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Partnership Strategy in Renewable Energy Developm ENT Based On Community Empowerment (Case Study in IBEKA)

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ABSTRACT: This research examines partnership strategies in community empowerment-based renewable energy development using qualitative research methods through a case study approach. Data collection techniques include in-depth interviews with key informants as primary data sources. Interviews were conducted by selecting informants who were considered the most knowledgeable on the research topic using purposive sampling. The Pro-Poor Public Private Partnership (P4) model is applied to integrate resources from various parties to fund renewable energy projects. The results show that the partnership strategy used by IBEKA is the Pro-Poor Public Private Partnership (P4) model applied to integrate resources from various parties to fund renewable energy projects such as the Energy Patriot Program in Partnership with the Ministry of Energy and Mineral Resources (MEMR), private companies and local communities. Although there were challenges in implementation, such as limited funds and community resistance, the participatory and educative approach was able to overcome these obstacles.

KEYWORDS: Renewable Energy; Community Empowerment; IBEKA; Partnership

I. INTRODUCTION

As an archipelagic country with abundant natural resources, Indonesia has a great opportunity to develop renewable Energy as a solution to overcome inequality in energy access. To optimize the new and renewable energy mix, the government focuses on building renewable energy-based power plants, especially to overcome the problem of electrification ratio, including support for renewable energy regulations, strengthening the role of the National Energy Council and setting specific targets, as well as establishing bilateral cooperation at the international level (Arsita et al., 2021). As for energy management, it is regulated in Law Number 30 of 2007 (Afif et al., 2023). Each region has renewable energy sources such as sunlight, river flows, wind, and biomass (Nelly et al., 2023) from agricultural and plantation residues (Soliditas et al., n.d.). The development of new and renewable Energy (NRE) can mainly reduce greenhouse gas emissions, which is targeted to be achieved by 2060 (Community Empowerment Through the Implementation of Solar Electricity at the Ahsanul Ibad Islamic Boarding School, Purbolinggo District, East Lampung Regency, n.d.). This potential needs to be maximized so that local people can use it for electricity needs and boost the local economy (Article et al., 2024). Until now, there has been considerable inequality in electricity distribution in various regions. Data from the Central Statistics Agency (BPS) shows that although Indonesia's electrification ratio has exceeded 99% in 2023, some provinces still face significant challenges in meeting electricity needs, especially in remote and inland areas (Journal of Electrical Automation and Renewable Energy et al., n.d.). Provinces such as Papua, West Papua, West Sumatra (Mentawai Islands Regency), and East Nusa Tenggara recorded lower electrification ratios compared to other provinces. Some regions are even still dependent on energy sources that are not environmentally friendly or do not have access to electricity at all. Based on data from PT PLN, more than 4,400 villages in the outermost, disadvantaged, and frontier areas still do not get access to electricity from PLN because they are difficult to reach, isolated, located in remote locations, and some are even located on borders between countries. Dengan tantangan distribusi listrik yang dihadapi, integrasi teknologi energi terbarukan ke dalam kehidupan sehari-hari masyarakat lokal menjadi semakin penting (Kesadaran et al., n.d.). However, the main challenge that is often faced is how to ensure that this technology can be applied sustainably (Judijanto et al., 2023) and in accordance with the needs of the local community (Irawati ICECRD et al., 2019).

Electricity is the gateway to economic justice. With electricity, local potential can be better processed and developed

