environmental analyses, consultation records, financial records, and social analyses. Two projects are in the Philippines, and two are in Kenya. One project in each country is large-scale and grid-connected, and the other is small-scale and off-grid. This controls for project size and grid-connectivity. Finally, one project of each size is successful for both investors and communities, and the other is unsuccessful. Thus, in the Philippines, this paper evaluates a case of a successful, large-scale grid connected project and a case of an unsuccessful small-scale, off-grid project. In Kenya, this paper evaluates a case of an unsuccessful, large-scale grid connected project and a case of a successful small-scale, off-grid project.

Project success is determined by a combination of quantitative and qualitative factors. For investors, a successful project is one where they spent the amount of money that they expected at the project outset, and one where they are paid their expected returns in full within their predicted timeframe. An unsuccessful project costs extra money, is not repaid in full, and results in time delays. Timeframe issues are relatively less important, unless delays are extreme, because energy projects, as infrastructure projects, have a strong potential for delays. For local communities, a successful project is

one where they receive the level of electrification expected by the project. Beyond this, successful projects result in external qualitative and quantitative gains, like job, educational, or health benefits. Unsuccessful projects do not produce the expected level of electrification, and harm or disrupt communities. Clearly, all projects can have combinations of successes and failures. However, the projects reviewed for this paper are more extreme cases of clearly delineated success for both investors and communities, or failure.

This paper puts to use stakeholder theory when evaluating its case studies. Stakeholder theory posits that stakeholders have a key influence on project or business success. Ruggieroa et al applies this theory directly to renewable energy projects, especially those located near rural communities.[1] The authors argue that analyzing the interacting influences of stakeholders on a renewable energy project is an extremely useful way to investigate the potential for project success, both in terms of project implementation and investor returns as well the local communities' gains from projects.

They then devised a framework for analyzing this important stakeholder involvement in renewable energy projects. Within this framework, there are three key stakeholder levels: macro, intercommunity, and intra community. The key stakeholders in each level are as follows: at the "macro level, influential stakeholders were the government, energy suppliers, the network operator and commercial developers. At the

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[1] Salvatore Ruggieroa,∗, Tiina Onkilaa, Ville Kuittinenb, "Realizing the social acceptance of community renewable energy: A process-outcome analysis of stakeholder influence," *Energy Research & Social Science* 4, (December 2014): 53-63

intercommunity level, the relevant stakeholders were nearby communities and intermediary organizations. Finally, at the intracommunity level, the local community at large, people living near an installation, local project champions and businesses were identified as key stakeholders."[2] These levels of stakeholder influence or depicted visually on the map below drawn from Ruggieroa's paper.

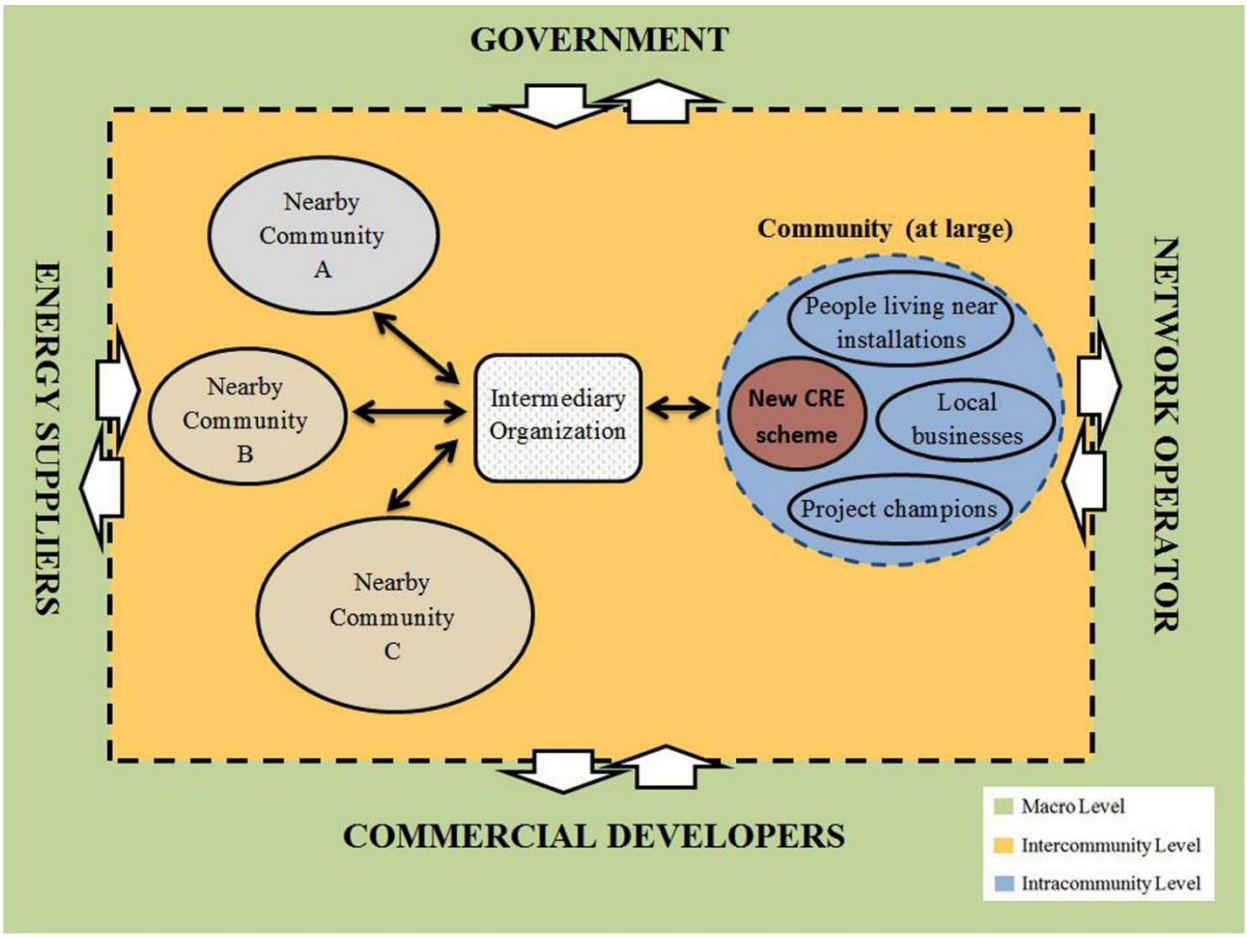

Figure 1 Stakeholder Map

Beyond the framework for analysis, Ruggieroa et al notes that a significant proportion of the relevant literature shows that sufficient stakeholder engagement can

[2] Ibid.

increase stakeholder cooperation with renewable energy projects, which in turn greatly increases the likelihood of project success. They determined that stakeholders could either help or hinder projects, or do both. Stakeholder's decisions to support or hinder projects rely largely on whether they believe the project will help or harm them. Stakeholders can, and often do, change their decisions to help or hinder projects if their beliefs change about whether a project will help or harm them.[3] In addition, further research has determined that, when consulted, stakeholders can identify key hinderances that may arise to a project and identify methods to overcome them, which can also lead to better project success.[4]

This paper analyzes its renewable energy project cases through this stakeholder framework, noting both the influences of each highlighted stakeholder on the project and the level of interaction that investors had with the stakeholder. Maps in the format of the one above were created to visually depict the layout of relevant stakeholders in each case. This paper predicts, like the Ruggieora paper, that projects in which investors engaged in thorough, ongoing interaction with multiple key stakeholders representing multiple stakeholder levels will be more successful. Thorough interaction is characterized by meetings and interviews in which the investors sought the input of stakeholders, and sought to address concerns before follow-up interactions.

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[3] Ibid.

[4] J.P Painuly, "Barriers to renewable energy penetration; a framework for analysis," Renewable Energy, 24, 1, (2001) Pages 73-89, ISSN 0960-1481, https://doi.org/10.1016/S0960-1481(00)00186-5.

Literature Review

Investors in green energy projects in lower income countries often view these investments as a way to secure monetary returns, contribute to the fight to mitigate climate change, and increase access to energy in energy insecure regions. Host countries see many of the same benefits, and, as described above, these types of investments have ramped up in the last couple of decades as green energy has become more technologically feasible.[1]

However, these investments carry significant risks. Much of the literature points to the high-risk nature of green energy finance, especially in lower income countries. (Taghizadeh-Hesary 2020)[2] and (Kim 2017)[3] determine that one of the highest risks that comes with these projects is uncertainty about the willingness and ability of target consumers to pay for the energy generated. Other key risks and determinants of success are uncertain regulatory environments, poor government administrative capacity, a lack of local technical skills and knowledge, and a lack of infrastructure - especially related to

[1] Farhad Taghizadeh-Hesary and Naoyuki Yoshino, "Sustainable Solutions for Green Financing and Investment in Renewable Energy Projects."

[2] Ibid.

[3] Kyeongseok Kim, Hyoungbae Park, Hyoungkwan Kim, "Real options analysis for renewable energy investment decisions in developing countries."

electrical grid connection.[4] [5](Pinkse 2010),[6] (Looke 2010),[7] (Painuly 2001),[8] (Abba 2022),[9] and (Martinot 2001)[10] also argue that there are high levels of complexity in green energy investment projects in lower income countries, largely due to the variety of involved stakeholders, which often means that these projects require greater investor involvement than typical foreign investments.

There are a variety of theories that have been developed to explain how investors choose foreign investments. In an article summarizing the key theories of foreign investment, Denisia (2010) determined that there is no unified theory of foreign investment, but that the one most commonly used is the OLI (ownership advantages, location, internalization) theory, which employs a multilevel analysis of each these factors to explain investment decisions. [11] However, much of the literature agrees that

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[4] David Matthaus and Michael Mehling, "Derisking Renewable Energy Investment," *Joule* 4 (December 16, 2020): p. 2627–2645

[5] Farhad Taghizadeh-Hesary and Naoyuki Yoshino. "Sustainable Solutions for Green Financing and Investment in Renewable Energy Projects."

[6] J. Pinkse and D. van den Buuse, "The development and commercialization of solar PV technology in the oil industry," *Energy Policy*, Volume 40. (January 2012): P. 11-20 doi:10.1016/j.enpol.2010.09.029

[7] M. Loock, "Going beyond best technology and lowest price: on renewable energy investors' preference for service-driven business models," *Energy Policy*, 40. (January 2012): 21-27 doi:10.1016/j.enpol.2010.06.059.

[8] J.P Painuly, "Barriers to renewable energy penetration; a framework for analysis," *Renewable Energy*, 24, 1, (2001) Pages 73-89, ISSN 0960-1481, https://doi.org/10.1016/S0960-1481(00)00186-5.

[9] Z.Y.I. Abba, N. Balta-Ozkan, and P. Hart, "A holistic risk management framework for renewable energy investments," *Renewable and Sustainable Energy Reviews* Volume 160, 2022, 112305, ISSN 1364-0321, https://doi.org/10.1016/j.rser.2022.112305.

[10] Eric Martinot, "Renewable energy investment by the World Bank," *Energy Policy* 29, 9, (2001): P. 689-699, ISSN 0301-4215, https://doi.org/10.1016/S0301-4215(00)00151-8.

[11] Vintila Denisia, "Foreign Direct Investment Theories: An Overview of the Main FDI Theories," *European Journal of Interdisciplinary Studies* 2, 2 (December 2010) **https://ejist.ro/files/pdf/357.pdf**

the complexity and newness of green energy investment decisions leads investors to diverge from this standard theory. Pinkse (2010) argues that, because traditional investors struggle with understanding the variation and novel technology involved in renewable energy investment, they tend to struggle to map existing investment frameworks onto renewable energy investments.[12] Loock (2010) states that because of the emerging nature of the renewable energy market, investors may place less emphasis on traditional metrics used to determine investment success such as price/earnings ratio and rely more on factors such as personal relationships with project developers.[13]

These theories are largely confirmed by evidence from interviews with private investors and World Bank documents describing investment projects. Investment groups and individuals pay attention to a wide variety of metrics when making investment decisions, but environmental conditions and the local policy conditions in the region targeted for investment are of key importance, and often even outweigh traditional metrics used to evaluate investments. World Bank documents on overall green energy investment strategy and specific projects in Kenya and India reveal that the World Bank strongly prefers to invest in large-scale grid-connected projects in areas with positive macroeconomic and policy conditions.

Environmental conditions are also considered to be important. Stakeholder compliance and risk are generally considered to be less important. The World Bank does

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[12] J. Pinkse and D. van den Buuse, "The development and commercialization of solar PV technology in the oil industry."

[13] Loock, ""Going beyond best technology and lowest price: on renewable energy investors' preference for service-driven business models."

conduct stakeholder interviews prior to investing in some projects, but the questions in these interviews focus on the impact of the physical presence of the project on the community, not the investment risk posed by community members' lack of compliance.[14] [15] [16] Keeley (2018)[17] conducted a series of interviews with renewable energy investment experts and determined that private investors also prioritize local green energy policies and macroeconomic factors when looking to invest in renewable energy in lower income countries. Investors even prioritize these factors over typical metrics for investment success like cost/returns ratio, which is consistent with the theory laid out by Loock (2010).

