Ecological Restoration and Sustainable Development: The Impact of Wakaf Forest Institutions on Socio-Economic Benefits

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Abstract

Indonesia is enhancing forest landscapes, particularly in deforestation-affected areas, through wakaf forests to achieve environmental sustainability and community welfare. This study examines the ecological restoration processes within wakaf forests and offers policy recommendations. It investigates causal relationships affecting wakaf forest populations in Cibunian and Cibeureum villages using an ex post facto design and quantitative methods. Focusing on Cibunian beneficiaries, who generally possess higher education levels, the study explores the link between education and improved forest management. Data were collected via structured questionnaires and analyzed using Structural Equation Modeling (SEM). Findings reveal that the Wakaf Forest Institution significantly impacts the socio-economic benefits of the wakaf forest, contributing 26.4% to these benefits. Additionally, the institution enhances the ecological restoration of the wakaf forest by 13.9%. The path coefficient value indicates a positive influence on the sustainability of these socio-economic benefits. Hypothesis testing confirms a significant impact of the Wakaf Forest Institution, validating the alternative hypothesis (Ha). The Wakaf Forest Institution is a vital resource for the local community, offering sustainable forest management and generating income. Managed in accordance with Indonesian laws and Islamic Sharia regulations, the institution strategically selects sites to improve service access and enhance the forest's role in livelihoods. The study underscores the importance of higher education in improving forest management and suggests policy frameworks support educational initiatives alongside ecological projects. Implications advocate for community-based financial models and strategic partnerships to address environmental challenges and promote sustainable development.

Keywords: *Ecological Restoration, Sustainable Development, Wakaf Forest Institutions, Socio-Economic Benefits, Community Welfare.*

Introduction

Forest landscape restoration has become a critical focus in recent years, particularly for areas suffering from deforestation and degradation. In Indonesia, innovative approaches to this challenge are emerging through the use of wakaf (endowment) institutions. Wakaf forests represent a unique blend of environmental conservation and socio-economic development, where individuals or legal entities (wakif) can donate land or funds for ecological restoration efforts (Budiman, 2011; Yaakob et al., 2017). The management of these wakaf forests is governed by sharia principles and Indonesian law, ensuring the perpetual and irrevocable status of these lands (Al-Zuhayli, 1997; As-Sa'di, 2002; Al-anzi & Al-Duaij, 2004). This means that once land/forest is designated and registered as wakaf forest, its status and function must remain preserved for perpetuity (Ali, KM & Jannah, 2019).

The wakaf forest restoration scheme is managed on a non-profit basis on permanently owned land, aiming for environmental sustainability and community welfare (Hamdani & Pasummah, 2022; Ali, KM & Jannah, 2019). Wakaf Leuwueng Sabilulungan, located in Cibeureum Village, Bandung Regency, emphasizes environmental conservation through natural regeneration reforestation, silviculture, and crowdfunding. On the other hand, Bogor Wakaf Forest, situated in Cibunian Village, Bogor Regency, adopts a more diverse approach, including active reforestation, productive wakaf, land wakaf for forest, and crowdfunding. Both schemes involve various collaborative partners to achieve their goals. Wakaf Leuwueng Sabilulungan collaborates with the Bandung Regency Government, environmental activist communities, CSR of government and private enterprises, and the local community. Meanwhile, Bogor Wakaf Forest involves lecturers from the Bogor Agricultural Institute, Baznas, the local community, the Indonesian Wakaf Board (BWI), the Ministry of Religious Affairs, and the Ministry of Environment and Forestry. To strengthen

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their programs, these two schemes can learn from each other and collaborate, especially in diversifying program focus and involving more actors. Additionally, increasing public education on the importance of forest conservation and participation in wakaf programs can expand the positive impact of these two schemes (Setyorini et al., 2020; Ali, KM et al., 2021).