(Suhendra et al., 2023). In Indonesia, electricity needs have been supplied by state companies (PLN), but there are areas that have not received a 24-hour electricity network, or even have not been touched at all. There is even an innovation, namely Smart Electricity, which has been expected to be more efficient and effective for the Indonesian people, is also not enough (Ramli et al., 2022). The need for an equitable distribution of electricity by utilizing local potential to produce electricity that can be sustainable and renewable (Mursalim & Susanto, n.d.). The use of local resources for the development of renewable Energy not only provides a solution to inequality in access to electricity but also an opportunity to empower local communities (Ma'arif et al., 2023). The development of renewable energy based on local resources such as biomass and micro-hydro energy has proven to be effective in increasing energy independence in remote areas (Asmaranto et al., 2020). These resources, which are generated from the potential of the environment, are also able to create new jobs and increase people's incomes. Community empowerment in resource management is very important so that the sustainability of renewable energy projects can be guaranteed. Community involvement in every stage of management, from planning to the operationalization of renewable energy-based power plants, will strengthen a sense of ownership and responsibility, which ultimately increases the sustainability of the project (Arifin & Djafar, 2021; Budiono & Susetiawan, 2023; Muarifa et al., 2023). In addition, community-based empowerment approaches are also considered relevant in this context, where communities are trained and given the knowledge to manage local energy resources independently (Utami & Fadilah, 2021). Therefore, it is appropriate for all lines to carry out an energy processing that aims to improve energy efficiency and find renewable energy sources such as water, wind, and solar (Raharjo et al., 2023). In addition, the target group must also be considered to know the purpose of the program itself (Arief et al., 2023). In this context, a partnership strategy between various stakeholders (Juwita et al., 2023) by empowering resources in the village to develop renewable Energy that is worked on and owned by the community is crucial (Winda Amilia et al., 2024). Thus, this approach can be a long-term solution to overcoming the challenge of uneven electricity distribution.

Until 2022, IBEKA has built 89 renewable energy-based power plants spread throughout Indonesia, and one of them is the Mbakuhau PLTMH and a small-scale wind turbine in East Sumba developed by IBEKA in 2011-2014. This PLTMH unit supplies electricity to 353 beneficiary households. In 2021, IBEKA collaborated with the Ministry of Energy and Mineral Resources to organize the Patriot Energy program in order to support efforts to increase the village electrification ratio through the provision of electricity access in 4T areas based on renewable Energy. This project was built with the concept of a Pro-People Public-Private Partnership in Partnership with the Ministry of Energy and Mineral Resources (MEMR) of the Republic of Indonesia with the aim of accelerating electrification in disadvantaged villages. The People's Economic Business Initiative Foundation (IBEKA) is one of the institutions committed to developing community empowerment programs by utilizing renewable energy and local resources. IBEKA is also one of the pioneer institutions in the development of micro-hydro technology in rural areas of Indonesia (Swasti & AL-HADID Surabaya Pasuruan, 2021). The foundation has built partnerships with governments, the private sector, academia, and local communities to achieve sustainable empowerment goals. The partnership strategy implemented by IBEKA is the backbone of the success of its programs, considering the complexity and challenges faced in implementation in the field. IBEKA believes that electricity is the main foundation for economic development. By utilizing renewable energy, IBEKA paves the way for the empowerment of target groups and the increase of added value from the potential of local resources. IBEKA's goal is to support small-scale local social enterprises in creating economic diversity. IBEKA provides access to affordable and reliable Energy based on renewable Energy and implements empowerment programs after electrification. These programs include the provision of clean water, crop processing, household businesses, community workshops, and local cooperatives. IBEKA believes that the more diverse an economy is, the more sustainable it is. Renewable energy will create many jobs in various sectors, such as manufacturing and distribution of renewable energy equipment, project development, construction and installation, operation and maintenance, and various other cross-sectoral fields (Al-Hakim, 2020).

Villages, as the smallest part of this nation, must have the power and control to manage their resources (Angelina Laksmiati Rachma Purnaditya, 2024). When a village has power and control over its resources, it will be able to achieve food, Energy, health, and cultural sovereignty (Empowerment of Santri through Assistance in Water Quality Measurement to Improve Understanding of Clean Water and Sanitation, n.d.). Community empowerment has become the main focus of various development programs, especially in developing countries such as Indonesia. Community development and empowerment at the village level are very important to overcome various obstacles faced by the community (Firman, 2021) and limited access to state development (Badaruddin et al., 2021). Community empowerment is a development process in which people take the initiative to start social activities to improve their own conditions (Mujahiddin et al., 2023). This empowerment can only occur if the community plays an active role. Therefore, the essence of empowerment lies in the development process, community initiatives, and efforts to improve their own conditions (Magalhaes & Hartanto, 2024; Ambarsari et al., 2022). In other words, the success of community empowerment programs is determined not only by the party that carries out empowerment but also by the active participation

of the empowered community in changing the situation and conditions for the better (Maryani & Nainggolan, 2019).