Most of the research done in this area focuses on how investors make their decisions, so as to inform host countries of how to attract investment. More limited work has also been produced on which factors determine what renewable energy projects will actually be most successful. Ideally, the factors that investors use and the factors that determine success would be the same, but this is not always the case. Some research

[14] World Bank, "Lake Turkana Wind Power Project," *World Bank Project Document* (July 2009) https://documents1.worldbank.org/curated/en/149151468272057129/pdf/E29100v10EA0P10pdated0Windfarm0ESIA.pdf

[15] World Bank, "Grid-Connected Rooftop Solar Program (P155007)," *The World Bank Project Project Document* (December 2017) https://documents1.worldbank.org/curated/en/228341513976846726/pdf/ISR-Disclosable-P155007-12-22-2017-1513976832124.pdf

[16] World Bank. *The World Bank Annual Report 2008 : Year in Review. Washington, DC. © World Bank.* (2008). https://openknowledge.worldbank.org/handle/10986/7524 License: CC BY 3.0 IGO

[17] Alexander Ryota Keeley, Ken'ichi Matsumoto, "Investors' perspective on determinants of foreign direct investment in wind and solar energy in developing economies – Review and expert opinions," *Journal of Cleaner Production,* 179 (2018): 132-142, https://doi.org/10.1016/j.jclepro.2017.12.154.

suggests that current investment strategies are ineffectual. (Wong 2010)[18] and (Martinot 2001)[19] argue that current renewable energy investment strategies can often fall short, both for investors and potential energy consumers in the target countries. This is because investors tend not to take into account issues like the functioning and evolution of renewable energy technologies or the reliability of government partners, and because investors can fail to get a full understanding of the stakeholder environment before an investment is made.[20]

Many alternative strategies have been recommended for making better green energy investments that both ensure investor returns and better support local communities in lower income countries. Cherni (2008),[21] Painuly (2001)[22] argue that smaller, off-grid renewable energy projects often better serve local communities and can be lower-risk investments than large-scale on-grid investments in lower income countries. This is because the smaller projects are often affordable and able to reach populations without access to energy, whereas grid-connected projects can come with prohibitively expensive energy costs and only reach consumers that already have access to energy.[23] This type of thinking stems directly from projects like the largely unsuccessful large-scale off-grid energy project described earlier. However, other research argues that investors may be

[18] S. Wong, "Overcoming obstacles against effective solar lighting interventions in South Asia," *Energy Policy* 40 (January 2012): 110-120 doi:10.1016/j.enpol.2010.09.030

[19] Eric Martinot, "Renewable energy investment by the World Bank."

[20] Ibid.

[21] Judith Alazraque-Cherni, "Renewable Energy for Rural Sustainability in developing countries."

[22] J.P Painuly, "Barriers to renewable energy penetration; a framework for analysis."

[23] Ibid.

correct in their tendency to prioritize large-scale on-grid renewable energy projects. Palit and Bandyopadhyay (2016) observe that larger renewable energy projects paired with grid extension can provide a more sustainable and large-scale solution to energy insecurity in certain countries with more concentrated rural populations, as well as greater investor returns in a shorter timeframe.[24]

Other research focuses not on success as related to the size of renewable energy projects, but on the current lack of stakeholder involvement in these types of projects. The Ruggieroa paper that this paper gleans its methodology from stems from this area of research. Multiple kinds of local stakeholders have determinative influence on the success of renewable energy projects in lower income countries. Cherni (2008), Painuly (2001)[25] and Kim (2017)[26] recommend much greater stakeholder involvement in investment decisions. In-depth interviews with relevant stakeholders are recommended to understand the viability of projects. Some key stakeholders include: the RET industry (manufacturers of plant, equipment and appliances, owners of plant), consumers, NGOs, experts, policy makers (government), and professional associations. Painuly (2001)[27] also emphasizes that the fees consumers will be charged for the energy produced and the ability of target consumers to pay those fees should be some of the most important

[24] Debajit Palit and Kaushik Ranjan Bandyopadhyay, "Rural Electricity Access in South Asia: Is Grid Extension the Remedy? A Critical Review," *Renewable and Sustainable Energy Reviews* 60 (2016): 1505–15. doi:10.1016/j.rser.2016.03.034.

[25] Ibid.

[26] Kyeongseok Kim, Hyoungbae Park, Hyoungkwan Kim, "Real options analysis for renewable energy investment decisions in developing countries."

[27] J.P Painuly, "Barriers to renewable energy penetration; a framework for analysis."

determining factors in investment decisions. Hart (2022)[28] and Kim (2017)[29] lay out more nuanced frameworks for energy investment decisions, such as real options analysis and semi-quantitative multicriteria decision analysis, that better take into account the complexity and multiple stakeholders involved in renewable energy investment decisions.

Finally, a significant subset of research focuses not on factors that contribute to project success, but how project success should best be evaluated. A key principle that has been applied to renewable energy projects is that of "Sustainable Development." Sustainable Development is the idea that projects ought to be evaluated not solely based on investor returns or even levels of electrification achieved, but also by community benefits that accrue from electrification. Under this principle, successful projects support the "socioeconomic progress and growth of end-users by providing for adequate electricity use, affordable electricity tariffs, safe electricity use, and cleaner electricity sources."[30] Lozano and Taboada (2021) state that, under Sustainable Development, investors must "determine, from users' perspectives, the difference between merely having electricity access and of being able to use electricity to improve their quality of life."[31] This means that successful projects must not only increase community electricity access, but also ensure that that access is ongoing, reliable, and accessible, and that

[28] Z.Y.I. Abba, N. Balta-Ozkan, and P. Hart,"A holistic risk management framework for renewable energy investments."

[29] Kyeongseok Kim, Hyoungbae Park, Hyoungkwan Kim,"Real options analysis for renewable energy investment decisions in developing countries."

[30] Lorafe Lozano and Evelyn B Taboada, "The Power of Electricity: How Effective Is It in Promoting Sustainable Development in Rural Off-Grid Islands in the Philippines?" *Energies* 14, 9 (2021): p.2705–. doi:10.3390/en14092705.

[31] Ibid.

communities are benefiting from the electricity through increased health metrics, education, economic achievement, or other standards. This can even extend to peripheral benefits to the project, such as new jobs created or subsidies directly provided by investors. This form of success evaluation, that focuses on the quality of life benefits to users in addition to traditional metrics, is utilized in this paper.

While ample literature is being produced on this subject, little has been written that compares studies across these two main metrics of project comparison: project scale/ grid-connectivity status, and level of stakeholder engagement. Even less has been produced focusing on the joint outcomes of community benefits and investor benefits. Comparing these projects across the two main issues identified in the field of renewable energy investing in lower income countries could help elucidate where investors, governments, and project managers can best focus their improvement efforts. This paper hopes to fill in the gaps, and to help identify which project types can best serve local communities and investors.

Case Study One: Lake Turkana Wind Farm in Kenya

Overview

The Turkana Windfarm is the aforementioned large-scale renewable energy project in the rural Turkana valley of Kenya. The land was chosen for its open area and strong winds blowing off of Lake Turkana.[1] Strategy for the project began in the late 1990s, but the project did not begin construction until 2014. The project is the biggest wind farm in Africa, and the largest joint public-private investment in Kenya.[2] The Lake Turkana Wind Project was finally completed in 2017. The total cost was roughly $865 million. It consisted of 365 turbines and covers 40,000 acres of land.[3]

The private companies involved were KP&P Africa (A Dutch company), Vestas Wind Systems (A Danish Wind Turbine manufacturer), Aldwych International (a British company) and Sandpiper.[4] The public investors are the Norwegian, Dutch, and Finish governments, and the main financer is now the African Development Bank.[5] The World Bank was the original main financer, and Google had previously committed to

[1] Matina Stevis, "In Kenya, the Wind and a Dream: Nothing about this long-planned giant wind farm has been easy." *Wall Street Journal*, (May 06. 2015) http://ccl.idm.oclc.org/login.

[2] Zoe Cormack & Abdikadir Kurewa, "The changing value of land in Northern Kenya: the case of Lake Turkana Wind Power," *Critical African Studies*, 10,1 (2018): 89-107, DOI: 10.1080/21681392.2018.1470017

[3] Zoe Cormack & Abdikadir Kurewa, "The changing value of land in Northern Kenya: the case of Lake Turkana Wind Power."

[4] Ibid.

[5] Ibid.

purchasing $40,000 worth of wind turbine shares, but both pulled out of the project.[6] Overall, the end result of the project was not successful for investors or community members. Some investors to receive limited returns, and others pulled out of the project entirely. A stakeholder analysis reveals the lack of stakeholder engagement in the process of project implementation, which lead to many of these failures.

The project failed on a number of counts from the side of investors. The first set of key issues were technical and infrastructural. The wind turbine blades that Vestas Wind Systems originally planned to use for the project turned to be much too large for the nearest Kenyan port to handle, and so the project had to be redesigned to use turbines that were about half of the original size.[7] This increased the project timeline and the redesigns incurred costs. In addition, roads needed to be built from the port to the project location to transport the wind turbine blades on, as well as from other major cities in Kenya to transport workers and materials.[8] Rehabilitation of the main road from the port to the project location alone cost investors an extra 30 million US dollars.[9]

The next set of major issues came from the process of partnering with Kenyan electric companies and network operators. The contract that investors signed with Kenya

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[6] Matina Stevis, "Lake Turkana Wind Farm Project in Kenya Battles Headwinds," *The Wall Street Journal* (May 6, 2015) https://www.wsj.com/articles/lake-turkana-wind-farm-project-in-kenya-faces-headwinds-1430881511?mod=article_inlinz

[7] Matina Stevis, "In Kenya, the Wind and a Dream: Nothing about this long-planned giant wind farm has been easy."

[8] Ibid.

[9] Mette Dalgliesh Olsen and Thomas Westergaard-Kabelmann, "Socio-economic study of key impacts from Lake Turkana Wind Power (LTWP)."*QBIS (*June, 2018) https://ltwp.co.ke/main/wp-content/uploads/2022/04/20180604_LTWP-impact-assessment.pdf

Power entailed Kenya Power both connecting the project to the grid and agreeing to pay for all electricity generated by the wind farm for the next 20 years, whether the energy would be used or not. This placed a significant burden on Kenyan taxpayers, which has caused controversy in Kenya in recent years.[10] Also, the project did not take into account or prepare for the extension of Kenya's current electrical grid. There were this significant project delays while the new windfarm was connected to the grid. This extra transmission line cost investors an extra 150 million dollars, and its construction delayed the operability of the wind farm for two years.[11]

The project also faced numerous failures from a community standpoint. The first key issue, of course, is energy access. The Turkana project repeatedly touted that it would be bringing energy insecure populations, yet failed to do so. The energy insecure consumers located nearby the new project were not given new electricity access, but instead a long and costly grid extension was run to the pre-existing electrical infrastructure in big cities. Thus, the project failed to contribute to the electrification of Kenya's rural populations, most of whom still do not have reliable access to electricity.

The focus on connecting the energy to pre-existing electrical infrastructure also hurt investors. The energy produced by the wind turbines did not reach new consumers who were in need of energy and willing to pay. Instead, it only reached communities who had access to electricity already, and, thus, there was not nearly enough demand for the

[10] Loise Voller, "Vestas' wind farm in Kenya is the country's largest green investment ever. Now a court has declared it illegal," *Danwatch (*November 2021) https://danwatch.dk/en/perspektiv/vestas-wind-farm-in-kenya-is-the-countrys-largest-green-investment-ever-now-a-court-has-declared-it-illegal/

[11] Ibid.

energy produced. This was the major reason that the World Bank cited for pulling its 78 million dollars out of the project, and then Google cited for pulling 30 million out of the project.[12] The Kenyan government had to promise to cover the cost of the excess energy in order for the African Development Bank to step in as an investor, which came at a massive cost to Kenyan taxpayers. [13]

The Lake Turkana Wind Project has also caused significant stress, grievance, and controversy over land rights. In the communities surrounding the project location. The land that the wind turbines were built on was previously considered to be communal. Numerous pastoral communities, including the Rendille, Samburu and Turkana, used it for grazing,[14] and the village of Sarima was located on a portion of the plot.[15] The Rendille community's Galgulame coming of age ceremony was also performed on the land.[16] However, the local government effectively privatized the land so that it could be leased to the wind farm in trust.[17] Thus, the project-owners were able to forcefully relocate the village of Sarima without compensation. Other communities who used the public parts of the land were also not compensated when it was privatized.

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[12] Ibid.

[13] Ibid.

[14] Zoe Cormack, "How Kenya's mega wind power project is hurting communities," *The Conversation* (September 3, 2019) https://landmatrix.org/media/uploads/how-kenyas-mega-wind-power-project-is-hurting-communities.pdf

[15] Zoe Cormack & Abdikadir Kurewa, "The changing value of land in Northern Kenya: the case of Lake Turkana Wind Power."

[16] Ibid.

[17] Ibid.

In response, local indigenous activists formed the Sarima Indigenous People's Land Forum' (SIPLF) in 2015 to contest the project. The legality of the project's land acquisition and forceful community relocation was then alled into question in a case in the high court in Muru in 2015.[18] The court issued an injunction which temporarily delayed construction of the project. Local activists attempted to physically blockade the project area in order to prevent work from being done on the wind farm and to enforce the injunction. This led to significant project delays and costs. [19] The same court later found the windfarm investors be in violation of the central government's Trust Land Act which sets specific stipulations for the transfer of community lands to private ownership, which were not followed. This means that investors and local politicians, under threat of further legal penalties, must now renegotiate the ownership of the land that the windfarm is on with local communities.[20] This renegotiation is likely to be very difficult, given the extreme distrust sown by the project and the dissatisfaction of communities with their local officials and the investors, as well be discussed later in this paper.[21] Thus, this process has cost both communities and investors.

The construction of the wind farm has also been a deeply disturbing force that has fostered social tensions and conflict within local communities. Local communities

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[18] Ibid.

[19]Sofía Ávila-Calero, "Lake Turkana Project in Indigenous Territories, Kenya," *Atlas* (August 18, 2019) https://ejatlas.org/print/lake-turkana-project-in-indigenous-territories

[20] David Mwere, "Kenya: How Govt Paid U.S.$65 Million for 'Non-Existent' Power" *All Africa,* (July 2020) https://allafrica.com/stories/202007100157.html

[21] Zoe Cormack & Abdikadir Kurewa, "The changing value of land in Northern Kenya: the case of Lake Turkana Wind Power."

compete over who should have access to benefits, jobs, and compensation from the project, and those with power inevitably find ways to profit from the project at the expense of those with less power. This village of Sarima became overburdened when a large number of Kenyans moved to it looking for work associated with the wind farm, which resulted in poor sanitary and living conditions for inhabitants. Locals say that this influx of men looking for work has fostered a growing, exploitative prostitution industry.[22] These tensions also extend to concerns about the complicity of elites. The decision of the county government to privatize the land and lease it to the project in the first place is resented by many living in the community.[23]

This project clearly failed on many of the metrics that this paper outlined for project success. It entailed vast extra costs for investors, and fell far short of ensuring adequate returns or staying within its projected timeframe. It also ended up failing to provide reliable electricity for communities who needed it, and resulted in farm more community dissatisfaction and harm than any benefit. These failures cam be linked directly to investors' failures to engage in the productive type of stakeholder engagement that this paper predicts would better ensure project success. This paper will then identify the key project stakeholders in each level of influence, and analyze investors failures to engage with them in a way that could have prevented or helped them overcome many of the project failures.

