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Energy Waqf and the Environmental Crisis: Advancing Islamic Philanthropy for Sustainability

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Abstract

This study examines energy waqf as an innovative Islamic philanthropic approach to addressing the growing environmental crisis. Using a literature review methodology, the research explores how religious beliefs, cultural values, and institutional trust influence community acceptance and participation in energy waqf initiatives. The findings reveal that strong religious commitment and cultural norms significantly motivate individuals to engage in such projects, which are widely perceived as acts of environmental stewardship and community service. Additional drivers of participation include emotional and psychological factors, awareness of waqf benefits, and confidence in the credibility of managing institutions. The study highlights the importance of public education and transparent governance in strengthening community involvement and ensuring the sustainability of energy waqf programs. These insights offer valuable guidance for policymakers, religious leaders, and development practitioners aiming to promote climate action through Islamic social finance. Energy waqf emerges not only as a philanthropic tool rooted in Islamic principles but also as a viable strategy for advancing renewable energy adoption and fostering environmentally conscious communities.

Keywords: Community Engagement, Energy Waqf, Environmental Crisis, Islamic Philanthropy, Sustainable Development

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Introduction

Global environmental challenges—such as climate change, resource depletion, and ecological degradation—have emerged as pressing threats to humanity (Allah Pitchay et al., 2018; Amaliah et al., 2024; Anam et al., 2022; Asni et al., 2020). In this context, the urgency for innovative and sustainable solutions is undeniable (Badolo, 2024; Chaves et al., 2022). One promising yet underexplored Islamic philanthropic mechanism is energy waqf—a model that integrates renewable energy development with the enduring values of fto empower communities while addressing environmental concerns (Amaliah et al., 2024; Dewananda et al., 2023; Muhdlor, 2024; Rusydiana, Sukmana, Laila, & Ali, 2024; Sarango-Lalangui et al., 2023). Despite its potential, the concept and application of energy waqf remain limited in both academic understanding and real-world implementation.

Existing research highlights the promise of energy waqf in expanding access to renewable energy and generating positive socio-economic outcomes (Anam et al., 2022; Muhdlor, 2024; Siswantoro, 2023). However, many initiatives suffer from limited community engagement and lack of public awareness. Moreover, a persistent gap exists between Islamic philanthropic values and the practical realities of modern energy systems, often hindering effective implementation (Asni et al., 2020). Much of the current scholarship focuses narrowly on technical and financial frameworks (Paul et al., 2021; Siswantoro, 2023), overlooking the socio-cultural dimensions that shape community reception. Several studies have observed that energy waqf efforts frequently misalign with local values, suggesting the need for more context-sensitive approaches (Allah Pitchay et al., 2018; Amaliah et al., 2024; Asni et al., 2020; M. S. M. Khan et al., 2023).

This critical gap in the literature underscores the need to move beyond technocratic perspectives and examine the human dimensions of energy waqf implementation. While energy waqf is widely acknowledged as a promising tool for sustainable financing, its success ultimately depends on a nuanced understanding of local values, community perceptions, and participatory mechanisms (Allah Pitchay et al., 2018; Amaliah et al., 2024; Asni et al., 2020; M. S. M. Khan et al., 2023) Neglecting these contextual factors risks the development of initiatives that are misaligned with community needs and expectations, leading to resistance or indifference rather than enthusiastic adoption. Therefore, there is an urgent need for research that explores the socio-religious and institutional foundations required for energy waqf to flourish as a transformative force for sustainable development.

This study addresses a significant gap in the literature on Islamic philanthropy—particularly its underutilization in responding to environmental degradation and the global energy transition. Although waqf has traditionally supported sectors such as education, healthcare, and religious infrastructure, its strategic potential in tackling ecological challenges and supporting renewable energy remains underdeveloped. The concept of energy waqf, which involves the endowment of assets to finance clean energy solutions, offers an innovative mechanism to mitigate climate change and contribute to the achievement of Sustainable Development Goals (SDGs). However, its integration into Islamic social finance frameworks and local community development plans is still minimal.

The objective of this study is to explore how energy waqf can be effectively integrated into society by examining the social, cultural, and institutional dynamics that shape its acceptance and implementation. Specifically, it seeks to address three key questions: (1) What is the conceptual foundation of energy waqf in responding to the environmental crisis? (2) What factors motivate individuals and communities to participate in energy waqf initiatives? (3) How do institutional actors—such as Islamic philanthropic bodies, government agencies, and local leaders—support and shape the development of energy waqf projects?.