In Bandung Regency, the establishment of the Leuweung Sabilulungan wakaf was initiated by the local government by planting 50,000 tree seedlings in the Citarum River Basin. The planting of these tree seedlings produces economic and social goods that can be utilized by the local population. The Leuweung Sabilulungan wakaf forest area brings socio-economic benefits as it is developed with the support of local cultural wisdom and adapted to the characteristics of the forest landscape (Humas BWI, 2013). During certain times, various traditions and spiritual religious values, such as majlis taklim or the month of Ramadan, are involved in the planning and implementation processes to foster the belief in wakaf and support restoration activities in the wakaf forest areas (Ali, KM et al., 2021).

Forest landscape restoration practices tend to be less effective in enhancing collective action and social bonds within local communities when designing ecological restoration interventions that account for local economic conditions and opportunities (Maniraho, Leonidas, 2023; Ahammad, Ronju, 2023; Mansourian et al., 2017). Local cultural values, such as traditions and religious practices, integrate local wisdom practices that can contribute to the success of forest restoration and management (Kupika et al., 2019; Syahza, A., 2020). As demonstrated by Ali, KM et al. (2021), the potential of wakaf forests currently requires strengthened participation and collaboration of local communities to enhance the protection and management of wakaf forests, thereby providing greater socio-economic benefits for the community and the environment.

Despite the promising potential of wakaf forests, there are significant gaps in understanding their socio-economic impacts. Current studies often focus on the ecological and biophysical outcomes of forest restoration but fail to comprehensively address the socio-economic sustainability for local communities (IUCN & WRI, 2014; Sabogal et al., 2015; César et al., 2021). Moreover, there is limited research on the institutional capacity and governance structures necessary for long-term success (Van Oosten et al., 2014; Abman, 2018). This study seeks to fill these gaps by examining both the ecological restoration processes and the socio-economic impacts on local populations.

So far, studies on the development of wakaf forests tend to be based on the prospects of ecological and biophysical restoration outcomes for environmental sustainability and their potential for sustainable development purposes. Wakaf forest areas have significant potential in providing natural resources that benefit local communities. This can help increase productivity, income, and welfare for communities around the wakaf forest (Hamdani & Pasummah, 2022; Jannah et al., 2021; Arviannisa, T., 2021). By restoring the ecological functions of the forest, these efforts can promote economic development through various activities, such as agroforestry, reforestation, livestock and commercial farming, and tourism. (Ali., KM & Kassim, 2021; Setyorini et al., 2020).

The novelty of this research lies in its dual focus on both ecological and socio-economic dimensions of forest restoration through wakaf institutions. Unlike traditional studies that primarily address ecological outcomes, this study integrates local cultural values, traditions, and social dynamics into the analysis (Kupika et al., 2019; Syahza, A., 2020). Additionally, it highlights the challenges faced by non-profit organizations in terms of resource limitations, governance issues, and the need for robust stakeholder engagement (Chomba, S., et al., 2020; Rakatama & Pandit, 2020; Appanah et al., 2015; Walker et al., 2020).

The development of wakaf forests in Indonesia highlights the importance of studying the relationship between local communities and forests to achieve sustainable socio-economic development. Although there is significant potential in the socio-economic benefits of wakaf forests, the socio-economic limitations of local communities often contribute to deforestation. Therefore, ecological restoration needs to consider human capital, institutional frameworks, and local social and cultural aspects. This research aims to understand the factors that influence the socio-economic benefits and ecological restoration functions, as well as to provide practical policy recommendations. With a restoration framework that involves all

stakeholders, wakaf forests can be managed sustainably, supporting sustainable development in Indonesia. In this regard, the research question formulated is: To what extent do the direct and indirect influences of wakaf forest institutions affect the socio-economic benefits of wakaf forests.

The findings of this research have broader implications for forest management and socio-economic development in Indonesia and beyond. By providing a framework for understanding the complex interactions between institutional governance, ecological restoration, and community welfare, this study can inform policy makers, non-profit organizations, and local communities. The insights gained can help in designing more effective forest restoration programs that not only preserve the environment but also enhance the socio-economic well-being of local populations. Ultimately, this research contributes to the global discourse on sustainable development and the role of innovative institutional approaches in addressing environmental and social challenges.