[22] Ibid.

[23] Zoe Carmack, "How Kenya's mega wind power project is hurting communities."

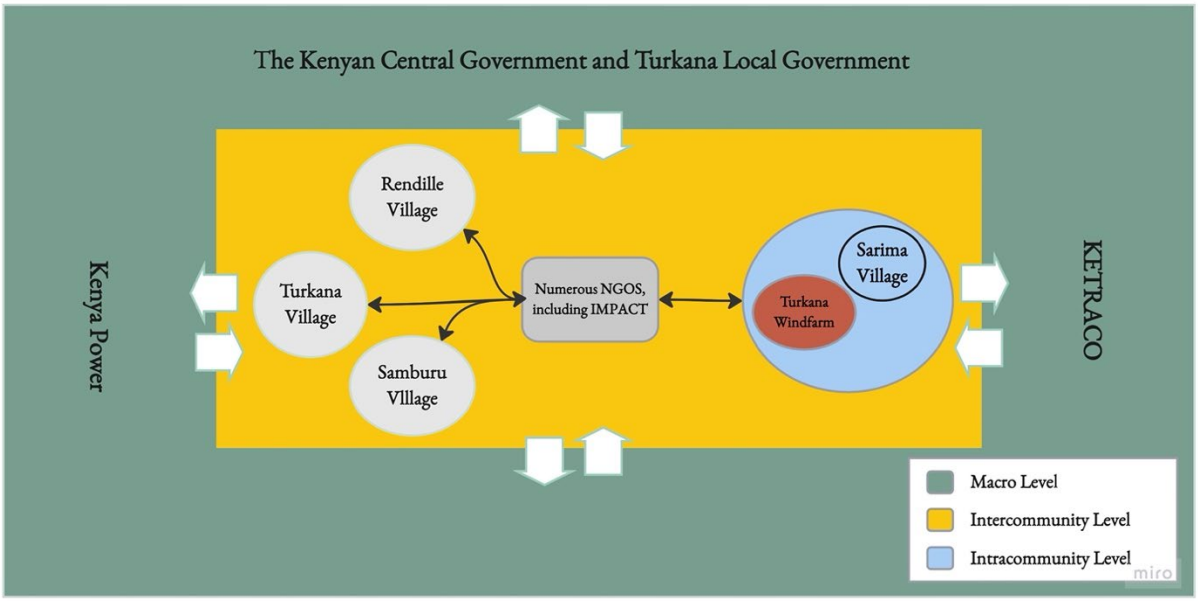

Figure 1 Lake Turkana Windfarm Stakeholder Map

Macro-Level Stakeholders

Government

The Kenyan central government was eager to claim responsibility for the project and local governments and politicians near Turkana were interested in determining benefits they could glean from the project and they could fast-track it. However, these groups ultimately did very little to support either investor returns or community energy security, largely as a result of investors' failures to adequately engage them.

The Kenyan central government saw this project as a key component of its "Vision 2030" development strategy.[24] The goal of this strategy is to make Kenya a medium income country by 2030, while also maintaining social equality and

[24] Cecilia Theresa Trischler Gregersen, "Local learning and capability building through technology transfer: experiences from the Lake Turkana Wind Power project in Kenya," *Innovation and Development* (2020) DOI: 10.1080/2157930X.2020.1858612

environmental governance.[25] In particular, President Uhuru Kenyatta, who is overseeing vision 2030, was quick to claim responsibility for the project and to use it as a symbol of his program and the technological potential of Kenya in the renewable energy sphere.[26]

However, investors failed to engage in talks with the central government about where the project would fall in the country's broader renewable energy policy framework. The World Bank did an analysis of relevant policies for one of its impact reports, but only addressed Kenya's 77 disparate environmental statutes, and not its policies as related to renewable energy.[27] Similarly, a group of private investors funded an impact report, but did not investigate specific relevant policies enforced by the national government. The furthest they went was to acknowledge the Kenyan 2030 strategy.[28]

The private impact report did a little more engagement at the local government level by interviewing two local government officials. However, questions stuck to how the project could benefit the government, and not on how the investors could work with the government and comply with its laws, and consultation was not ongoing.[29]

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[25] Zoe Cormack & Abdikadir Kurewa, "The changing value of land in Northern Kenya: the case of Lake Turkana Wind Power."

[26] David Mwere, "Kenya: How Govt Paid U.S.$65 Million for 'Non-Existent' Power."

[27] World Bank, "Lake Turkana Wind Power Project," *World Bank Project Document* (July 2009)

[28] MD Olsen, "Socio-economic study of key impacts from Lake Turkana Wind Power (LTWP)," *QBS Consulting* (June 4, 2018) https://www.finnfund.fi/wp-content/uploads/2019/01/Key-impacts-from-the-LTWP-project_June-2018.pdf

[29] Ibid.

This lack of consultation can be directly attributed to the project's legal issues. Whether the investment conglomerate knew that their acquisition of the communal land had bypassed the law or not, broader, more in-depth consultation with both local and central governments could have helped them better identify and overcome this significant issue. Also, better consultation with the Kenyan government about potential infrastructural issues specific to the project could have ameliorated these unforeseen costs.

Energy Suppliers

Energy suppliers are an important stakeholder involved in all renewable energy projects, and have a unique relationship with on-grid projects such as the one in Lake Turkana.[30] This is because, rather than being a direct competitor, on-grid renewable energy projects rely upon energy suppliers to disperse the electricity they generate. This makes coordination and cooperation with energy suppliers of utmost importance for this type of project. Lake Turkana Wind Power project made an exclusive contract with Kenya Power within only a week of negotiations. The project's significant unforeseen infrastructural work and other issues with consumer access to the energy supply were not anticipated due to a lack of prior discussion with the power provider.

The Network Operator

The network operator has similar unique importance to energy suppliers for on-grid projects, because they rely on the operator to connect them to the grid, which can

[30] Salvatore Ruggieroa,∗, Tiina Onkilaa, Ville Kuittinenb, "Realizing the social acceptance of community renewable energy: A process-outcome analysis of stakeholder influence,"

typically be a long-term and arduous process.[31] KETRACO, the state-owned national utility service, was commissioned to extend a transmission line. The delays and extra costs the project experienced in the process of grid extension were in part because KETRACO did not have the expertise to extend the line in the agreed-upon timeframe and ended up owing the Lake Turkana Wind Project Ksh. 1.8 billion in penalties, which had to come from Kenyan taxpayer money.[32] Prior preparation and consultation with KETRACO could have at the very least prevented this cost to Kenyans, or saved the project time and money.

Intercommunity Level Stakeholders

Nearby Communities

Nearby communities are perhaps some of the most essential groups to be involved in the development process of a project. They can supply vital knowledge to overcome key barriers, their compliance is key to project success, and their ability to benefit from and live cohesively with the project are moral prerogatives.[33] However, surrounding communities near the Turkana windfarm were not adequately consulted by potential investors, which contributed to numerous project issues. The World Bank was engaged in planning for this project for 10 years, yet it is evident from its project planning document that it did not engage in consultations with the target consumers for their electricity, or

[31] Ibid.

[32] Loise Voller, "Vestas' wind farm in Kenya is the country's largest green investment ever. Now a court has declared it illegal." *Danwatch* (November 2021) https://danwatch.dk/en/perspektiv/vestas-wind-farm-in-kenya-is-the-countrys-largest-green-investment-ever-now-a-court-has-declared-it-illegal/

[33] J.P Painuly, "Barriers to renewable energy penetration; a framework for analysis,"

with nearby communities who could have best benefited from increased access to electricity.

Intermediary Organizations

There are numerous NGOs working in the area around the windfarm to distribute aid to communities and also to represent the interests of local tribes. IMPACT is one of these organizations representing local tribes. Its representatives have pointed out the disparity as energy from the Turkana windfarm is funneled into far-away cities while community members in Marsabit county are forced to continue to rely upon "dirty energy."[34] It is clear from the World Bank's Social Impact Report that investors did not consult these entities that specialize in the interests of nearby communities.

Intracommunity Level

People Living Near an Installation

Even though the project was touted as part of Kenya's plan to reduce energy insecurity, especially in rural areas, communities near the project gained no extra electricity from the project. Instead, they faced social upheaval, environmental disruption, loss of land, and forced dislocation. These issues stemmed largely from a lack of community engagement by investors.

The World Bank did document advance interview research with local villages. However, the interviews were broad and did not go in-depth on key issues such as land

[34] Loise Voller, "Vestas' wind farm in Kenya is the country's largest green investment ever. Now a court has declared it illegal."

rights, who would have access to the electricity, or who would be involved in project implementation. Communication with communities was also not on an ongoing basis. [35] The Wind-Farm manufacturers and private investors did not note any dialogue with communities in impact reports. Rather, they did a literature review of the impacts of renewable energy projects on nearby communities in renewable areas. However, this review focused on European countries and so did not take into account issues that are most prevalent in Kenyan rural communities, like communal land rights and grid connectivity. [36] This serious abdication of consultation measures can clearly be linked to many of the project's failures for nearby communities.

Conclusions

Overall, the Laker Turkana Investors (and anticipated investors) did not engage in structured consultation that was ongoing or focused on identifying and overcoming barriers with any of the key stakeholder groups. Some groups, like the central government, nearby communities, and intermediary organizations, do not appear to have been consulted at all. As a result, some of these stakeholders posed immense barriers, such as the network provider's inability to extend the grid, the numerous law violations that went uninhibited by the government, and, of course, the consumers who were unable or unwilling to pay the necessary prices for the project to be profitable. Others, such as local communities, were simply were not given the chance to aid in the identification of other key barriers that arose. The Lake Turkana Wind Power project is exemplary of the many ways that foreign investments in renewable energy projects in lower income

[35] World Bank, "Lake Turkana Wind Power Project."

[36] MD Olsen, "Socio-economic study of key impacts from Lake Turkana Wind Power (LTWP)."

countries can fail both investors and communities, and a framing of stakeholder engagement reveals the significant influence of the lack of stakeholder engagement in this failure.

Case Study Two: The Kenya Off-Grid Solar Access Project

Overview

Kenya is one of the leading markets in Africa for solar electrification,[1] and a key World Bank-funded project in Kenya is the Kenya Off-Grid Solar Access Project (K-OSAP).[2] This project was started in 2017 and focuses on generating access to electricity for 14 key counties in Kenya without grid connection: Garissa, Isiolo, Kilifi, Kwale, Lamu, Mandera, Marsabit, Narok, Samburu, Taita Taveta, Tana River, Turkana, Wajir and West Pokot. The project will serve about 1.3 million people in 277,000 communities.[3] The project is comprised of mini-grids that serve businesses, community facilities, and homes, each supplying 100-700 prospective users, and about 20-300kW of electricity.[4] It also includes solar cooking units for households and solar water pumps for businesses and households. There is also a part of the program dedicated to capacity-building support.[5] The World Bank both put up part of the funding for the project

[1] Natascha Wagner, Matthias Rieger, Arjun S. Bedi, Jurgen Vermeulen, Binyam Afewerk Demena, "The impact of off-grid solar home systems in Kenya on energy consumption and expenditures," *Energy Economics*, 99, 2021, https://doi.org/10.1016/j.eneco.2021.105314. (https://www.sciencedirect.com/science/article/pii/S0140988321002206)

[2] World Bank, "Kenya Off-Grid Solar Access Project."

[3] World Bank, "World Bank Approves $150 million for Kenya to Provide Solar to Underserved Northeastern Counties," *World Bank Press Release* (July 26, 2017) https://www.worldbank.org/en/news/press-release/2017/07/26/world-bank-approves-150-million-for-kenya-to-provide-solar-energy-in-underserved-northeastern-counties

[4] World Bank, "Kenya Off-Grid Solar Access Project."

[5] Geoffrey Imbayi. *KENYA OFF-OFF SOLAR ACCESS CERTI.pdf (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/161501612163154134/KENYA-OFF-OFF-SOLAR-ACCESS-CERTI-pdf

partnered with the Ministry of Energy and local electricity companies to draw a combination of private and public investors for the project.[6] Implementation is ongoing completion is expected in May 2025.[7]

K-OSAP has been more successful for both investors and communities than the Turkana Windfarm. First, investors have been successful in obtaining expected financial returns. As of its most recent evaluation, The World Bank has needed to disburse less money than expected to all of the project components, and all of its loans have been paid back on schedule and are expected to be returned in full on schedule.[8] This can partially be attributed to the fact that community members who are connected to mini-grids have generally been willing and able to pay the electricity fees, which thus ensures return on investment.[9] In addition, the government is willing to subsidize the tariffs, or fees, paid by consumers, in order to ensure uptake of the project in the generally poor, rural areas.[10]

The community members have also had high success and satisfaction with the project. 367,890.00 community members have already gained access to electricity

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[6] World Bank, "World Bank Approves $150 million for Kenya to Provide Solar to Underserved Northeastern Counties."

[7] KOSAP Newsletter, "500,000 People Benefit From Solar Power Through the Kenya Off Grid Solar Access Project (KOSAP)" *Kenya Off Grid Solar Access Project Newsletter* Issue 1, (August 2022) https://www.kosap-fm.or.ke/wp-content/uploads/2022/09/Kenya-Off-Grid-Solar-Access-Project-Quarterly-Newsletter-September-2022.pdf

[8] P. Balla, *Disclosable Version of the ISR - Kenya: Off-grid Solar Access Project for Underserved Counties - P160009 - Sequence No : 09 (English)*, World Bank Group. United States of America. (2022.) Retrieved from https://policycommons.net/artifacts/2221669/disclosable-version-of-the-isr-kenya/2979097/ on 13 Oct 2022. CID: 20.500.12592/tz255h.

[9] World Bank, "Kenya Off-Grid Solar Access Project."

[10] Joshua Mugisha, Mike Arasa Ratemo, Bienvenu Christian Bunani Keza, Hayriye Kahveci, "Assessing the opportunities and challenges facing the development of off-grid solar systems in Eastern Africa: The cases of Kenya, Ethiopia, and Rwanda," *Energy Policy* 150 (2021) https://doi.org/10.1016/j.enpol.2020.112131.

through the project, and Kenyan officials are expecting the pace to ramp up as the project nears its completion date.[11] This ongoing, stable access to electricity has been key to community satisfaction.