This study argues that the successful implementation of energy waqf as a sustainable response to environmental challenges is closely tied to context-sensitive understandings of the socio-cultural fabric of targeted communities. Communities with strong collectivist norms and heightened environmental awareness are more likely to support energy waqf initiatives. For such programs to be effective and sustainable, they must be backed by robust infrastructure, increased energy literacy, and collaborative partnerships between religious institutions and local actors. Furthermore, the alignment of waqf objectives with indigenous cultural values emerges as a critical determinant of community acceptance and program sustainability. By foregrounding the interplay between socio-religious dynamics, community-based values, and institutional structures, this study advances theoretical discourse within the fields of Islamic social finance and environmental governance, while offering practical insights for policy formulation. The novelty of this research lies in its conceptual integration of waqf-based renewable energy solutions with socially embedded models of community engagement—a perspective that remains largely underdeveloped in existing literature.

Literature Review

The Concept of Waqf in Islam

Waqf, an established Islamic financial institution, has historically served as a crucial decentralized mechanism for financing public goods such as educational and healthcare facilities, and fostering social welfare. Its inherent eternal nature makes it a highly suitable instrument for sustainable development, ensuring benefits for future generations, a notion supported by various studies (Kabisch et al., 2017; Kailani & Slama, 2020; M. K. Khan et al., 2023). Waqf encompasses several types, including property, cash, and charitable endowments, with research increasingly exploring contemporary applications like "Green Waqf" for environmental sustainability and analyzing factors influencing cash waqf contributions through frameworks like the Theory of Planned Behavior (Amaliah et al., 2024; Anam et al., 2022). The core function of waqf in redirecting private assets for communal benefit underscores its significant potential in socio-economic development and achieving broader societal goals, as consistently demonstrated in scholarly investigations.

The application of waqf theory is prominently seen in research on productive waqf models, particularly within Islamic educational institutions like pesantren. Studies in this area, such as that by Makhrus (2018), illustrate how waqf assets can be managed to generate income for reinvestment in community development, thereby amplifying their social impact (Medias et al., 2022). These investigations highlight the relationship between effective waqf management—emphasizing professionalism, transparency, and accountability—and the successful sustenance of institutions and empowerment of communities (Rusydiana, Sukmana, Laila, & Ali, 2024). Further research connects waqf directly to community empowerment and the achievement of Sustainable Development Goals, proposing innovative models like waqf-based microfinance and its utilization for public infrastructure, thereby demonstrating the dynamic and evolving application of waqf principles in addressing contemporary societal needs and fostering long-term, positive social change (Kumar et al., 2024).

Energy Waqf: Definition and Relevance

The concept of energy waqf, which involves dedicating endowment funds towards renewable energy initiatives like solar or wind power, represents a significant innovation within Islamic finance, merging the traditional institution of

waqf with urgent contemporary environmental and energy transition imperatives. This approach is designed to establish sustainable energy infrastructures that yield societal benefits, curtail reliance on fossil fuels, and actively contribute to global climate change mitigation efforts. For instance, studies suggest that leveraging waqf for solar energy adoption can significantly address climate change and promote socio-economic justice in Islamic communities by reducing dependence on fossil fuels and thereby diminishing greenhouse gas emissions, aligning environmental sustainability with Islamic principles of social justice (Ari & Koc, 2021). This perspective situates energy waqf not merely as an economic tool but as an ethically grounded mechanism for addressing pressing global challenges.

The academic discourse surrounding waqf applications in the environmental and energy sectors has expanded significantly, with "Green Waqf" emerging as a prominent theoretical framework that encompasses energy waqf. Green Waqf is conceptualized as the utilization of waqf assets to promote ecological balance, environmental stewardship, and sustainability, often explicitly including renewable energy projects (Dal Brun et al., 2023; Othman et al., 2025). Numerous studies have explored the practical implementation and theoretical underpinnings of this concept. For example, research on productive waqf for rural electrification via solar home systems in Indonesia demonstrates its viability and positive socio-economic impacts, such as enhancing community well-being and energy access (Niswah et al., 2024). This study, like others, highlights how waqf, through cash, asset, or land endowments, can overcome funding limitations for renewable energy projects. Similarly, research by Ari & Koc (2021) had earlier proposed waqf-based alternative financing models for renewable energy investments, underscoring the long-term social implications, balanced economic growth, and environmentally friendly nature of such projects.