Theoretical Review

Socio-Economic Benefits in Forest Landscape Restoration

Forest landscape restoration is a restoration process aimed at regaining ecological functions and enhancing human well-being in deforested or degraded forest landscapes (IUCN&WRI, 2014; Sabogal et al., 2015; Mansourian et al., 2017; César et al., 2021). his approach to forest landscape restoration is related to how the landscape is interpreted. This is because scientists describe the landscape as a heterogeneous mosaic of land uses, classified as a system of human-environment interactions, including old-growth forests, early successional forests, managed forests, and non-forest lands, including agricultural lands and degraded lands (Stanturf et al., 2017; Chazdon et al., 2017;Guariguata MR, 2021).

Investing in national-scale forest landscape restoration presents an opportunity to mitigate biodiversity loss, conserve natural habitats, and improve human well-being (Gourevitch et al., 2016). Prioritizing local communities in forest restoration efforts by granting them rights to manage and restore forests aligns with global agendas for climate mitigation, conservation, environmental justice, and sustainable development (Erbaugh et al., 2020). Furthermore, a systems approach framework for evaluating tree restoration interventions in rural tropical landscapes highlights the central role of FLR in achieving global restoration goals to reverse ecological impacts of land degradation and enhance human well-being (Pfeifer et al., 2022).

Forest landscape restoration has gained traction among decision-makers as a means to address contemporary land use, ecological, and social challenges (Mansourian et al., 2017). By optimizing investments in FLR, it is possible to maximize the multiple benefits derived from forest restoration efforts, such as improved ecosystem services and biodiversity conservation (Bian et al., 2021). Governments are increasingly promoting forest landscape restoration and management through financial incentives like payment for ecosystem services to meet reforestation commitments and support sustainable forest management (Patrick, 2023).

A landscape approach for cost-effective large-scale forest restoration involves assessing the biophysical and socio-economic costs and benefits of restoration in targeted landscapes to inform restoration strategies and investment decisions (Molin et al., 2018). Strategic pathways to scale up forest and landscape restoration focus on enhancing ecosystems and livelihoods at the landscape level, as demonstrated in various regions like Nepal and Ghana (Bhattarai et al., 2021; Guuroh, 2021). Long-term tracking of participatory forest restoration initiatives underscores the importance of socio-economic and institutional factors in ensuring sustainable restoration outcomes (Saxena et al., 2021).

Forest landscape restoration is a multifaceted approach that not only contributes to ecological restoration and biodiversity conservation but also offers significant socio-economic benefits to local communities. By prioritizing stakeholder engagement, optimizing investments, and promoting sustainable forest management practices, FLR can play a crucial role in achieving global restoration goals while enhancing human well-being.

Ecological Restoration in Support of Sustainable Development

Ecological restoration is a vital component in supporting sustainable development by focusing on repairing and rebuilding ecosystems to ensure their self-sustainability and biodiversity recovery. This approach is increasingly acknowledged as crucial for sustainable socioeconomic development, especially in developing nations (Aronson et al., 2010). In China, a co-evolutionary framework has been introduced to explain landscape-scale ecological restoration and its effects on landscape patterns, ecosystem services, sustainable livelihoods, and socioeconomic development (Fu et al., 2023). Multi-objective ecological restoration has been emphasized for its capacity to offer social-ecological benefits tailored to different demands, significantly contributing to sustainable development (Liu et al., 2022).

Globally, large-scale ecological restoration initiatives are widely accepted as effective strategies for addressing environmental crises and promoting sustainability (Li et al., 2017). By designing water-constrained ecological restoration patterns, it is feasible to enhance landscape sustainability, highlighting the significance of ecological restoration in improving overall landscape health (Wang et al., 2022). Emphasizing revenue-sustainable ecological restoration solutions at lower costs can aid in achieving regionally sustainable development from ecological, social, and economic perspectives (Wang et al., 2023). Watershed ecology restoration is identified as a pivotal solution for tackling ecological and environmental challenges in watersheds and attaining sustainable development (Liu et al., 2023).