There have also been numerous community benefits stemming from K-OSAP. First, the project has largely supported rather than hindered social stability. As part of the project's continued upkeep and integration with the community, the World Bank supports hands-on system upkeep training for local technicians and produces practical handbooks on system upkeep to be distributed to villages.[12] This has served to increase community technical knowledge and provided work for community members who undergo training and utilize provided resources.

Evidence also shows that the newly electrified communities have increased access to information technology, such as TV, radio, and other technologies that improve education and social connection in these communities.[13] Case studies from Kenya also show that access to these mini-grids has provided communities with business opportunities. For example, some businesses' productivity has doubled or tripled when they were able to use electrical tools or equipment due to their newfound solar access. When rural agricultural and fishing companies gained access to the electricity through K-OSAP, they were to refrigerate their products and increase their shelf life.[14] One farmer

[11] KOSAP Newsletter, "500,000 People Benefit From Solar Power Through the Kenya Off Grid Solar Access Project (KOSAP)"

[12] Joshua Mugisha, Mike Arasa Ratemo, Bienvenu Christian Bunani Keza, Hayriye Kahveci, Assessing the opportunities and challenges facing the development of off-grid solar systems in Eastern Africa: The cases of Kenya, Ethiopia, and Rwanda."

[13] Ibid

[14] Ibid.

who is using his new access to solar electricity for a pump to support irrigation to his farm said to an interviewer, "It has really transformed our lives. At the end of the day, I can be able to put food on the table. I'm also employing people, so I can help them put food on the table. So I thank God. I'm happy."[15] Thus, these projects are uniquely facilitating business opportunities and economic growth in rural areas.

There are also air-quality and health benefits that accrue from the K-OSAP. The off-grid solar projects are able to replace unclean coal and oil burning in Kenyan households, which decreases pollutants and toxic materials inhaled by consumers. One study found that households in Kenya that implemented off-grid solar had decreased their kerosene use by a liter each month, which reduced 37 kg carbon dioxide equivalent greenhouse gases per household per year.[16] In addition, the solar projects offer a cheaper source of electricity for hospitals and clinics than the generators that are currently used.[17]

One of the more difficult processes involved with the project has been land acquisition. As the Turkana Wind Farm Project reveals, this can be a tricky task in Kenya, where large amounts of land are considered to be communal or public property, and/or hold significance for indigenous groups. Yet, a careful process of limiting excess land use and discussion with communities who have stakes in the land has resulted in

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[15] Peter Fairley, "Off-Grid Solar's Killer App: Solar Pumps, Batteries, and Microcredit Are Triggering an African Agricultural Renaissance." IEEE Spectrum 58 ,6 (2021):p. 44–49. doi:10.1109/MSPEC.2021.9444936.

[16] Natascha Wagner, Matthias Rieger, Arjun S. Bedi, Jurgen Vermeulen, Binyam Afewerk Demena, "The impact of off-grid solar home systems in Kenya on energy consumption and expenditures."

[17] Joshua Mugisha, Mike Arasa Ratemo, Bienvenu Christian Bunani Keza, Hayriye Kahveci, Assessing the opportunities and challenges facing the development of off-grid solar systems in Eastern Africa: The cases of Kenya, Ethiopia, and Rwanda."

largely successful land transitions that have been both legally compliant and fostered community satisfaction.[18]

Thus, overall, this project has yielded numerous benefits for investors and communities. Investors have received consistent, timely returns paid in full. Nearby Kenyan communities have received new access to electricity and gleaned numerous additional benefits, while social harms and disruptions that could have stemmed from the project have been mitigated. This success is largely attributable to successful, ongoing investor consultation with relevant key stakeholders, which will be described below.

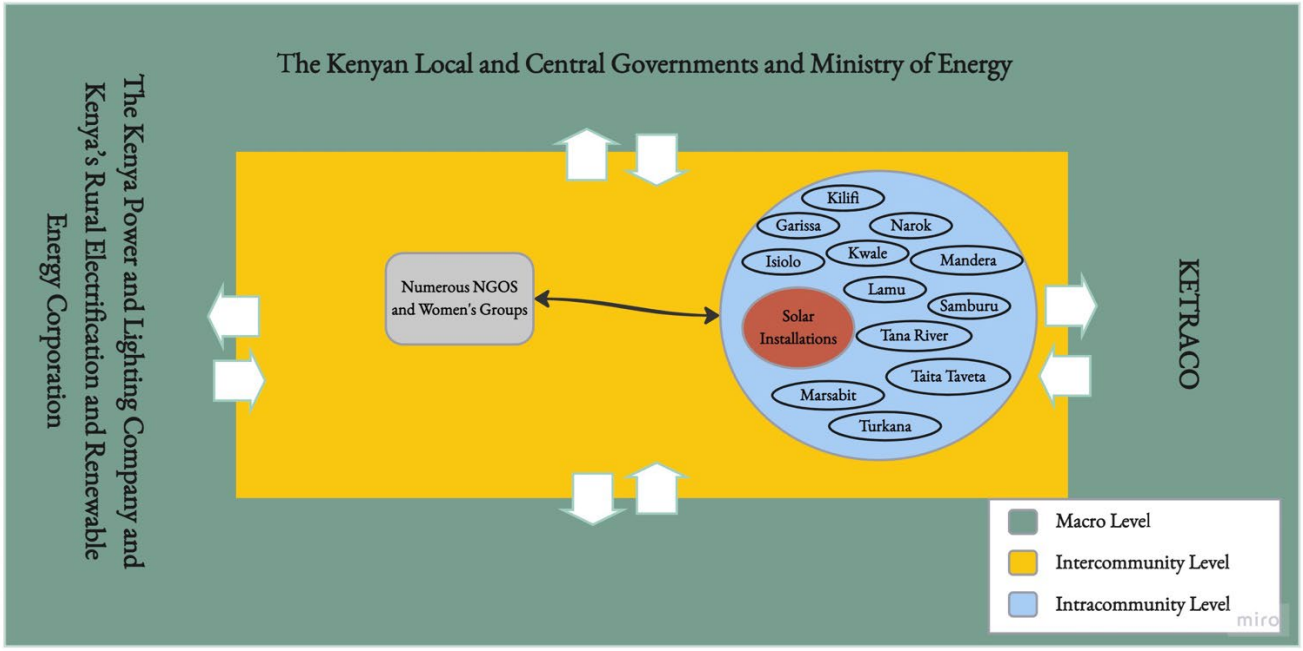

Figure 3 Kenya Off Grid Solar Access Project Stakeholder Map

Macro-Level Stakeholders

Government

[18] KOSAP Newsletter, "500,000 People Benefit From Solar Power Through the Kenya Off Grid Solar Access Project (KOSAP)."

Before the project, the World Bank worked with its partners to engage in in-depth interviews with national governments, county governments, and relevant government ministries and agencies. These consisted of both focus group discussions and individual key informant interviews with structured questionnaires.[19]

Interviewers asked about issues such as land rights and the privatizing of public land, environmental regulations, and possible modes of government support. Government entities are also included in ongoing consultation and reviews of the project.[20] This process effectively made project investors aware of potential legal issues, such as the privatization and utilization of public land, and led them to work cooperatively with the government to overcome them and comply with all relevant Kenyan legislation. The national government also stepped in to help subsidize tariffs for the project after discussions on target consumers and their willingness to pay. This also helped investors ensure which consumers would be most interested in paying for electricity from solar mini-grids. The Ministry of Energy has also become involved in both the review of and actual implementation of the project, after ongoing consultations with investors. The ministry is now taking the lead in introducing solar clean cooking products and supporting communities with implementation and capacity-building.[21]

This shift in government-investor collaboration framework is attributable to a number of changes both on the side of the Kenyan government and on the side of the

[19] Geoffrey Imbayi. *KENYA OFF-OFF SOLAR ACCESS CERTI.pdf (English).*

[20] Ibid.

[21] Ibid.

World Bank. The Kenyan government has recently passed a new policy and energy bill that mandates that county and national governments must share the responsibility for electricity planning, development, services, and regulations.[22] On the part of the World Bank, its Africa Practice has pushed towards better consultative practices for specifically off-grid solar projects in recent years, which is inspired by previous success with the consultative approach.[23]

Energy Suppliers

The Kenya Power and Lighting Company and Kenya's Rural Electrification and Renewable Energy Corporation are implementing the mini-grids and solar water pumps.[24] These entities are engaged on a regular basis through consultation and review processes. In turn, these entities also participate in interviews and consultation processes with community stakeholders.[25]

Network Operators

Investors did not note interaction with network operators, which likely largely stems from the fact that these projects are not connected to the country's main grid.

Intercommunity Level Stakeholders

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[22] *Concept Integrated Safeguards Data Sheet-Integrated Safeguards Document - Kenya: Off-grid Solar Access Project for Underserved Counties - P160009 (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/197191470156267037/Concept-Integrated-Safeguards-Data-Sheet-Integrated-Safeguards-Document-Kenya-Off-grid-Solar-Access-Project-for-Underserved-Counties-P160009

[23] Ibid.

[24] Geoffrey Imbayi. *KENYA OFF-OFF SOLAR ACCESS CERTI.pdf (English).*

[25] Ibid.

Nearby Communities

The World Bank constructed a robust framework for community engagement throughout this project. Key stakeholders, including members of nearby communities, have been engaged through various methods including "press conferences, information notices, brochures/fliers, interviews, questionnaires and polls, community meetings, advisory committees, and public hearings."[26] The two most important types of consultation, however, have been focus group discussions and interviews with key informants.

This new approach to community consultation is the result of a number of interrelated political and social developments. One is the new Kenyan Energy Policy and Energy Bill, which requires that both federal and county governments provide affordable energy to all areas. This incentivizes government-involved projects to focus on the needs of rural populations. In addition, the World Bank Africa team's updates to its off-grid strategies placed emphasis on community consultation, and the World Bank updated its indigenous peoples policy in 2013 to include the stipulations that World Bank projects must: 1. Avoid potentially adverse effects on the Indigenous Peoples' communities; or 2. When avoidance is not feasible, minimize, mitigate, or compensate for such effects3. Ensure that the vulnerable and marginalized people receive social and economic benefits that are culturally appropriate and gender as well as intergenerationally inclusive; and that the VMGF is based on free, prior and informed consultations with indigenous peoples. All of these new policy and programmatic developments were noted

[26] Ibid.

comprehensively in early K-OSAP project documents, along with investor's acknowledgement that they must comply with them.

The goals for these interviews are focused on cooperation and project success. This requires determining when stakeholder "views need to be taken into account specifically in the project,"[27] rather than simply working with stakeholders to try and ameliorate their concerns. Interviewers use a probing technique in community focus group discussions to elicit in-depth ideas about possible issues and solutions. Other techniques used include treating all participants equally in focus groups and working to build consensus on key issues.[28]

In addition, the World Bank is following a clear plan to re-engage community members at key steps in the review and implementation of the project, so that cooperation and trust are ongoing. They also worked with the Kenyan government to implement operational standards across all projects to eliminate unanticipated variability, and implemented in-depth training programs to ensure that community members were able to ensure the upkeep of their solar installations. The project has also established clear feedback, information-sharing, and grievance or redress mechanisms for public complaints.[29] This set of consultation measures constitutes in-depth and ongoing stakeholder engagement.

Intermediary Organizations

[27] Ibid.

[28] Geoffrey Imbayi. *KENYA OFF-OFF SOLAR ACCESS CERTI.pdf (English).*

[29] Ibid.

Key NGOs and women's groups that were deemed to represent the community were engaged in ongoing focus group discussions and key stakeholder interviews, using the same framework and questioning method as used with nearby communities.[30] This established an understanding of broad community concerns and possible road-blocks that the project would need to overcome.

Intracommunity level

People Living Near an Installation

Ongoing consultation interviews using the same framework and questioning process as with nearby communities have been successfully conducted with people living near the installation. The World Bank engaged in thorough focus group discussions and key informant interviews with communities before and throughout the course of the project, in order to guarantee the compliance of the individuals and communities in whose homes the solar technology would actually be placed.[31] These interviews were thus fundamentally different from those conducted for the Turkana project, because they required ongoing cooperation with communities, not just preliminary information about possible concerns. This ensured that communities were involved in the process of electrical implementation, and so not only gained access to electricity, but did it on their

[30] Ibid.

[31] World Bank, "Kenya Off-Grid Solar Access Project."

terms. So far, this has resulted in high rates of community satisfaction and cooperation with these off-grid projects.[32]

On the investor side, the World Bank's requirement of in-depth interviews before and during the course of the project with community members who would be housing the solar products ensured to investors that electricity users were interested and willing to pay the fee, which thus ensured the return on investment.[33]

Conclusions

The Kenya Off-Grid Solar Access Project currently being implemented by the World Bank and its partners has showed marked success for both investors and communities, which stems from its in-depth consultation processes with key stakeholders. Investors have received steady returns, and surrounding communities have had significant access to electricity and overall satisfaction.

Investors' consultation processes with the government, network operators, NGOs, nearby communities, and local communities all meet the necessary level of stakeholder engagement as outlined by stakeholder engagement theory, and this is clearly one of the key reasons for project success. Consultation with the government ascertained the cooperation of key government agencies who understand the situation on the ground in Kenya and can best support with project implementation, as well as government support in overcoming legal barriers and getting electricity prices paid. Consultation with nearby and impacted communities, as well as key organizations and groups, has helped

[32] Natascha Wagner, Matthias Rieger, Arjun S. Bedi, Jurgen Vermeulen, Binyam Afewerk Demena, "The impact of off-grid solar home systems in Kenya on energy consumption and expenditures."

[33] World Bank, "Kenya Off-Grid Solar Access Project."

investors understand how to get the community on board, and how to best ensure that communities gain both electricity and a number of secondary returns from the project.

When compared to the Lake Turkana Windfarm, these very different approaches to stakeholder engagement in the same country ended up yielding very different outcomes for these two renewable energy projects. The Turkana Windfarm and K-OSAP projects did vary widely in size and technology used, but they also shared a number of key commonalities. Both dealt with issues such as environmental law, land privatization law, and nearby communities that would be significantly impacted by project outcomes. Also, both projects involved many of the same government and network entities. Yet, the off-grid solar access project was able to identify and overcome many of the same roadblocks that the Turkana project stumbled on, and this is directly related to stakeholder engagement.