Furthermore, the relationship between waqf and broader sustainable development, particularly concerning energy transition and climate action, is a recurrent theme. Studies have discussed cash waqf schemes as a means to support an equitable energy transition, emphasizing its potential to reduce costs and increase community access to renewable energy, for example, in the transportation sector (Dal Brun et al., 2023; Putra et al., 2024). These studies often connect the application of waqf to achieving the Sustainable Development Goals (SDGs), particularly those concerning affordable and clean energy (SDG 7) and climate action (SDG 13) (Sukmana & Rusydiana, 2023).The literature also acknowledges the inherent compatibility between Islamic finance principles—such as justice,

equity, and stewardship (khalifah)—and the objectives of green financing and renewable energy development, exploring the nexus between Islamic finance, the green economy, and renewable energy initiatives (Siswantoro, 2023). For example, the Green Waqf framework, analyzed through models like the balanced scorecard, is explicitly intended to help achieve sustainability goals, adapt to climate change, and meet energy needs in a low-carbon manner (Mahsun et al., 2022). While the potential is vast, researchers also identify challenges, including issues in governance, financial integration, stakeholder awareness, and legal and administrative hurdles that must be addressed to effectively manage and scale up energy waqf initiatives (Othman, Sheh Yusuff, & Md. Hussain, 2025). Thus, the body of research collectively demonstrates a growing academic and practical interest in leveraging the waqf model as an innovative and ethically consistent financial instrument to advance renewable energy deployment and contribute to a sustainable global future.

Environmental Crisis

The contemporary epoch is characterized by escalating environmental crises, including climate change, biodiversity attrition, and the depletion of natural resources, predominantly precipitated by unsustainable anthropogenic activities, with regions like Indonesia experiencing alarming degradation (M. S. M. Khan et al., 2023). In response, the Islamic institution of waqf—a perpetual charitable endowment—emerges as a potent, ethically grounded financial instrument for environmental remediation and sustainable development. Fundamentally, waqf involves the permanent dedication of an asset by a donor (wāqif) for specified charitable purposes, its corpus becoming inalienable and its usufruct perpetually directed towards designated beneficiaries or causes. The inherent perpetuity and social welfare orientation of waqf render it uniquely suited to address long-term environmental concerns, a potential increasingly underscored in contemporary Islamic finance and development literature (Sukmana & Rusydiana, 2023).

A burgeoning corpus of scholarly investigation systematically explores the nexus between waqf and environmental stewardship, often conceptualized as "Green Waqf," which leverages waqf assets for ecological balance and sustainability. Othman et al. (2025) analyze Green Waqf as pivotal for achieving Sustainable Development Goals (SDGs) by funding afforestation, renewable energy, and sustainable urban projects, aligning with broader initiatives like the UNDP's Green Waqf Framework in Indonesia. Specific applications include "waqf forests,"

extensively examined by Nour Aldeen et al., (2022) for forest preservation and SDG achievement, detailing productive models yielding both economic and ecological benefits. Further studies by (Paul et al., 2021) explore optimal site selection for such forests, while Setzer & Vanhala (2019) emphasize their role in upholding inter-generational environmental justice.

The utility of waqf extends beyond traditional charitable purposes to include financing for renewable energy and innovative environmental technologies. Research by Hasan & Syahruddin (2022) highlights the potential for enhancing Green Waqf to support carbonization technology in waste management and renewable energy generation. Concurrently, other studies explore the role of waqf institutions in accelerating the adoption of green technologies (Shabliy & Kurochkin, 2022), demonstrating their catalytic potential in promoting environmentally sustainable investments.

Philanthropic capital channeled into tangible environmental projects—such as reforestation, renewable energy infrastructure, and sustainable agriculture—can transform waqf into a durable mechanism for resource conservation and environmental justice. The intrinsic alignment between Islamic philanthropic values and environmental preservation further strengthens waqf's relevance as a driver of global sustainability. Increasingly, waqf is being recognized as a dynamic tool for advancing environmental stewardship through community-led, faith-driven initiatives.