Ecological restoration endeavors not only enhance ecological infrastructure but also align with sustainable economic development policies, underscoring the necessity for integrated planning and execution of conservation and restoration initiatives (Palmer & Ruhl, 2015). Ecosystem restoration, particularly in drylands, offers an opportunity to disrupt the cycle of ecological degradation and poverty, contributing to integrated sustainable development in social-ecological systems (Ying et al., 2021). The economic and employment impacts of forest and watershed restoration underscore the importance of ecological restoration programs in enhancing ecosystem services, meeting policy commitments, and promoting environmental sustainability (Nielsen-Pincus & Moseley, 2012).

Ecological restoration is a multifaceted approach that not only concentrates on ecosystem recovery but also plays a crucial role in supporting sustainable development by improving biodiversity, ecosystem services, and socio-economic well-being. By integrating diverse social and ecological motivations, collaborating with stakeholders, and prioritizing landscape-scale restoration, it is feasible to achieve multiple benefits that contribute to long-term sustainability.

Wakaf Forest Institutions

Wakaf forest institutions play a crucial role in promoting sustainable forest management and biodiversity conservation. The concept of wakaf forests involves dedicating forest lands for charitable purposes in Islamic tradition. Studies have shown that enhancing wakaf forest sustainability through practices like agroforestry can contribute significantly to the preservation and management of forest resources Jannah et al. (2021). Additionally, addressing institutional sustainability barriers in community conservation agreements is essential for effective collaboration in managing forest resources, as highlighted in the context of Lore Lindu National Park (Massiri et al., 2015). Furthermore, the synergy between social and ecological factors, particularly local rulemaking and forest livelihoods, can lead to positive outcomes for forest conservation and biodiversity, emphasizing the importance of community involvement and governance in sustainable forest management (Persha et al., 2011). By integrating traditional practices, community engagement, and effective institutional frameworks, wakaf forest institutions can play a pivotal role in ensuring the long-term conservation and sustainable use of forest resources.

In governance structure, the ownership status and legality, including land registration and ownership documents, provide a robust foundation for the wakaf forest institution (Jannah et al., 2020; Syawal, 2021). The organizational structure, comprising decision-making hierarchy, task distribution, member relationships, and activity monitoring and evaluation procedures, ensures the institution operates efficiently and effectively. Strategic planning, which involves establishing the vision, mission, goals, and action plans,

guides the long-term activities of the wakaf forest institution (Yaakob et al., 2017; Ali, KM., & Kassim, 2020). The human resources involved in the wakaf forest institution must possess relevant educational qualifications, skills, and experience. Transparency in the structure and financial management, covering income sources, budget allocation, and expenditure policies, enhances the accountability of the wakaf forest institution (Arviannisa et al., 2021; Ali, KM., & Kassim, et al., 2021). These factors collectively enhance the institution's effectiveness in fulfilling its functions and responsibilities.

Wakaf Forest Institution

The wakaf forest institution plays a crucial role in sustainable forest management. The existence of wakaf forests begins with the initiation of land endowments or community fundraising for the purchase of critical and potential lands, managed through forest conservation and productive activities, thereby providing benefits for forest sustainability and community welfare (Yaakob et al., 2017; Arviannisa, T., 2021). The role of institutions in landscape forest restoration depends on the extent to which various stakeholder groups are involved in the planning, implementation, and benefits of the forest landscape restoration (Berrahmouni et al., 2015; Chazdon et al., 2020). In this context, institutions encompass formal and informal rules that drive land use decisions through an adequate governance structure, strengthening institutional capacity, involving adaptive management systems, and advocating for policies and regulations (Chomba, S., et al., 2020; Ali, KM., & Kassim, 2020; César et al., 2021; Indrajaya et al., 2022).