These differences in approaches to stakeholder engagement can be attributed to a number of interrelated factors, including especially a learning process by the World Bank and the Kenyan government in the wake of the Lake Turkana Windfarm. Specific policy changes that required greater government involvement and support for communities without electricity were key to getting government stakeholders more involved, and changes in the World Bank project requirements and approach greatly increased the quantity and quality of stakeholder engagement. These changes indicate tangible approaches that both governments and investors can take in the future to increase the right kind of stakeholder engagement, and thus the probability of project success.

Case Study 3: Philippines Bacon Manito Geothermal Project

Overview

The Philippines is a major hub of geothermal energy production, and is the world's most prolific generator after only the United States. It is part of the Ring of Fire, a seismically active area in the Asia Pacific, and has significant access to geothermal resources.[1] The World Bank has worked with the government of the Philippines to fund multiple large-scale, grid-connected geothermal energy surveys and projects since the 1980s, including an initial Geothermal Exploration Project in 1982,[2] the Mt. Apo Geothermal Project,[3] the Leyte-Luzon Geothermal Project,[4] the Leyte Cebu Geothermal Project,[5] and the Nasulo Geothermal Power Project.[6] Initial geothermal projects struggled with community compliance and stakeholder engagement, and thus had slow progress

[1] K. Chelminski,"Climate Finance Effectiveness: A Comparative Analysis of Geothermal Development in Indonesia and the Philippines," *The Journal of Environment & Development 31*, 2 (2022): p.139–167. (2022). https://doi.org/10.1177/10704965211070034

[2] *Philippines - Geothermal Exploration Project (English)." Washington, D.C. : World Bank Group.* http://documents.worldbank.org/curated/en/926661468298449575/Philippines-Geothermal-Exploration-Project

[3] Jonathan A. Fox, & L. David Brown, *The Struggle for Accountability : The World Bank, NGOs, and Grassroots Movements (*The MIT Press, 1998).

[4] *Philippines - Leyte-Luzon Geothermal Project (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/148951468759025591/Philippines-Leyte-Luzon-Geothermal-Project

[5] *Philippines - Leyte Cebu geothermal project (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/784871474650878917/Philippines-Leyte-Cebu-geothermal-project

[6] *Philippines - Nasulo Geothermal Power Project (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/970121468293705069/Philippines-Nasulo-Geothermal-Power-Project

and relatively low success rates.[7] However, due in large part to indigenous and nonprofit advocacy in the Philippines, the World Bank later adapted to an approach that is more cooperative with stakeholders and more recent projects have yielded significant successes for both investors and local communities from these large-scale, on-grid projects.[8]

One of the World Bank's more successful geothermal projects was the project in Bacon Manito, one of the key sources of geothermal energy identified by preliminary World Bank geothermal exploration projects. The project including drilling wells and constructing steam-capture machinery, and determining which sites in the Bacon Manito field could best be connected to the grid.[9] The project also sought to stabilize the economic position of the government-owned National Power Company (NPC) in the Philippines.

The complete project was given high satisfaction ratings by World Bank Reviewers. It was determined to have a 7.0 percent financial rate of return, only slightly less than the 7.1 percent rate estimated at appraisal. The World Bank's efforts and collaboration with the government and NPC were also highly rated. Reviewers determined that the project contributed greatly to NPC's economic recovery, and thus to the functionality of the Philippines' power sector in general.[10]

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[7] Jonathan A. Fox, & L. David Brown, "The Struggle for Accountability : The World Bank, NGOs, and Grassroots Movements."

[8] K. Chelminski, "Climate Finance Effectiveness: A Comparative Analysis of Geothermal Development in Indonesia and the Philippines."

[9] *Philippines - Bacon Manito Geothermal Power Project (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/433261468299048524/Philippines-Bacon-Manito-Geothermal-Power-Project

[10] Ibid.

Despite the overall effectiveness of the project, it did notably take longer than the World Bank had anticipated. The total timeframe overrun ended up being two years, and this also entailed a 32 percent increase in costs. However, in its review, the World Bank determined that these increases were within a reasonable frame and that the project's general success and significant returns outweighed these unexpected costs and delays.[11]

Community satisfaction was also high. The project was successfully linked to the electrical grid and extended to communities in need of electricity, and the NPC included nearby communities who could not yet be connected to the grid in a rural electrification program. The National Energy Administration in the Philippines also converted the run-off from the main geothermal plant into a multi-crop drying facility in collaboration with local government units in Manito and local farmers, who then used the facility to increase the longevity and export-potential of their agricultural products, and reported excitement about the facilities.[12] In addition, communities felt that they were given numerous external benefits by the NPC and investors.[13]

PNOC, the World Bank, and NPC worked to address community environmental concerns. Overall, NPC has setup an environmental guarantee fund that has been regularly paid out to nearby communities. The Bacon-Manito also set aside money for

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[11] Ibid.

[12] Dante Padua, Pablo Gerona and Variña Fajardo, "MANITO LOWLANDS: THE FIRST LOW-ENTHALPY FIELD UNDER EXPLOITATION IN THE PHILIPPINES," *PNOC-EDC* Proceedings World Geothermal Congress 2000 Kyushu - Tohoku, Japan, May 28 - June 10, 2000 https://www.geothermal-energy.org/pdf/IGAstandard/WGC/2000/R0485.PDF

[13] Agnes C. de Jesus, "Social Issues Raised and Measures Adopted in Philippine Geothermal Projects," *Proceedings of the World Geothermal Congress* (April 2005): p.24-29. https://www.researchgate.net/publication/229000744_Social_issues_raised_and_measures_adopted_in_Philippine_geothermal_projects

community development funds to address the key needs and interests of nearby communities. 37,950 households have already received some portion of these funds or benefited from them.[14] Some of the projects that these funds have gone to include "scholarships, school facilities and books; health and sanitation in terms of medicines, clinics and medical/dental services; sports; local infrastructure assistance such as the construction of roads and water systems; and livelihood improvement."[15] The project has also remitted 60 percent of its profit net of tax to the national government.[16]

Finally, the Bacon-Manito project did not infringe on land that was inhabited by or sacred to indigenous communities. It remained within strict land boundaries set by numerous indigenous laws and codes passed in relation to geothermal development in recent years.[17] Bacon Manito was also has reforested 8,049 hectares of land despite using only 445 hectares of land for its geothermal projects. This comes as part of a policy push to turn many geothermal lands into national parks. The trees planted in Bacon Manito were endangered natives, and planters also paid special attention to growing tree species that are commonly inhabited by the endangered flying fox bat species in the area.

These investor and community successes by the metrics set by this paper are rooted directly in the World Bank and the NPC's thorough, ongoing consultation with relevant stakeholders. Before the Bacon Manito project, the Bank had made 9 prior loans to the Philippine power sector, and so had developed close

[14] Ibid.

[15] Ibid.

[16] Ibid.

[17] Ibid.

relationships with many of the key stakeholders in the Philippine government and power sector.[18] This facilitated much of the ongoing communication and consultation that was so effective in the project's development.

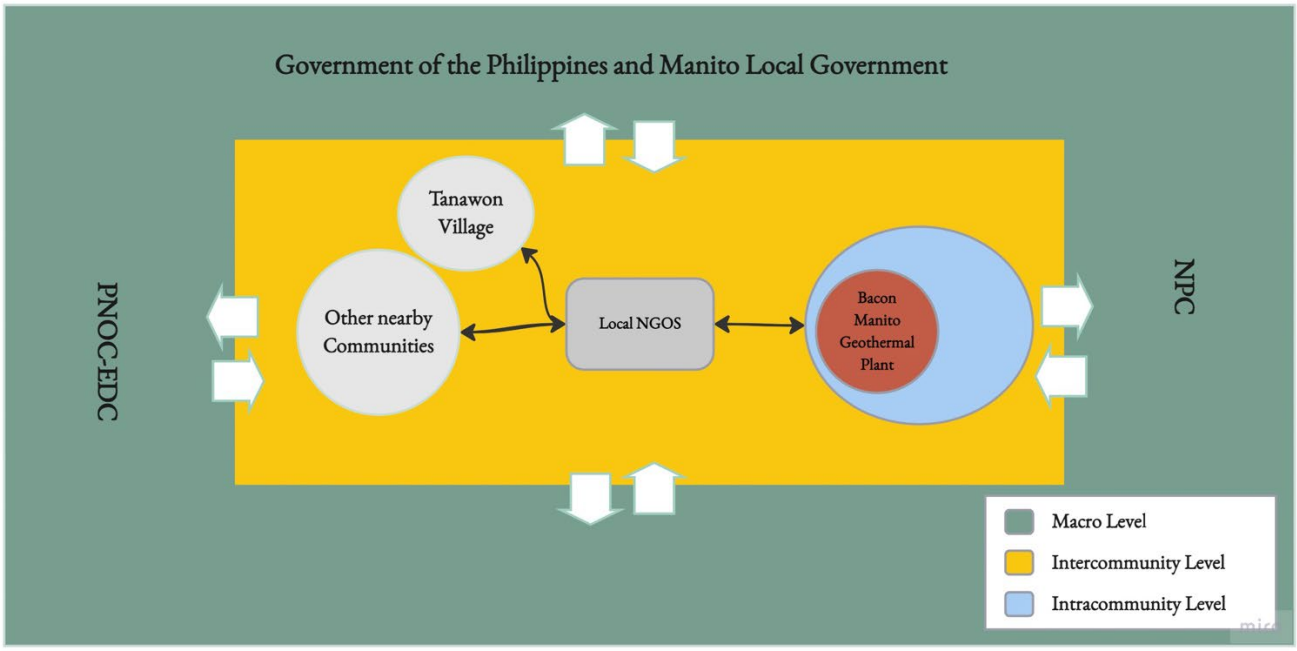

Figure 1Bacon Manito Geothermal Project Stakeholder Map

Macro-Level Stakeholders

Government

In order to realize the full potential of the country's geothermal resources, the Government of the Philippines (GOP) requested Bank assistance in resource identification and development, including in particular the development of Bacon Manito geothermal power. The government's petitioning of the World Bank made it highly cooperative and responsible to Bank advice.[19] The World Bank also consulted

[18] *Philippines - Bacon Manito Geothermal Power Project (English).*

[19] Ibid.

with the GOP on the implementation of major project components, and sought their support through public messaging, passing legislation, and other practices. For example, the GOP adjusted steam price when necessary to enable PNOC-EDC to achieve its planned rate of return, and later provided consultation on electricity tariffs to ensure project goals and encourage the adoption of renewable energy at local levels.[20] Local Governments in Manito participated in the community consultation process and development of the crop-drying facility.[21] Local government officials were also involved in ongoing information campaigns led by the World Bank that will be described in the *nearby communities* section.

Energy Supplier

PNOC-EDC was the key energy supplier in the Philippines, and was formed by the Philippine government in the 1970s in response to the oil crisis. The World Bank had already worked extensively with PNOC-EDC through other exploration, geothermal, and energy projects. This facilitated ongoing collaboration throughout the Bacon-Manito project. Prior to negotiations, PNOC and the World Bank discussed and came to agreements on geothermal pricing and regulations, and the environmental standards of both organizations. They also established a joint project implementation committee to manage communications as the project progressed. The two organizations then proceeded to meet regularly to negotiate intended project outcomes and established that PNOC would provide the World Bank with quarterly reports throughout the project.

[20] Ibid.

[21] Dante Padua, Pablo Gerona and Variña Fajardo, "MANITO LOWLANDS: THE FIRST LOW-ENTHALPY FIELD UNDER EXPLOITATION IN THE PHILIPPINES."

In its project reviews, the World Bank rated its cooperation and understanding of the PNOC to be successful.[22]

A report by PNOC stated that the World Bank's support in resource assessment and development strategy was essential to their success in project implementation, and furthermore that continued close cooperation with the World Bank eventually gave PNOC the expertise and capability to operate successfully on its own.[23]

Network Operator

Like PNOC, the World Bank had an extensive history in working with the NPC, which was another organization established by the government of the Philippines. The World Bank worked with NPC to establish similar standards to those set with PNOC before the project, and NPC also had to submit quarterly progress reports. The World Bank rated its cooperation with and understanding of the NPC as successful in its project review as well.[24]

Intercommunity Level Stakeholders

Nearby Communities

Prior to the implementation of the project, the PNOC, NPC, and World Bank conducted information drives for nearby communities and other stakeholders. These agents formed a multi-disciplinary information team expressly to engage in these

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[22] Ibid.

[23] Francis M. Dolor, "Ownership, Financing and Licensing of Geothermal Projects in the Philippines," *PNOC Energy Development Corporation*, Presented at Workshop for Decision Makers on Geothermal Projects in Central America, organized by UNU-GTP and LaGeo in San Salvador, El Salvador, 26 November to 2 December 2006. https://orkustofnun.is/gogn/flytja/JHSSkjol/El%20Salvador%202006/16_DolorOwnership.pdf

[24] Ibid.

sessions, were conducted over the course of 6 months.[25] This group held both broad public assemblies and engaged in specific discussion sessions with stakeholders where they sought unique feedback. Topics discussed included "the geothermal resource, the project description, potential environmental impacts, measures and benefits to host communities."[26] The information team also worked with certain community members to have them join the team and help lead discussions. At the end of discussions, the team sought written resolutions from communities to ensure that their concerns had been addressed and that they were supportive of the project's progress.

When individuals and groups expressed dissatisfaction with the project, the investors ensured that interviews were done with them to collect information that the project producers had been unaware of, and find ways to address the petitioner's concerns.[27] In order to further ensure the credibility of communication and negotiations, the investors included high-up organizational managers in discussions, trained outside facilitators, and instituted mechanisms so that information gleaned from each stakeholder was seriously considered and incorporated into project preparations.[28] Importantly, any commitments that the investors and project managers made in information drives were made part of the standard procedures in field operation so that they would be seriously addressed throughout the project.[29] Some key concerns that were addressed were worries

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[25] Agnes C. de Jesus, "Social Issues Raised and Measures Adopted in Philippine Geothermal Projects."