In the scope of villages, Article 1, Number 12 of Law 6 of 2014, concerns the empowerment aspect of villages. This empowerment aims to improve public attitudes, behaviours, knowledge, skills, abilities, and awareness, as well as maximize the use of existing resources. This is done through the implementation of policies, programs, activities, and assistance that are tailored to the challenges and urgent needs of the village (SDGs-Based Infrastructure Development Planning (Environmental Development Pillar) in Regency B, n.d.). Community awareness is the first step in empowerment, and it is designed to help them identify development opportunities in their village environment (Astuti, 2015).

The Partnership with the Ministry of Energy and Mineral Resources (MEMR) of the Republic of Indonesia with the aim of accelerating electrification in disadvantaged villages not only serves as a means to flow funds or resources, but also as a platform to share knowledge, technology, and best practices. As such, solid partnerships can increase the capacity of local communities, accelerate the adoption of renewable energy technologies, and create a broader and sustainable impact (Susanto et al., 2023). And to reach remote areas for equal distribution of electricity, renewable Energy is needed by involving a partnership system (Assiddiq et al., n.d.). Partnership is generally a form of cooperation between two individuals or groups based on mutual trust and an agreement to work together in developing a business or achieving certain benefits that support the achievement of common goals (Conservation in Mangrove Forests in Traditional Utilization Zones et al., 2023). Through partnerships, the Energy needed to achieve results or benefits can be saved, especially if all parties involved have the same vision in carrying out the cooperation (Sulistiyani, 2017). However, the extent to which this partnership strategy plays a role in the success of IBEKA's empowerment program still requires a more in-depth study.

This study aims to explore and analyze the partnership strategy in the development of renewable energy applied by IBEKA to increase the electrification ratio and empower the community. By understanding this strategy, it is hoped that the key factors that support the success of the program, as well as the challenges faced in collaboration between stakeholders, can be identified. The findings of this study are expected to contribute not only to the academic literature, but also as a practical guide for other institutions that want to adopt similar models.

2. METHOD

The research method used is qualitative descriptive with a case study approach. The research was conducted from July to August 2024 at IBEKA Farm, Jalan Raya Cicadas.

Kp. Panaruban, Ciater, Cicadas, Subang, Subang Regency, West Java. The reason for choosing the location is because, based on more than 30 years of experience in building villages, IBEKA formulated four program pillars to be able to make villages empowered, independent, and sustainable based on renewable energy and local resources, namely 3S Mapping (Social, Spatial & Sectoral), Organizing resource-aware communities, Participatory-based development, and Social Business Development. Throughout 2022, it has built 89 renewable energy plants and empowered more than 450 villages in Indonesia by involving 1,200 young statesmen. It is interesting to see how the partnership strategy carried out by IBEKA, a pioneer of social business entities, focuses on realizing a just economy with community empowerment programs based on renewable energy and local resources.

Table 1. Composition of informants

Actors/Institutions	Sum
IBEKA Supervisor	1
Chairman of the IBEKA Foundation	1
Staff IBEKA	2
IBEKA Facilitator	4
Energy Patriot Program Participants	1
Total	9

This study uses primary and secondary data. Primary data were obtained through in-depth interviews with semi-structured models. The selection of informants was carried out using purposive techniques, which was very useful due to the researcher's limited prior knowledge of the research location. By visiting key actors, namely the coach and Chairman of the IBEKA Farm foundation, researchers can more easily reach other parties, especially empowerment facilitators and participating communities based on renewable energy programs and local resources that play an important role in the field of beneficiary areas. The composition of the informants is presented in Table 1. The informants were interviewed in-depth to find out their roles and