Wakaf forest institutions refer to the organizational structure or entity responsible for the management, maintenance, and utilization of wakaf forests. This involves the establishment of a legal body and a clear governance structure to ensure the protection, sustainable management, and development of wakaf forests (Ali, KM., & Kassim, 2020; Jannah et al., 2020). The objective of wakaf forest institutions is to ensure that wakaf forests are well-managed according to sustainability principles, nature conservation, and community interests. This involves the formulation of policies, planning, program implementation, monitoring, and evaluation to achieve long-term goals in the restoration and utilization of wakaf forests (Hamdani & Pasummah, 2022; Ali, KM., Beik, et al., 2021). With strong institutional support, wakaf forests can be managed effectively, legal protection can be provided, and community and stakeholder participation can be maximized. Wakaf forest institutions also ensure good coordination among various parties involved, so that conservation, social welfare, and economic sustainability goals can be achieved in a balanced manner (Sup, 2021; Arviannisa et al., 2021).

Wakaf forest institutions can be relied upon to organize various forest landscape restoration activities to achieve the expected sustainable benefits. The socio-economic benefits attained are a crucial element in enhancing the status of the beneficiaries of the wakaf assets (Hanif, 2015; Shirazi et al., n.d.; Abdullah, 2018). In this context, the existence of wakaf forest institutions can increase income, create capital and job opportunities by enhancing the skills and economic empowerment of local communities (Ali, KM., & Kassim, 2020; Lamido & Haneef, 2021). According to Ali, KM., (2021), plants grown in wakaf forests will be more sustainable due to the wakaf land status. Additionally, the productive development of wakaf forests can be achieved by practicing the concept of agroforestry, which integrates agricultural and forestry programs within the same area. Zakat, infaq, and sadaqah can be used to empower communities around conservation areas to build their small businesses, support biodiversity conservation areas, and promote ecotourism.

Wakaf forest institutions tend to collaborate with local communities in the planning and implementation of restoration activities. Ecologically, nazhir (wakaf managers) and local communities can plant various types of trees on wakaf land. Economically, nazhir can manage environmentally friendly economic activities (Ali, KM., & Kassim, 2020). Ecological programs in wakaf forests can be synergized with reforestation activities that produce fruit trees, providing a source of food or income for the local community, thereby having economic value (Hamdani & Pasummah, 2022; Setyorini et al., 2020). Socially, nazhir can create training programs for natural disaster management. Wakaf forest nazhir can provide disaster education and outreach to the surrounding community. Moreover, the local community can be involved in forest preservation. Nazhir must be able to convince the local community that forests are crucial for preventing floods and landslides (Arviannisa, T., 2021; Ali, KM., & Kassim, 2020).

RESEARCH METHOD

This research employs an ex post facto design to identify causal relationships that may lead to changes in behavior, symptoms, or phenomena resulting from past events, behaviors, or factors affecting exogenous variables (Sukardi, 2013). A quantitative method approach is used, incorporating statistical analysis to empirically test the relationships between research variables. Specifically, the survey research method is utilized, with questionnaires serving as the primary research instrument. The study focuses on the beneficiary populations of wakaf forests in the villages of Cibunian and Cibeureum. Cibunian has a population characterized by higher education levels (53.88% have completed middle school), while Cibeureum has a lower education level (75.69% have only completed elementary school). This difference suggests that higher education levels in Cibunian may enhance participation in managing the wakaf forest, which is crucial for community sustainability and welfare. To ensure a representative sample, the study employs multistage sampling. In the first stage, the total sample is determined from the established population, and in the second stage, the sample is allocated proportionally to each object based on educational characteristics. The sample includes households around the wakaf forests in Bogor and Leuweung Sabilulungan in Bandung Regency. Additionally, purposive sampling selects 12 key informants, including local community leaders, village officials, and wakaf forest managers (Nazhir), with 2 individuals from each location.