[26] *Philippines - Bacon Manito Geothermal Power Project*

[27] Agnes C. de Jesus, "Social Issues Raised and Measures Adopted in Philippine Geothermal Projects."

[28] Ibid.

[29] Ibid.

about deforestation and public health. Developers addressed these through reforestation, directional drilling, and careful monitoring programs.[30]

The project also set up a Multi-Stakeholder Monitoring Team (MSMT) composed of "representatives from the local government units, host community, NGOs, the Department of Environment and Natural Resources (DENR) and other concerned sectors in the area." This team was given the resources and access to engage in ongoing review of the project's implementation and safety.[31]

Intermediary Organizations

Relevant local nonprofits were included in the information drives and the Multi-Stakeholder Monitoring Program outlined above. In addition, A PNOC/DENR non-government organization task force was set up to discuss the social and socio-economic concerns of local residents in and around the Bacon Manito Geothermal reservation.[32]

Intracommunity Level Stakeholders

People Living Near an Installation

The World Bank noted that there were no indigenous or other communities located in the reservation where the project was developed, so consultations focused on communities nearby who could be impacted.[33]

Conclusions

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[30] Ibid.

[31] Ibid.

[32] Ibid.

[33] *Philippines - Bacon Manito Geothermal Power Project*

Overall, this geothermal project was determined to be highly successful by both communities and investors. This is in large part attributable to the World Bank's familiarity and ongoing consultation with key stakeholders in the Philippine government and relevant agencies, as well as in-depth consultation practices with intercommunity level stakeholders. This consultation with stakeholders at multiple levels was both in-depth and ongoing, and so meets the metrics set by the stakeholder framework in this paper.

These consultation processes and their outcomes stand in stark contrast with the World Bank's later large-scale on-grid Lake Turkana Wind Farm project in Kenya. Close consultation and familiarity with the network operator and energy supplier precluded problems that the Turkana project faced, such as fines incurred due to significant delays and a lack of technical expertise that the network operator was aware of, but that the World Bank was not. In addition, close consultation with the Philippine government in this project led to the government's cooperation in ensuring that the World Bank project complied with all legislation, while the investors in the Turkana project unknowingly violated land laws in Kenya due to insufficient communication with the government. The Philippine government was also able and willing to adjust tariffs and prices in the Philippines, while these same issues went unaddressed in the case of Lake Turkana and ultimately proved to be one of the main contributors to the project's failure.

Finally, even though communities near the Bacon-Manito geothermal project faced many of the same concerns as those near the Turkana project, ongoing consultation led to their concerns being addressed, including access to electricity, but also seemingly unrelated issues that the investors learned about such as health and education.

Largescale, grid-connected renewable energy projects are not suitable to electrification in poor countries in many instances, but in the right context, and using the right stakeholder consultation methods, they can be successful investments for communities and stakeholders.

Case Study 4: The Philippines Access to Sustainable Energy Project (ASEP)

Background

The Access to Sustainable Energy Project (ASEP) is the most recent of a number of World Bank and government-lead programs in the Philippines to bring electricity to rural communities, especially those living on the country's thousands of inhabited islands. There was a major shift in these efforts towards rural electrification in 2001, when the Philippine government passed the Philippine Electric Power Industry Reform Act (EPIRA), which privatized the energy sector in the Philippines. Before the act, rural electrification efforts were typically publicly funded, and so tariff-free, for community members who were gaining electricity access. Now that the industry is market-oriented, these programs expect rural electricity users to pay for the cost of development through purchases of individual solar home systems or purchasing electricity fees.

Most of the recent projects lead by the government and the World Bank have sought to use funds and the promise of either subsidies or co-investing to attract private investors and developers who are already operating in the Philippines to install renewable energy in unelectrified areas. However, these new programs tend to fail to take into account specific contextual needs and interests of unelectrified communities and potential co-investors.[1] They have fallen short of incentivizing or providing communities with the tools and knowledge to participate in the new privatized schemes, faced issues with land-rights, and, very often, considered communities to be fully electrified even if they only

[1] Allan Joseph F. Mesina, "Rethinking off-grid rural electrification in the Philippines," *Energy Sources, Part B: Economics, Planning, and Policy 11, 9* (2016): p. 815-823, DOI: 10.1080/15567249.2013.804894

installed electricity in community areas or a small subset of homes.[2] The ASEP project did not improve upon many of the problematic tactics exercised by these previous projects and largely failed to meet its financial and electrification goals, or to adequately serve communities.

The ASEP was co-funded by an EU grant and the World Bank and managed by the World Bank in the Philippines. The World Bank utilized its funding to attract private co-investors who would match or exceed the amount that the World Bank put in to each solar installation. Private co-investors were local companies working in solar development, and the project planned for them to make returns from the payments of Solar Home Systems consumers. The ASEP is also a relatively new project that has recently reached completion, and its development actions were largely concentrated in very rural areas. Thus, there has been very limited third-party research on project outcomes, so this case relies largely on World Bank self-reporting. This limits some case analysis, but the overall metrics for evaluating success and consultation still hold and allow some useful conclusions to be drawn.

The ASEP had three main component goals. The first was to implement solar home systems in 40,500 rural households without access to electricity. The project focused on the Mindanao region, a rural area in the Philippines with a large Muslim population that has only a 70 percent electrification rate, as opposed to the 90 percent electrification rate in most other regions of the country.[3] The second project component

[2] Ibid.
[3] Feng Liu, "Disclosable Version of the ISR - Access to Sustainable Energy Project - P153268 - Sequence No : 12 *(English),"* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/099135002012260423/Disclosable0Ve08000Sequence0No00012

was to set up around 7 small solar farms that would provide roughly 1 MW of solar generation capacity each. Finally, the project aimed to setup 1,000 prepaid meters in an electrical cooperative in Mindanao.[4] Electric cooperatives (ECs) are non-profit, community-owned organizations that supply electricity, generally in rural or suburban areas. Much of the electricity in the Philippines is distributed by these cooperatives. The project aimed to install the prepaid meters in this electric cooperative in order to bolster its credibility and financial standing.[5]

The project was started in 2016, with a planned closing date in July of 2019. The initial loan agreement was signed with the Local Government Unit Guarantee Corporation (LGUGC), a private company in the Philippines that guarantees the debts of local governments, agencies, companies, or other groups in public-private partnerships. Three years into the project, due to financial difficulties on the part of the LGUGC and trouble with the implementation of portions of the project, the World Bank restructured the grant to be assigned to the Philippine National Power Corporation. The restructuring also moved the project's closing date to September 2022.[6]

The World Bank rated both the implementation of the project and the achievement of the project's development goals as moderately unsatisfactory. The project

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[4] Feng Liu, "Disclosable Version of the ISR - Access to Sustainable Energy Project - P153268 - Sequence No : 13 *(English),"* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/099131507282225862/P1532680ba03680d3087510a488042dd9d1

[5] Liu,Feng. *Disclosable Restructuring Paper - Access to Sustainable Energy Project - P153268 (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/229701632935547651/Disclosable-Restructuring-Paper-Access-to-Sustainable-Energy-Project-P153268

[6] Ibid.

did implement 35,512 solar home systems, which was only 5,000 shorts of original goals. These systems were installed in Electric Cooperatives in Bukidnon, Sultan Kudarat, Davao del Sur, Cotabato and South Cotabato, all regions in Mindanao. However, the World Bank had to terminate the small solar farms project component with no progress made, due to "unsuccessful tendering," which generally meant a lack of interested project developers or co-investors. In some cases, no developers bid for project contracts, and in others, they pulled out.[7] The World Bank was not sure why this subproject section failed to attract bidders. [8] Furthermore, the World Bank reported that the Philippine government's Covid 19 regulations made the project incredibly difficult to execute because of restrictions on work and movement, which led to project delays and cancellations.[9]

Many community members who were meant to be served by the project also believed that it fell drastically short. Local communities in the Philippines struggle to understand why they need to pay for these types of programs, when previous government-run electrification programs in the Philippines had offered solar installation for free.[10] This disconnect and lack of communication made villagers understandably uncooperative with the project. In addition, metrics for village and household electrification were not clear, and some project developers categorized villages as

[7] Feng Liu, "Disclosable Version of the ISR - Access to Sustainable Energy Project - P153268 - Sequence No : 12 *(English)*

[8] Feng Liu, "Disclosable Version of the ISR - Access to Sustainable Energy Project - P153268 - Sequence No : 13 (English)."

[9] Ibid.

[10] Allan Joseph F. Mesina, "Rethinking off-grid rural electrification in the Philippines."

"electrified" even if only communal facilities or a small subset of houses gained access to electricity. This left many households, quite literally, in the dark.[11]

Island communities in particular were left short-changed by many of these solar projects. Project managers struggled to predict the electricity needs and ability to pay of households on remote islands in the Philippines, and thus installed solar plants or household solar technologies that either drastically overproduced or underproduced electricity.[12] For example, one solar plant built partially through ASEP funding on Gilutongan Island over-produced electricity by 56 percent.[13] Island communities often found themselves unable to pay the high prices for solar-produced electricity, or ended up paying large portions of their income for the electricity, which hurt them economically and impeded their potential for development.[14] One report determined that the price rates of Electric Cooperatives in Mindanao that participated in the solar implementation increased by 15.8 percent during ASEP's implementation from 2016-2020, despite communities already struggling to pay the previous lower costs.[15] Community representatives argue these increased prices are in part attributable to unfair contracts

[11] Lorafe Lozano, Edward M Querikiol, and Evelyn B Taboad,"The Viability of Providing 24-Hour Electricity Access to Off-Grid Island Communities in the Philippines." *Energies (19961073)* 14, 20 (2021): p.6797 https://doi.org/10.3390/en14206797

[12] Ibid.

[13] Ibid.

[14] Ibid.

[15] Herbie Gomez, "Group Blames Rising Cost of Mindanao Power on Coal Dependence, Take-Or-Pay Deals," *Rappler* (August 10, 2022) https://www.rappler.com/nation/mindanao/group-blames-rising-cost-power-mindanao-coal-dependence-deals/ Accessed November 8, 2022

issued by Electric Cooperatives that force consumers to pay for electricity produced whether they need it or not.[16]

Broader criticism from communities and representative organizations has also pointed out that, while the NPC was aiding in the development of ASEP, it was also participating in the massive increase in coal mines and coal-burning plants in Mindanao.[17] Renewable energy went from 65 percent of the power generation mix in Mindanao to only 31 percent between 2011 and 2020.[18] Advocates argue that the NPC and the Philippine Department of Energy used ASEP for good publicity while simultaneously contributing far more strongly to coal projects that increase pollution and health hazards. Some groups also argue that investing in repairing and rebooting Mindanao's hydroelectric facilities would be a more productive use of funds to electrify Mindanao, given that these facilities have far more capacity to fuel Mindanao's increasing electricity demands.[19] This investment could be combined with off-grid solutions in order to cleanly electrify as many residents of Mindanao as possible.

This project failed both investors and communities based on the metrics of evaluation used by this paper. Only half of the funds allocated to the project was disbursed before the project was closed due to a lack of contractors willing to enter

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[16] Ibid

[17] Laurence L Delina, "Committing to Coal? Scripts, Sociotechnical Imaginaries, and the Resurgence of a Coal Regime in the Philippines." *Energy Research & Social Science* 81 (2021) doi:10.1016/j.erss.2021.102258.

[18] "Bringing back the use of clean energy in Mindanao," *The Manila Times* (July 26, 2022) https://www.manilatimes.net/2022/07/26/public-square/bringing-back-the-use-of-clean-energy-in-mindanao/1852249 Accessed November 5, 2022

[19] Laurence L Delina, "Committing to Coal? Scripts, Sociotechnical Imaginaries, and the Resurgence of a Coal Regime in the Philippines."

agreements with the World Bank, so the project only attracted around half of the private capital it expected. The project was also delayed by four years. The World Bank does not yet have specific data on returns generated to private investors, but the installation and payment issues outlined above are not promising. Communities also did not gain the expected access to electricity or external development benefits. These failures can, in many ways, be traced back to a lack of consultation by investors.

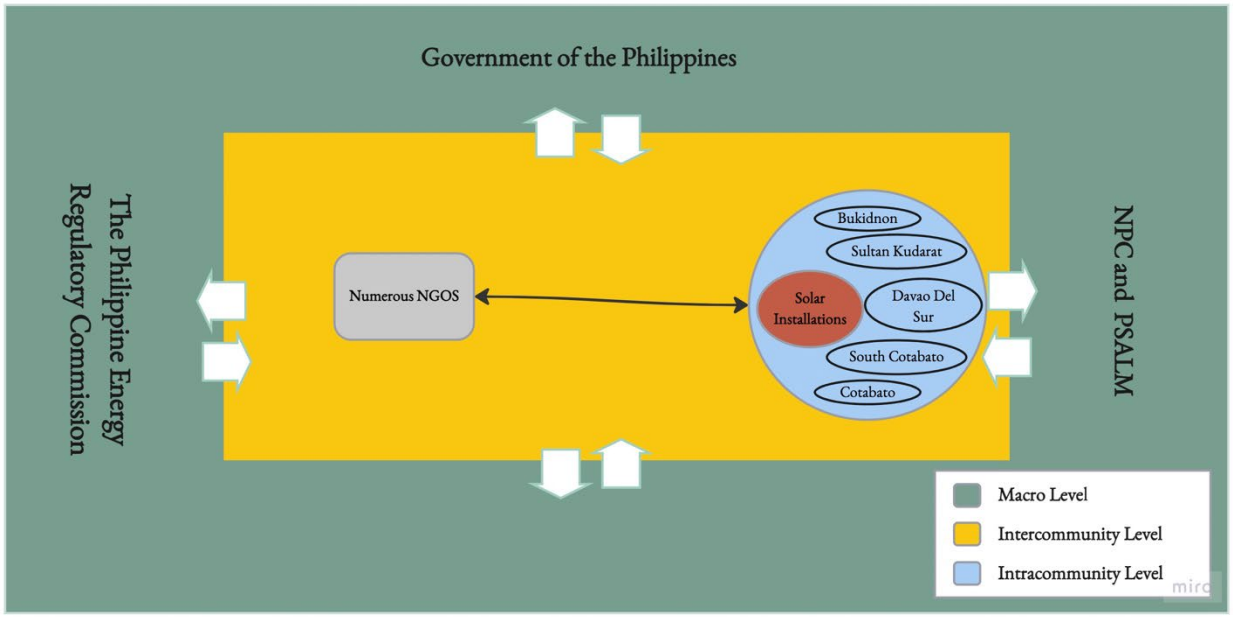

Figure 1 Philippines Access to Sustainable Energy Project Stakeholder Map

Macro-Level stakeholders

Government

Initial project reviews consisted of little direct consultation. Rather, the World Bank independently analyzed the Philippine energy regulatory environment and relevant environmental and social regulations.[20] The World Bank also took into account the

[20] Roberto La Rocca, "Philippines - Access to Sustainable Energy Project : environmental assessment : Environment and social safeguards framework *(English).*" Washington, D.C. : World Bank Group.