Methods

This study employs a qualitative research design grounded in a systematic literature review approach, aimed at constructing a conceptual understanding of energy waqf as an innovative modality within Islamic philanthropy to address the escalating global environmental crisis. The analysis was conducted by synthesizing secondary data derived from scholarly publications, including peer-reviewed journal articles, academic monographs, and authoritative reports relevant to the intersection of waqf, renewable energy, and environmental sustainability. A comprehensive literature search was undertaken across leading academic databases—Scopus, Web of Science, and Google Scholar—to ensure both the depth and credibility of the sources. The temporal scope was delimited to publications issued between 2015 and 2024, reflecting the most recent developments in theory and practice. The search strategy incorporated targeted keywords such as "energy

waqf", "Islamic philanthropy", "renewable energy", and "environmental sustainability" (Candra Susanto et al., 2024).

The selection of sources followed explicit inclusion criteria: (1) thematic relevance to energy waqf and its environmental applications; (2) scholarly credibility of the authors and publication outlets; and (3) the potential of the study to contribute conceptual or empirical insights into sustainable philanthropic frameworks. Conversely, publications focusing exclusively on generic waqf discourse devoid of environmental or energy-related dimensions were systematically excluded to maintain analytical focus (Medias et al., 2022). To analyze the selected literature, a thematic analysis was employed, allowing for the identification of recurring conceptual patterns, critical issues, and gaps in the literature. This analytical process was informed by the theoretical lens of Islamic environmental ethics, which articulates principles such as *amanah* (trusteeship), *maslahah* (public interest), and *'adl* (justice) as foundational to interpreting the role of energy waqf in promoting environmental sustainability and intergenerational equity. This normative framework guided both the selection of literature and the interpretation of its findings within a value-based epistemology rooted in Islamic thought.

Result and Discussions

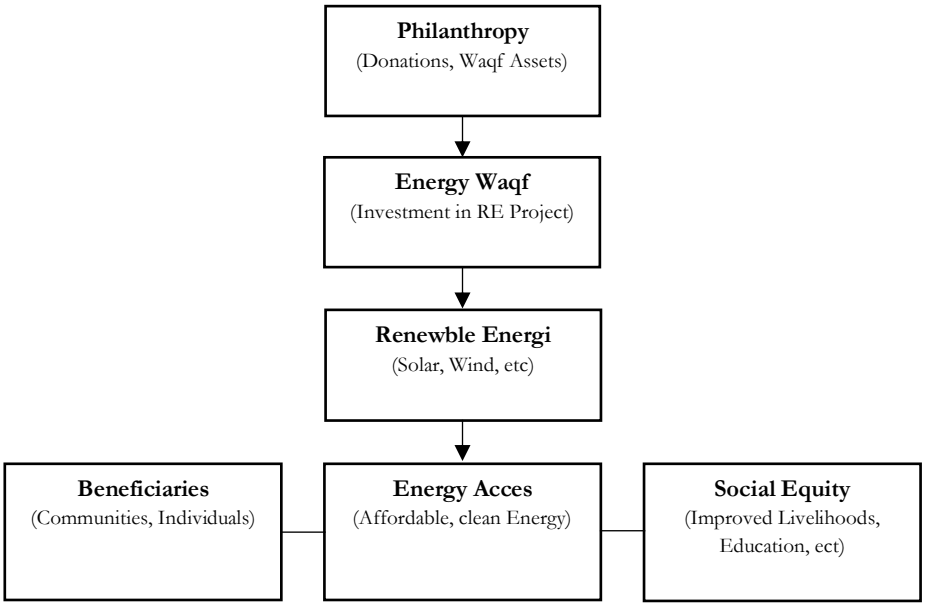
The Fundamental Concept of Energy Waqf in Addressing the Environmental Crisis

Energy waqf represents an innovative Islamic philanthropic instrument, meticulously designed to fund renewable energy projects such as solar panels and wind turbines, thereby synergizing traditional endowment principles with contemporary environmental imperatives (Khan et al., 2023). This model aims to establish sustainable energy sources that benefit communities, mitigate fossil fuel dependency, and contribute to climate change abatement efforts (Khan et al., 2023; Makhrus, 2018). The relevance of energy waqf is further underscored by its dual capacity to address environmental degradation and promote social justice, particularly by facilitating affordable energy access for vulnerable populations, aligning with Sustainable Development Goals (SDGs) (Anam et al., 2022; Nurul Huda et al., 2023) Moreover, it holds an intrinsic potential to stimulate economic development by leveraging the Islamic financial sector for renewable energy

investments, thereby fostering local economies and job creation (Azwar, 2023; Nour Aldeen et al., 2022).