contributions to IBEKA's partnership strategy. These interviews will take place in the form of discussions, where researchers will ask open-ended questions and provide opportunities for respondents to share their views. Each interview is expected to last 30-45 minutes, depending on the respondent's involvement in the discussion. The IBEKA Trustees provided insights related to strategic policies and long-term visions, while the Chairman of the Foundation explained the implementation and partnership challenges faced. IBEKA staff focused on operations and coordination with stakeholders, while facilitators provided perspectives on the implementation of programs on the ground as well as the effectiveness of partnerships with the Ministry of Energy and Mineral Resources, local governments, and local communities. This interview explores their views on the success of the renewable energy development program based on community empowerment. Then, observations were made to define the role of partnerships in community empowerment programs and describe how the implementation of the partnership strategy takes place in the field. Meanwhile, the literature study was carried out by referring to books, journals, and other documents that make important contributions related to the concept of Partnership, community empowerment, and the use of renewable energy and local resources in the context of this research. To ensure the credibility of the research, the triangulation method is used (Flick, 2018). This method focuses on the descriptive analysis process of methods, theories, and various data that have been collected. By observing information, social reality, and a series of events in the field, triangulation helps researchers in ensuring the accuracy of research findings.

RESULTS AND DISCUSSION

3.1. Understanding Partnerships

Partnership is an approach designed to involve others in participation (Wong et al., 2007). Another definition explains that Partnership is a form of cooperation between organizations that aims to create shared value by combining complementary resources, knowledge, and skills. Effective collaboration can spark innovation and provide a more significant social impact than if the organization worked independently (Austin & Seitanidi, 2012; Reed et al., 2009). This means collaboration between two or more parties to obtain benefits for each party.

From the explanation of the definition above, it can be concluded that Partnership is a form of collaboration between organizations that utilizes complementary resources, knowledge, and skills to achieve common values. Good collaboration not only drives innovation and greater social impact than individual work, but also enhances the decision-making process through the diverse perspectives involved, thereby increasing the effectiveness and sustainability of the resulting initiatives.

3.2. Study on Community Empowerment

Community empowerment must be seen as a sustainable process, in which communities are actively involved in decision-making and the implementation of development programs (Sarjiyanto et al., 2022). Monitoring and strengthening based on community participation by placing the community as a key actor in the empowerment process is an innovative approach to sustainable empowerment models (Sururi et al., 2022). Conceptually, community empowerment is defined as an approach to economic development that includes social values. This concept reflects a new development paradigm, which is people-centred, participatory, empowering, and sustainable (Habib, 2021).

Based on the presentation that has been delivered, it can be concluded that community empowerment is a sustainable process where the community is actively involved in decision-making and the implementation of development programs. An approach that places the community as a key actor and implements participation-based monitoring and strengthening is essential to creating an innovative and sustainable empowerment model. In addition, community empowerment is not only an effort for economic development but also includes social values, reflecting a more human-focused, participatory, empowering, and sustainable development paradigm.

3.3. Analysis of Partnerships Applied at IBEKA

Partnerships not only serve as funding channels but also as platforms for sharing knowledge and technology. The Partnership between IBEKA and MEMR is a clear example of cooperation that aims to improve energy access in underserved areas. In this situation, partnerships not only serve as a way to earn money but also as a place where people can exchange technology and knowledge (Nurjannah, 2023). Effective partnerships can save energy and resources.

In this study, IBEKA implements the Pro-Poor Public Private Partnership (P4**)** model through the Energy Patriot Program, which is a form of strategic Partnership between IBEKA and the Ministry of Energy and Mineral Resources (MEMR) of the Republic of Indonesia. The main goal of this Partnership is to accelerate electrification in disadvantaged villages through a collaborative program called Patriot Energi. The Patriot Energi program itself focuses on community empowerment through the placement of youth in 4T (Frontier, Outermost, Disadvantaged, and Transmigration) areas spread throughout Indonesia. The youth involved in

this program, referred to as "Patriots," play a role in assisting the community for 12 months in developing and maintaining renewable energy-based power plants, especially in areas that have not been reached by the electricity grid.

The Energy Patriot program begins with an intensive 45-day training that focuses on local energy utilization techniques and strategies as well as community empowerment approaches. This training emphasizes the development of four main competencies, namely: (1) sincerity, which trains Patriots to work with sincere intentions and make a real contribution to society; (2) struggle, which includes the fighting spirit in facing challenges in the field; (3) populism, which prioritizes the approach of community empowerment in every activity; and (4) technicality, which emphasizes the mastery of renewable energy technologies and their technical applications. The training curriculum includes social intervention theories and methodologies, renewable energy lessons in the classroom, wildlife survival training, mindfulness sessions, and live-in villages for social mapping practicums.