Philippine government's requirements for consultation with local communities, but only noted their stipulations for the number of sessions that were to be held, and did not work with the government to develop consultation methods.[21] The general expectation was that this would be handled by private project developers.

This lack of consultation lead to a number of barriers that the World Bank struggled to overcome. The World Bank noted that the progress of the ASEP was severely impaired by local governments' lack of knowledge related to solar technology and successful processes for setting up solar payments.[22] One study that conducted interviews of 10 key players in the Philippines solar industry found that there were consisted issues with local government corruption and bias towards fossil fuel companies and large-scale, socially embedded renewable sectors like hydroelectric and geothermal.[23] Government connections made it easier for actors in these industries to receive permits and other development support. Solar energy providers, however, were

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http://documents.worldbank.org/curated/en/519391468065042720/Environment-and-social-safeguards-framework

[21] Ibid.

[22] "The Role of the Public Sector in Mobilizing Commercial Finance for Grid-Connected Solar Projects Lessons Learned and Case Studies," I*nternational Bank for Reconstruction and Development/The World Bank,* (2019) https://openknowledge.worldbank.org/bitstream/handle/10986/32185/The-Role-of-the-Public-Sector-in-Mobilizing-Commercial-Finance-for-Grid-Connected-Solar-Projects-Lessons-Learned-and-Case-Studies.pdf?sequence=1&isAllowed=y

[23] Alteno School of Government, "Energy Policy Series Part 6: Renewable Energy Policy Failure in the Philippines: A Case of Socially Embedded Selection Pressures," (August 26, 2021) Video, https://www.facebook.com/watch/live/?ref=watch_permalink&v=437967857452907

often held back by a lack of government support.[24] These legal issues and problems with local government bias went overlooked and unaddressed because the World Bank failed to engage in the same level of supervision and in-depth support that it did with the Bacon Manito geothermal project.

Energy Suppliers

Since the Bacon Manito project, the Philippine electricity industry had been privatized to 139 electricity distribution companies that serve large portions of the grid and 119 electric cooperatives that serve small villages and islands. The Philippine Energy Regulatory Commission regulates most of this energy producing and transmission. However, beyond noting key regulations that had to be complied with, the World Bank and other investors did not note any direct consultation with the regulatory commission or local companies and cooperatives.[25] This can be directly connected to the World Bank's unexpected shortcomings in loan disbursement and tendering.

Network Operators

The NPC still manages a significant amount of the Philippine electrical grid, but the government also created a new agency entitled the Power Sector Assets and Liabilities Management (PSALM) Corporation. Though there are numerous private companies that now manage the two main grid sections in the Philippines as well as many independent rural and island grids, PSALM and NPC are still tasked with overall

[24] Ibid.
[25] LEGKL. "Official Documents- Amendment and Restatement of the EU Grant Agreement for TF0A2379 *(English)."* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/607791582317602694/Official-Documents-Amendment-and-Restatement-of-the-EU-Grant-Agreement-for-TF0A2379

electric grid regulation and management. There is no record of consultation with either agency until the World Bank decided to restructure the project loan and make the NPC the key project coordinator and loan beneficiary three years into the project. The World Bank was clearly familiar with the NPC at this point because of prior cooperation, and the NPC was required to submit reports on progress every 6 months.[26] Yet, actual consultation prior to project development and during initial project stages was not recorded.

Intercommunity Level Stakeholders

Nearby Communities

The LGUGC, the private corporation to which the project loan was initially provided, conducted one initial public consultation in Makati city on March 3, 2016. Parties included in this consultation were listed as "representatives of ECs, Renewable Energy Developer, DOE, NEA, and several commercial private banks likely to invest in the energy sector and other civil society groups."[27] However, the project developers did not note any feedback from the consultation in project documents or integrate it into project plans.

The rest of the consultation conducted with communities concerning the project was subcontracted out to smaller private parties, and was planned to be carried out once sub-projects were identified. Thus, rather than orchestrate its own consultations, the

[26] Liu,Feng.
Disclosable Restructuring Paper - Access to Sustainable Energy Project - P153268 (English).

[27] Ibid.

World Bank outlined a broad framework for consultation that the subcontracted entities were expected to follow. This consisted of forms that they were supposed to fill out and bring back to the World Bank for approval before the project could be started. Some recommendations included identifying communities or individuals that would be disrupted by the project and including them in consultations, putting a copy of the project's Environmental Analysis and Indigenous People's Plan in the local public library and on the NPC and National Energy Agency's websites, and establishing relationships with local officials so that they would bring grievances to the attention of project managers.[28]

While many of the recommendations in the framework laid out by the World Bank were substantial and consistent with newly developed standards, the World Bank was unable to ascertain that this framework was effectively carried out. In its final project documents, the only standard that the Bank used to determine if a project met consultation metrics was if at least once consultation was held in the village nearest where the project was implemented. Only 80 percent of the projects met this relatively low standard,[29] and it certainly did not indicate whether this consultation was ongoing, respectful, or feedback-focused, or if there was any community oversight throughout the course of the project.

[28] "Philippines - Access to Sustainable Energy Project : Indigenous Peoples Plan : Indigenous Peoples Policy Framework (English*),"* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/427291590651204163/Indigenous-Peoples-Policy-Framework

[29] Ibid.

Numerous studies that conducted extensive field-research and interviews of communities in the Philippines with off-grid solar projects by the World Bank and other investors have consistently determined the same finding: communities feel that consultation does not take into account their ability to manage the upkeep of solar systems, and they are not given the training or resources to maintain solar panels and grids after the investor leaves.[30] Often, communities stated that they could not afford batteries are spare parts to keep their panels working. This has repeatedly lead to project failure, even when projects were deemed successful upon completion.[31] These communication and training shortfalls were not ameliorated in this case, which does not bode well for the sustainability of the solar installations implemented through this project.

Intermediary Organizations

Beyond the organizations listed in the single initial public review session, no others were noted in the project's consultation documents.

Intracommunity Level

People Living Near an Installation

[30] George William Hong and Naoya Abe, "Sustainability Assessment of Renewable Energy Projects for Off-Grid Rural Electrification: The Pangan-An Island Case in the Philippines," *Renewable and Sustainable Energy Reviews* 16, no. 1 (2012): 54–64. doi:10.1016/j.rser.2011.07.136.

[31] J. Marquardt, "How Sustainable are Donor-Driven Solar Power Projects in Remote Areas?" *J. Int. Dev.*, 26, (2014): p.915– 922. doi: 10.1002/jid.3022

The consultation practices with people living near the installation mirrored those conducted with nearby communities. There were meticulous frameworks and surveys prepared by the World Bank for consultation of people living near installations. However, the standards for ensuring that this consultation were carried out were unclear and the World Bank did not rate its consultation processes well in its final review.[32]

Conclusions

Overall, the World Bank fell short of the outlined metrics for in-depth, continued consultation with any of the key stakeholders in this project. Unlike the Lake Turkana Project, the World Bank and the Philippine government did have numerous regulations and frameworks in place to require better consultation with various stakeholders, including, in particular, indigenous and local communities. However, this meticulous preparation fell short in the actual application. This can largely be attributed to poor standards for ensuring that subcontractors were adhering to consultation best practices, as well as a consultation plan that left out other relevant stakeholders, like the government and local organizations.

Failure to ensure adequate consultation with people living near an installation and nearby communities resulted in serious project failures, including either providing communities with far too much or far too little electricity, and failing to successfully complete two project components: the development of small solar farms and installation of prepaid meters. This lack of consultation also set back the sustainability of solar projects, because communities were not adequately informed or given the resources to

[32] Ibid.

maintain solar installations, like they were in the case of Kenya's off-grid solar access project.

In addition, the World Bank fell drastically short in consultations with the government and relevant agencies. This was in part due to do unanticipated economic issues and changes in the loan recipients, though these issues arguably could have been better anticipated through consultation as well. The World Bank failed to work with the government to step in and terminate or help renegotiate predatory rate contracts in the newly privatized parts of the industry, or to help combat the corruption in local governments that was damaging the solar sector. Numerous complex environmental and regulatory factors interacted to cause these project failures, but many of the most notable barriers to success could have been identified and overcome with better stakeholder consultation.

Many of the issues with lack of consultation are generally attributable to a shift in the World Bank's approach to renewable energy projects in the Philippines. When the World Bank supported the Bacon Manito Geothermal project, its goals were not only to ensure project success, but also to support the development of the Philippines' renewable energy sector more broadly through an in-depth understanding of and collaboration with the government, relevant agencies, and local indigenous groups. During the ASEP, the World Bank measured project success far more narrowly through data on installed systems, and saw itself as simply a loan facilitator, rather than a project manager. Allowing for countries and communities to have independence in the control of their own policies and practices is important, but, in the case of renewable energy projects, it is in a loan facilitator's and the community's interest to engage in thorough consultation and

support of relevant stakeholders in order to better understand the barriers facing projects and how to overcome them.

Recommendations for Investors

First and foremost, investors should be attentive to community gains when determining the success of project outcomes. All infrastructural and energy projects have significant impacts on the people living near project areas, and this is especially pronounced in the case of renewable energy projects in lower income countries. Investors like to tout that, by investing in these projects, they are addressing the major issue of energy insecurity; they should follow through on this rhetoric by ensuring that they are actually serving the communities they claim to help. This is true of the World Bank and other international actors, of course, but is also an obligation of private investors who use and even benefit from the messaging that they are magnanimous actors aiding underserved communities.

Thus, using the metrics of Sustainable Development and community success to evaluate overall project success is essential to producing ethical, sustainable, effective projects. This entails ensuring that communities not only have electricity access once a project is complete, but that that access is ongoing and reliable, so that communities are able to use it as they wish in the service of social and economic development.[1] It also entails that communities are respected, collaborated with, and have a say in benefits external to electrification that they can earn from projects. At its best, this could even look like investors initially coming to communities without specific plans to discuss, but

[1] Lozano, Lorafe, and Evelyn B Taboada. 2021. "The Power of Electricity: How Effective Is It in Promoting Sustainable Development in Rural Off-Grid Islands in the Philippines?" *Energies* 14 (9): 2705–. doi:10.3390/en14092705.

rather with the intention of understanding communities' electricity and sustainability needs, and then working from those consultations to best tailor a project to the needs of those living in the project area.[2]

This attention to community outcomes is important not only for social and ethical reasons, but also for investor returns. One study of rural electrification in the Philippines found that the communities who were better informed about how to utilize their newfound access to electricity were able to augment their livelihoods through electricity use, and were thus more able to pay fees for electricity to developers. This results in a win-win situation for these two key stakeholders.[3] Sustainable development could even entail thinking outside of the box with ways to support communities. The developers involved in the Bacon-Manito did a good job of this by supplying community funds that supported education, health, and other sectors that are fairly unrelated to the project itself, but aid in the overall goal of rural development and security.

Building on this community support, investors should also strive for better stakeholder engagement and cooperation at every level. Ruggiero's theory of stakeholder engagement predicts that project success can be largely determined by the level and quality of investor cooperation with stakeholders, which is clearly borne out by the case

[2] Gina Kallis, Phedeas Stephanides, Etienne Bailey, Patrick Devine-Wright, Konstantinos Chalvatzis, Ian Bailey, "The challenges of engaging island communities: Lessons on renewable energy from a review of 17 case studies," *Energy Research & Social Science* 81 (2021): 102257, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2021.102257.

[3] Lozano, Lorafe, Edward M Querikiol, and Evelyn B Taboada. 2021. "The Viability of Providing 24-Hour Electricity Access to Off-Grid Island Communities in the Philippines." *Energies* 14 (20): 6797–97. doi:10.3390/en14206797.

analyses in this paper.[4] It is imperative that investors build meaningful relationships with stakeholders at multiple social levels. Stakeholders at each level can provide unique information and input that only they have access to because of their position and vantage point. Governments, for example, are in a unique position to provide information and support on relevant regulations and compliance. This is clearly evidenced by the Kenyan government's support in land-rights regulatory compliance in the case of the K-OSAP project in Kenya. Thorough negotiations with network suppliers and energy producers can also have clear benefits, as in the case of the Bacon Manito project. This type of engagement with the NPC and PNOC gave the World Bank a clear understanding of the organizations and how best to support them in managing the project and ensuring on-time payments. Cooperation with communities is key to ensuring adequate demand, as well as community buy-in and willingness and ability to pay for electricity, along with the success of many other key parts of the project development process. Thus, engagement on multiple stakeholder levels is key to renewable energy project success.

Furthermore, the protocol for stakeholder engagement ought to be based on ongoing, in-depth consultation that is focused on identifying and overcoming barriers. This approach goes far beyond simple information-sharing withs stakeholders. As demonstrated by the case studies outlined in this paper, this specific type of consultation both builds trust with stakeholders and makes them more likely to cooperate. It also helps identify unforeseen issues and barriers to success, as well as develop unexpected solutions to overcome these barriers. For example, the basic information sessions

[4] Salvatore Ruggieroa, Tiina Onkilaa, Ville Kuittinenb, "Realizing the social acceptance of community renewable energy: A process-outcome analysis of stakeholder influence."

conducted before the Lake Turkana project proved insufficient to identify or address consumer inability to pay or dissatisfaction with the methods of obtaining land, which both later caused major issues for the project. Alternatively, ongoing, thorough consultation with communities before and during the K-OSAP project ensured community compliance, ability to pay for electricity, and even support of the project. The Schmidt[5], Abba[6], Alazraque-Cherni,[7] and Painuly[8] papers described in the literature review provide specific recommendations for identifying potential project barriers, identifying key stakeholders and representatives, structuring stakeholder surveys and questionnaires, and building relationships withs stakeholders. Properly applying these processes can have strong outcomes for communities and investors.