The following diagram illustrates the nexus between energy waqf, philanthropy, renewable energy, and social equity (see Figure 1):

Figure 1 . Conceptual Model of Energy Waqf



This model illustrates how energy waqf, funded by philanthropic contributions, facilitates investment in renewable energy projects. These projects, in turn, generate clean energy, enhance energy access, and ultimately foster social equity.

The successful implementation and sustainability of energy waqf initiatives are significantly contingent upon community engagement and motivation, a dynamic explicable through established socio-psychological frameworks. The Theory of Planned Behavior (TPB) offers a robust lens for analyzing community participation, positing that individuals' intentions to support energy waqf projects are shaped by their attitudes towards such initiatives, subjective norms emanating from their social environment, and their perceived behavioral control over contributing (Ajzen, 1991). Concurrently, Social Capital Theory highlights the pivotal role of strong social networks, reciprocal norms, and communal trust in

mobilizing collective resources and fostering participative governance essential for the longevity of these projects (Riani & Fatoni, 2022; Rusydiana, Sukmana, Laila, & Sanrego, 2024). Thus, understanding these behavioral and social antecedents is critical for designing effective community-centric energy waqf models.

Beyond community dynamics, the viability of energy waqf as a sustainable funding mechanism is inextricably linked to institutional trust and robust governance structures. Trust Theory elucidates that public willingness to contribute through waqf is profoundly influenced by the perceived competence, integrity, and transparency of the waqf management institutions (nazhir) responsible for administering these energy projects (Azwar, 2023; Nour Aldeen et al., 2022). Consequently, the establishment and maintenance of trustworthy governance are paramount for attracting endowments and ensuring the efficient deployment of resources towards achieving the intended environmental and social outcomes. This synthesis suggests that energy waqf operates as a complex socio-technical system, where technological innovation must necessarily converge with social acceptance and resilient institutional frameworks.

While the extant literature consistently highlights the multifaceted potential of energy waqf (Khan et al., 2023; Riani & Fatoni, 2022; Rusydiana, Sukmana, Laila, & Ali, 2024), a discernible lacuna exists in empirical research that rigorously investigates the interplay of these theoretical constructs—TPB, Social Capital, and Trust—within specific energy waqf contexts. The call for further research and innovation (Riani & Fatoni, 2022; Rusydiana, Sukmana, Laila, & Ali, 2024) is therefore particularly salient in this regard. Future scholarly endeavors should prioritize empirical validation of these frameworks to cultivate evidence-based strategies. Such research would significantly enhance the efficacy of energy waqf in realizing its dual promise of fostering environmental sustainability and advancing social equity, thereby strengthening commitment to social justice within sustainable development paradigms.

Motivations for Community Participation in Energy Waqf

The concept of energy waqf, which integrates Islamic philanthropic principles with renewable energy initiatives, offers significant potential for mobilizing community participation in addressing contemporary environmental challenges. A profound comprehension of the multifaceted individual motivations for contributing to energy waqf, and particularly how these motivations interact, is crucial for enhancing its effectiveness and sustainability.

Community identity and collaboration also play an essential role in increasing participation in energy waqf. According to (Rusydiana, Sukmana, Laila, & Ali, 2024; Shabliy & Kurochkin, 2022) a sense of belonging to a community can motivate individuals to contribute, where they feel a shared responsibility in facing environmental challenges. Trust in the organization managing the energy waqf project, as (Mohamed & Akande, 2025) highlighted, is essential to building community support. On the other hand, as (Anam et al., 2022) explained, awareness and education are critical elements in increasing community knowledge about the benefits of energy waqf and renewable energy.

In addition, emotional and psychological factors—such as empathy and compassion for those affected by environmental issues—can strengthen individual engagement in energy waqf initiatives (Asni et al., 2020). Perceptions of contribution effectiveness also play a significant role, as individuals are more inclined to participate when they believe their involvement will lead to meaningful impact (Allah Pitchay et al., 2018). Social media engagement can broaden the reach and raise public awareness of these projects. At the same time, good policy support, as outlined by Amaliah et al. (2024), will encourage more participation in renewable energy initiatives. When these factors are effectively integrated, energy waqf has the potential to serve as an innovative and impactful response to contemporary environmental challenges.