In this Partnership, IBEKA acts as the organizer of the training, which includes the recruitment of participants and Patriot Energy facilitators. IBEKA collaborates with various training speakers who are in line with the vision and mission of the Ministry of Energy and Mineral Resources and IBEKA. Until 2021, as many as 261 scholars have been trained and assigned for 12 months in the 4T region and in other regions spread across 18 provinces throughout Indonesia. A total of 260 villages have been assisted in various development programs, including Microhydro Power Plants (PLTMH), Solar Power Plants (PLTS), MSME development, and other educational activities.

The Ministry of Energy and Mineral Resources acts as the main fund provider in the Patriot Energi program, ensuring the continuity and success of the program through financial support that enables the implementation of the program in various hard-to-reach areas. The program not only focuses on providing technology but also integrates aspects of community empowerment to ensure long-term sustainability.

Since it was first launched in 2015, this program has gone through several implementation cycles, namely in 2016 and 2021, and is planned to be implemented again in 2024. Each cycle of the program has a significant impact on increasing the electrification ratio in disadvantaged areas while strengthening the local economy and technical capacity of local communities.

3.4. The Role of Partnership in Community Empowerment

Partnerships between the Ministry of Energy and Mineral Resources, local communities, cooperatives, and foundations such as IBEKA in the development of renewable energy have proven to be able to accelerate the process of community empowerment. The Kamanjara and Kalilang PLTMH in East Sumba provides a clear example of how this Partnership contributes to the welfare of the community through the provision of electricity not only for household needs but also to support the agricultural sector with the use of irrigation pumps.

"It is very felt that the electricity supplied by this PLTMH not only provides lighting for our houses but also supports agricultural activities. For example, the irrigation pumps we use for rice fields are very helpful in increasing crop yields" (interview with E.K and R).

The construction of the PLTMH involves the active participation of the community, including in the construction process and material transportation, showing that the development of energy infrastructure also provides opportunities for the community to be directly involved. The traditional methods used in transporting materials show that these partnerships value and leverage local wisdom, reinforcing a sense of ownership toward the project being developed.

"Yes, many villagers, both men and women, are involved. We assist in the construction of distribution lines, transformers, and turbines. To transport heavy tools, we used ancient methods, similar to the way sarcophagi was transported in the past" (interview with F)

The Jasa Peduli Kasih Kamanggih Cooperative, which manages this PLTMH, also plays an important role in maintaining the sustainability of the project. Cooperative-based management allows the community to be economically and technically independent and ensures that the benefits obtained from these renewable energy facilities are still felt by the community in the long term. The success of this cooperative in managing previous PLTMH, such as the Mbakuhau PLTMH and small-scale wind turbines, is proof that community empowerment through partnerships in the renewable energy sector can be managed sustainably.

"Our cooperative is fully responsible for operation and maintenance. We also have previous experience with the Mbakuhau PLTMH and wind turbines in East Sumba. Through the cooperative, we can ensure that the facility continues to run well and provides electricity to more than 350 households" (interviews with A.M and T.I).

"With cooperatives, the community is able to manage local resources independently. Cooperative members are trained to operate and maintain the system, so the technical ability of the community is also improved. In addition, the operational results are used

for local economic empowerment activities" (interviews with patriots and facilitators).

The impact of the energy patriot program is the sustainability of the country's patriot program: Building Community Empowerment-Based Villages. The State Patriot Program in Berau Regency, East Kalimantan, which took place in 2017-2018, is also an important example of a partnership based on community empowerment. By involving 55 Patriots living in the village for one year, the program focuses on participatory mapping and data-driven development to plan village programs.

Patriot Negeri plays a role in various aspects of village development, such as the production of organic fertilizers, the application of biogas systems, and the assessment of the potential of micro hydropower plants. In addition, they are also involved in educational programs, creative economy initiatives, and the empowerment of village-owned enterprises. The program not only strengthens the technical capacity of the community in managing local resources but also builds awareness about the importance of sustainability through renewable Energy and environmental management.