In addition, working with the same stakeholders on multiple projects over time can build familiarity with those stakeholders and improve project outcomes. This type of familiarity with the government, network operator, and energy supplier in the Bacon Manito project served the World Bank well. The World Bank had worked closely with these same entities on multiple projects in the decades prior to developing the Bacon Manito geothermal plant. The resulting support and transparency that these organizations gave the World Bank were essential to navigating the project's complexity and the

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[5] Schmidt TS, Blum NU, Sryantoro Wakeling R. "Attracting private investments into rural electrification - a case study on renewable energy based village grids in Indonesia."

[6] Z.Y.I. Abba, N. Balta-Ozkan, and P. Hart, "A holistic risk management framework for renewable energy investments."

[7] Judith Alazraque-Cherni, "Renewable Energy for Rural Sustainability in developing countries."

[8] J.P Painuly, "Barriers to renewable energy penetration; a framework for analysis."

political and economic environment in the Philippines. This type of repeat engagement is not always possible when investors are expanding into new markets or when governments and industry actors change, but should be pursued when possible.

However, investors must also be attentive to the potential for their engagement and consultation to create rifts and conflict amongst project stakeholders and within communities. For example, during the World Bank and PNOC's consultation before the development of another geothermal project at Mt. Apo in the Philippines, tensions arose between various stakeholders. This was one of the first the first geothermal projects developed in the Philippines, and consulted stakeholders varied greatly in their opinions on the project's location. The local Catholic church and some NGOs reported that the most significant community concerns would be potential displacement. However, representatives directly from communities argued instead that some displacement would be a manageable tradeoff for increased access to energy, and that a much larger concern was the cultural significance of the land that the project was to be built on. This issue was much more difficult to resolve.[9]

This type of disagreement can become more problematic and complex when there are multiple indigenous groups or communities living near a project area, and some encourage a location because it will improve their electricity access, while others vehemently oppose a location because of cultural or religious significance. The very presence of a project and requests for input on it have the potential to sow conflict in

[9] Leonardo M. Ote and Agnes C. de Jesus, "Mt. APO GEOTHERMAL PROJECT: A LEARNING EXPERIENCE IN SUSTAINABLE DEVELOPMENT," *World Bank* https://www.osti.gov/etdeweb/servlets/purl/620606

communities that was not previously there.[10] This type of conflict can be complex and intractable. Yet, as a source of this conflict, investors have an obligation to address and make all possible attempts to resolve it, on top of their initial consultation practices.[11] There was limited reporting in this papers' cases on resolving disputes that arose as a result of consultation, but future research ought to pay better attention to this process.

Finally, investors should be cognizant that consultation has the potential to either empower, or further subjugate, marginalized groups. If an investor works only with "community leaders," they could often end up working only with older men, which could leave out many opinions. In particular, ongoing research has shown that women are impacted differently by renewable energy projects than men, and have unique and valuable input to give on projects, yet they seldom have a say in the energy development process. Social norms often lead women to have a better understanding of household energy needs and the potential for increased electricity access to alleviate household chores. They also better understand and are more greatly impacted by conflict in the home over poor electricity access or the constant need to obtain oil and other substitutes.[12] Women may be surprised at their inclusion in projects and unused to the process of having their voices heard, but investors must work through these barriers in

[10] Gina Kallis, Phedeas Stephanides, Etienne Bailey, Patrick Devine-Wright, Konstantinos Chalvatzis, Ian Bailey, "The challenges of engaging island communities: Lessons on renewable energy from a review of 17 case studies."

[11] Ibid.

[12] A. Gill-Wiehl, S. Miles, J. Wu, D.M. Kammen, "Beyond customer acquisition: A comprehensive review of community participation in mini grid projects, Renewable and Sustainable Energy Reviews, 153, (2022): 111778, ISSN 1364-0321, https://doi.org/10.1016/j.rser.2021.111778.

order to better include women.[13] Other important representatives to include are representatives from marginalized ethnic or religious groups who also are often edged out in consultation processes and may be unused to being able to communicate their needs and have them heard. The project recording of the cases in this paper often fell short of recording interactions with women, impoverished groups, and other marginalized identities, which leads to shortcomings in the nuance of this paper's conclusions and should be better considered in future research.

[13] Ibid.

Recommendations for Governments

Governments have a significant role to play in creating a better environment for successful renewable energy projects. First, like investors, governments often benefit from touting their involvement in renewable energy projects which are intended to improve the access to energy and general livelihoods of their populations. However, evidence from these cases has shown that renewable energy projects do not inherently serve energy insecure populations. Governments thus have an obligation to make a targeted and concerted effort towards ensuring that renewable energy projects in their country actually achieve the stated goals of supporting communities. Investors and developers should be required to explain how their projects will serve communities without access to electricity. Regular reviews should ensure that communities are respected by project developers, and are able to actually use the electricity they are promised.

Under the Philippine Energy Plan 2012-2030, the Philippine government seeks to "ensure the delivery of secure, sustainable, sufficient, affordable and environment-friendly energy to all economic sectors," in the pursuit of "local productivity and countryside development."[1] Under the Kenya 2030 strategy, the Kenyan government has also laid claim to the goal of increasing its population's access to energy while simultaneously preserving the environment and moving towards economic development.[2] Each of these strategies has entailed the governments of these countries claiming responsibility for the

[1] Philippines Department of Energy, "Philippine Energy Plan 2016-2030," https://www.doe.gov.ph/sites/default/files/pdf/pep/2016-2030_pep.pdf?withshield=1

[2] Cecilia Theresa Trischler Gregersen, "Local learning and capability building through technology transfer: experiences from the Lake Turkana Wind Power project in Kenya,"

renewable energy projects outlined in this paper and others. However, it is clear that a more directed and nuanced approach, potentially using the stakeholder engagement techniques outlined in this paper, is necessary to achieve the outcomes these governments have promised.

Another key role that governments ought to play is to construct land rights legislation that extensively protects indigenous and communal rights to land and ensures specific, thorough processes for land transfers to private entities. One of the key policy issues that repeatedly arises in the context of renewable energy projects is that of land rights. Large renewable energy projects require significant open land, and nearly all renewable energy projects of all sizes are in rural areas that are more likely to have some form of communal land ownership. Thus, governments ought to pay special attention to protecting indigenous-occupied and communal lands with specific policies and legislation, as well as robust enforcement mechanisms. Such policies were instrumental to limiting the size and reach of the Bacon Manito geothermal project and protecting indigenous lands. Alternatively, thelegal and social issues faced by Lake Turkana Project in Kenya when it unknowingly failed to comply with land-rights regulations also reveal how effective enforcement mechanisms are necessary. Without land-rights enforcement, communities in Kenya unjustly lost access to culturally and intrinsically significant land, and investors dedicated considerable time and money to preventable legal battles. New legislation and greater government involvement in the later K-OSAP in Kenya proved more effective in transitioning land rights in a way that was acceptable to communities and limited the intrusion of the renewable energy projects onto communal land.

Another key approach that governments ought to take is to institute policies that require renewable energy investors and project developers to consult with stakeholders. These laws should specifically require the involvement of stakeholders on each level outlined by the stakeholder framework,[3] as well as the inclusion of marginalized groups such as underrepresented religious and ethnic groups, women, and impoverished individuals. The Kenyan law that mandated federal and local government involvement in rural electrification, which precipitated the World Bank's involvement with rural solar electrification in Kenya, exemplifies the possible effectiveness of such laws.

Governments must take a step further than drafting legislation, however, and be attentive to ensuring that laws mandate real stakeholder consultation. Terms like "community consultation" and "stakeholder participation" are at risk of becoming buzzwords. In the United States, developers building highways and other infrastructure have posted plans online for a certain amount of time or hosted informational fora and considered community compliance to be achieved, even if most community members were not made aware of the information and none were given opportunities to provide feedback.[4] It is easy to see how poor stakeholder engagement legislation could result in investors just checking boxes and not engaging in the in-depth type of consultation that could actually lead to better project outcomes for investors and communities. The establishment of a taskforce made up of community members and local officials that had the power to regularly review and give input on the Bacon Manito project is an example

[3] Salvatore Ruggieroa, Tiina Onkilaa, Ville Kuittinenb, "Realizing the social acceptance of community renewable energy: A process-outcome analysis of stakeholder influence."

[4] Denis Wood, Rethinking the Power of Maps, 2010. Guilford Press.

of effective community participation, as well as the process in the Kenyan off-grid solar project by which investors interviewed stakeholders repeatedly and with the explicit intent of garnering feedback that would be incorporated into project development. Governments must be sure that regulation mandates this in-depth form of consultation, and should have some level of involvement with projects to be sure it is being carried out.

Conclusions

There are numerous complex, interrelated factors that influence the outcomes of renewable energy investments in poor countries. These include the regulatory environment, government structure, environmental factors, the influence of outside development groups and investors, and, of course, many other factors that are outside of the control of stakeholders, such as the Covid 19 pandemic. All of these influences must to some extent be considered by investors when evaluating successful renewable energy projects.

However, a highly influential and often under-considered factor is the influence of various stakeholders on projects. Prior research and the case analysis in this paper reveal that adequate cooperation and consultation with stakeholders by investors can have a strong positive influence on project outcomes for everyone involved. The broad analytical overview in this paper reveals that projects that, by the numbers, entailed more stakeholder engagement at more varied levels had more success for communities and investors. In addition, and perhaps more convincingly, much of the qualitative analysis of individual cases reveals directly how adequate stakeholder engagement gave investors the knowledge and skills to overcome specific barriers to project success. Though stakeholder engagement, like any factor involved in these renewable energy projects, is not fully determinative of project outcomes, it is a strong determining factor: stronger than much of the current research gives it credit for.

Another key takeaway that emerged from these cases was that the two with positive project outcomes and successful stakeholder engagement were preceded by

community backlash against similar World Bank projects in the same country that did not engage in successful stakeholder consultation. Local indigenous groups in Turkana led large-scale protests and legal battles against the Lake Turkana Windfarm project's investors, especially over the issues of land rights and harm to local communities, which can be connected to significant changes made by both the Kenyan government and the World Bank in their approach to the later Kenya Off-Grid solar access project. Intense protests and public unrest during the development of the World Bank-funded Mt Apo geothermal plant in 1987 related to displacement and the cultural significance of the used land are widely credited with spurring Philippine government and World Bank reforms in the Philippine geothermal sector, thus leading to the successful consultation practices involved in the Bacon Manito Geothermal plant.[1] These connections reveal that underserved communities that are most impacted by these types of projects took the lead in stakeholder engagement, and that these communities should be followed and listened to as they pave the way to creating better frameworks for their own inclusion.

In another vein, the cases in this project also influence the debate over renewable energy project size. The conclusion that can be drawn from these four cases is that project size or grid connectivity should not be considered determinative of project outcomes, which counters much of the current research. Neither project size nor type predictably does not results in better project developments. It seems that, instead, a better approach is to choose larger, on-grid projects, smaller, off-grid projects, or a combination of the two based on numerous specific contextual factors to the project's location such as population

[1] Jonathan A. Fox, & L. David Brown, "The Struggle for Accountability : The World Bank, NGOs, and Grassroots Movements."

density, distance from the existing grid, and electrical needs. The cases in this paper reveal that much of the research indicating the increased success of small, off-grid projects may be more attributable to the fact that these projects inherently necessitate more community communication and engagement, than to the size of the project itself.

Noting the benefits of this more varied approach to project size, governments must continue to be as transparent as possible about project plans. Strong evidence has repeatedly shown that communities who are told that the nation's electrical grid will be extended to them are reluctant to cooperate with an off-grid project's development, because they believe it will hurt their chances of being connected to the electrical grid.[2] However, governments and private investors have been known to over-promise the possibility of electrical grid extensions for political clout.[3] Furthermore, in some cases, off-grid renewable energy can produce more consistent and reliable electricity than a grid extension can.[4] Thus, governments and investors should strive to be as transparent and honest as possible about future electrification plans as related to specific communities.

It is also, of course, important to recognize the variation in barriers that renewable energy projects face, and thus the variation in stakeholder engagement's ability to overcome different barriers. Barriers that are partially dependent on social acceptance,

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[2] Damian Miller and Chris Hope, "Learning to Lend for Off-Grid Solar Power: Policy Lessons from World Bank Loans to India, Indonesia, and Sri Lanka," *Energy Policy* 28, 2 (2000): 87–105. doi:10.1016/S0301-4215(99)00071-3.

[2] Laura Hellqvist & Harald Heubaum, "Setting the sun on off-grid solar?: policy lessons from the Bangladesh solar home systems (SHS) programme," *Climate Policy*, (2022) DOI: 10.1080/14693062.2022.2056118

[3] Ibid.

[4] Ibid.

like protests or lawsuits, or a community's unwillingness or inability to pay for electricity, have the potential to be at least ameliorated by stakeholder engagement. Indivisible issues, like the cultural significance of land when a project relies on using a certain piece of land, like in the case of a geothermal project or hydropower dam, would be much harder to overcome even with intensive stakeholder engagement. Division within communities over the potential benefits and harms of projects could also be much more difficult to resolve. This variation should be taken into account when considering realistically what stakeholder engagement can and cannot do. However, it should also be acknowledged that the only potential way to overcome such indivisible issues is through intense problem-solving and communication with communities. Thus, these types of issues do not negate the potential value of stakeholder engagement.

Finally, it is essential to be realistic about the motives and intentions of the many stakeholders involved in these renewable energy projects. Investors will continue to prioritize profits, and governments and electrical agencies will continue to be beholden to political and other interests that are unrelated to particular projects. Though there are many instances in which community success is compatible with and even leads to investor success, and vis-a-versa, there will also always be some instances in which there are trade-offs. Stakeholder analysis and stakeholder engagement should not be considered final answers, but rather useful tools to understand and improve the outcomes of projects, especially for the nearby energy insecure communities that are often sidelined by the project development process, yet are the most affected by project outcomes.

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