The Role of Institutions in Supporting the Implementation of Energy Waqf

The concept of energy waqf, which integrates Islamic philanthropic principles with renewable energy initiatives, is increasingly recognized for its potential to address environmental challenges while promoting social welfare. Research indicates that an individual's religious commitment and beliefs significantly influence their intention to participate in energy waqf. Although some studies suggest that religiosity does not always have a significant effect, strong religious values can motivate individuals to contribute to energy waqf projects as part of their moral obligation to support the community and protect the environment (Khan et al., 2023). Therefore, implementing energy waqf should consider cultural norms and community identity, as initiatives aligned with local values tend to receive greater support (Makhrus, 2018). For instance, in Indonesia, the establishment of solar-powered *pesantren* (Islamic boarding schools) funded by

waqf demonstrates how aligning renewable energy projects with religious and cultural contexts can enhance community engagement.

Trust in waqf institutions also significantly impacts community participation. When community members trust the organization managing the energy waqf project, they are more likely to donate their resources (Nurul Huda et al., 2023). This trust is fostered by transparent and accountable governance mechanisms. Effective governance, as highlighted by the establishment of independent supervisory boards and regular audits in Malaysian waqf institutions, ensures that donations are managed in accordance with the donors' intentions and Sharia principles. Furthermore, knowledge and awareness of the benefits of energy waqf and the alignment of this initiative with Islamic teachings are vital factors that encourage participation (Azwar, 2023). Effective educational campaigns, such as those conducted by the Indonesian Waqf Board (Badan Wakaf Indonesia), can increase community understanding of the importance of energy waqf in promoting sustainability and encourage greater involvement.

Emotional and psychological factors also play a role in influencing participation in energy waqf. Empathy towards those affected by environmental issues can motivate individuals to engage in these initiatives (Dal Brun et al., 2023; Dewananda et al., 2023). Moreover, appropriate policy support and incentives from the government can encourage community involvement in energy waqf projects, creating an environment that supports participation (Kailani & Slama, 2020; Kumar et al., 2024). For example, government subsidies for waqf-funded renewable energy projects in several Middle Eastern countries have significantly increased their adoption (Mohamed & Akande, 2025).

Governance mechanisms play a critical role in determining the success of energy waqf initiatives. Effective institutional structures—such as clearly defined roles and responsibilities for trustees (*nazir*), transparent financial reporting, and strong oversight—are essential for fostering trust and ensuring long-term sustainability. In contrast, weak governance marked by insufficient accountability and a lack of transparency can undermine the effectiveness of energy waqf programs and deter community participation.

Best practices in waqf governance typically include the separation of management and supervisory functions, active engagement of community stakeholders in decision-making processes, and the application of professional management standards. When governance is anchored in cultural and religious values, paired with community empowerment and institutional integrity, energy

waqf has the potential to address sustainable energy needs while simultaneously advancing social and economic development (Putra et al., 2024).

Conclusion

Energy waqf emerges as a promising Islamic philanthropic innovation that not only offers practical and sustainable responses to the environmental crisis but also fosters deeper integration between religious values and ecological imperatives. Rooted in the traditional principles of waqf, this model supports renewable energy initiatives that mobilize community engagement in climate action and promote equitable access to clean energy, thereby reinforcing Islamic ideals of social justice. However, the success of energy waqf is not solely predicated on its environmental and religious merits; rather, it hinges on a complex interplay of psychosocial motivations, institutional trust, and collective behavioral dynamics. This study contributes to the theoretical discourse by synthesizing perspectives from the Theory of Planned Behavior, Social Capital Theory, and Trust Theory, thereby offering a multidimensional framework to understand participation in energy waqf initiatives. Despite its conceptual contribution, a key limitation of this study lies in its theoretical orientation, which lacks empirical testing. Future research should prioritize field-based investigations to validate the proposed framework, identify context-specific enablers and barriers, and formulate actionable strategies. Empirical insights can significantly enhance the governance, scalability, and contextual relevance of energy waqf, thereby positioning it as a viable instrument within the broader landscape of Islamic social finance for advancing sustainable development and climate resilience.

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