In addition to partnering with the Ministry of Energy and Mineral Resources, such as the development of PLTMH in East Sumba, IBEKA also partners with large companies for renewable energy projects in various regions of Indonesia. For example, in 2018, PT Paiton Energy collaborated on the construction of a 30 kWp On-Grid Solar Power Plant (PLTS) at the An-Annuar Islamic Boarding School, Sumenep, East Java, and a 15 kWp On-Grid Solar Power Plant at SMA Negeri 8 Malang, East Java.

This Partnership not only helps in the provision of greener Energy but also promotes the sustainability of social programs, such as the empowerment of Islamic boarding schools and schools through stable access to electricity. Similarly, the collaboration with BAZNAS and Paragon in 2020, which produced 27 kWp of solar power plants for a clean water system in Sragen, Central Java, shows how renewable Energy can be a solution to the problem of access to clean water in rural areas.

Thus, partnerships in the development of renewable energy are not only about providing infrastructure but also about increasing the capacity and welfare of the community through active participation and management based on community empowerment.

3.5. Challenges and Solutions in the Implementation of Partnerships by IBEKA

In implementing partnerships for the development of renewable energy projects, IBEKA faces various challenges, including limited funding, community resistance, and regulatory constraints. Projects such as Micro Hydro Power Plants (PLTMH) and Solar Power Plants (PLTS) require large funds for infrastructure development, equipment procurement, and community training in facility management. Limited funds are an obstacle to accelerating project implementation in many regions, especially in the 4T (Frontier, Outermost, Disadvantaged, and Transmigration) areas.

In addition, resistance from local communities often arises, especially in remote areas that are not yet familiar with renewable energy technology. People's concerns about social disturbances or changes in daily activities are challenges that must be overcome. Projects such as Patriot Energi, which involves the placement of youth in remote areas, also face obstacles in terms of adaptation to local culture, lack of public understanding of the benefits of renewable Energy, and resistance to infrastructure change.

On the other hand, regulatory constraints are also a big challenge. Every renewable energy project requires complex licensing and involves various government agencies, both central and regional. This process is often time-consuming and requires extra effort from IBEKA and its partners to get approval.

IBEKA uses the Pro-Poor Public Private Partnership (P4) model, which is a strategic partnership between IBEKA and the Ministry of Energy and Mineral Resources (MEMR) through the Patriot Energi program to overcome limited funds. In this model, IBEKA has succeeded in collaborating with partners from the private sector, such as PT Paiton Energy and BAZNAS, who fund the construction of solar power plants in various regions. The Partnership brings together government, private, and community resources to finance renewable energy projects aimed at accelerating electrification in disadvantaged villages.

In addition to the funding aspect, IBEKA overcomes community resistance through a participatory and educational approach. In the Energy Patriots program, for example, youth called "Patriots" are placed in 4T villages for 12 months to assist communities in the development and maintenance of renewable energy power plants. Intensive training for 45 days was conducted before the Patriots were sent to the field. This training includes four main competencies: sincerity, struggle, people, and technicality. This approach ensures that the community is actively involved in the management of new energy technologies so that they feel they own and support the sustainability of the project.

IBEKA is also actively establishing close relationships with local governments and the Ministry of Energy and Mineral Resources to facilitate the licensing and regulatory process. Through effective communication with government agencies, IBEKA has succeeded in accelerating the licensing process for various renewable energy projects, such as PLTMH and PLTS. The governments direct involvement in programs such as Patriot Energi helps facilitate regulatory implementation, especially in hard-

to-reach areas.

4. CONCLUSION

This research highlights the importance of partnerships in the development of renewable energy based on community empowerment, with a focus on the Patriot Energy program initiated by IBEKA. Partnerships between IBEKA, the Ministry of Energy and Mineral Resources, and local communities have proven effective in improving energy access in disadvantaged areas in Indonesia. Through the Pro-Poor Public Private Partnership (P4) model, IBEKA has successfully integrated resources from the government, the private sector, and the community to fund sustainable renewable energy projects. Although challenges such as funding constraints, community resistance, and regulatory constraints exist, participatory and educational approaches have helped overcome these barriers. Community empowerment through training and direct involvement in energy project management not only strengthens local capacity but also improves the overall well-being of the community. Thus, partnerships in renewable energy development focus not only on providing infrastructure but also on capacity building and community well-being, making it a viable model to adopt in other regions.

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