Data is collected using structured questionnaires that measure socio-economic status, ecological conservation efforts, community participation, and social modality in rural areas. The study employs SEM (Structural Equation Modelling) analysis techniques, operated through the PLS 3 program, to test hypotheses and uncover social phenomena. The SEM approach involves examining the relationship between each indicator and its latent variables (outer model), assessing the model's predictive relevance (Q2), Goodness of Fit Index (GFI), and R-Square (R^2) (model fit analysis), and analyzing the strength and direction of the influence between variables, both directly and indirectly (path analysis). Hypotheses are tested using the t-test to determine the relationships between variables, with the criterion for rejection being if t-calculated > t-table or p-value < α, with α set at 0.05 for this study. While the current methodology is robust, several enhancements could strengthen the study. Including a larger and more diverse sample could provide more comprehensive insights. Incorporating qualitative data, such as interviews and focus groups, could enrich the understanding of underlying factors influencing participation in wakaf forest management. Conducting a longitudinal study could better capture the dynamic changes and long-term impacts of education and other variables on community participation and forest management. Utilizing Geographic Information Systems (GIS) could offer spatial analysis of the relationship between forest cover changes and socio-economic factors, providing a visual representation of the impact of wakaf forests. Implementing these recommendations could provide deeper insights and more actionable data to enhance the management and sustainability of wakaf forests.

RESULTS AND DISCUSSION

The Overview of the Research Location

Wakaf forests, initiated by interconnected communities, are funds-sourced from wakaf to restore deforested and degraded landscapes. These forests, located near community settlements, ensure forest function preservation and prevent land repurposing. Nazhir (wakaf forest foundations) manage these forests to ensure continuous benefits for surrounding communities.

The Bogor Wakaf Forest Foundation, located in Cibunian Village, Pamijahan District, Bogor Regency, manages the wakaf forest to prevent frequent landslides. Established in 2018, the foundation reforested 1,500 square meters of land in Kampung Muara Satu, Cibunian Village, focusing on tree species selection for ecological, economic, and social benefits. Banyan trees are prioritized for their strong roots, while at least 30% of native plants are chosen for their health benefits. The foundation also accepts tree seed

donations from the community, which are used for wakaf management and development. The foundation implements an agroforestry system to help local communities earn income without harming the forest. This approach combines agricultural and forestry plants, creating informal sector jobs and improving the livelihoods of local residents. The three wakaf forest zones are open for ecotourism, with lodging facilities and micro-business shops for local residents. The restoration of the forest is supported by the social and cultural aspects of the local community, aligned with Islamic principles. The foundation supports various group efforts, including empowering local communities through activities like sheep farming, carp farming, vegetable planting, MSME product management, and disaster response.

The Leuweung Sabilulungan Wakaf Forest, located in Pasir Munding Hamlet, Cibeureum Village, Kertasari District, West Java Province, was established in 2013 by the Bandung Regency Government to restore critical lands and the Citarum River Basin. The foundation has acquired 4 hectares of wakaf land, managed collaboratively with the community, including a terraced demonstration plot. The initiative was initiated by the government to address environmental degradation in the village, which is known for producing horticultural vegetables. The foundation promotes collaboration and mutual assistance among stakeholders, promoting unity and support in maintaining the forest ecosystem. Over 21,000 wood and fruit-bearing plants have been planted in silvicultural activities, providing optimal benefits for forest landscape restoration. Participatory management of the forest offers income generation opportunities, job opportunities in ecosystem maintenance, and a healthy environment for local residents.

Characteristics of Respondents

This research examines the profile data of local community beneficiaries of wakaf forests, including Bogor Wakaf Forest and Leuweung Sabilulungan Wakaf Forest, including heads of households, village officials, community leaders, and wakaf forest managers. The data includes gender, age, education level, employment status, and homeownership status to understand their characteristics. They are shown in Table 1 below:

Table 1 Respondent Characteristics: Gender, Age, and Education

Characteristics	Bogor Wakaf Forest (a)		Leuweuang Sabilulungan Wakaf Forest (b)		Total (a+b)	
	n	(%)	n	(%)	n	(%)
Gender						
Male	202	88	116	89	318	84
Female	28	12	14	11	42	16
Total	230	100	130	100	360	100
Age						
32-44	22	10	9	7	31	8
45-56	167	72	87	67	254	71
57-70	41	18	34	26	75	21
Total	230	100	130	100	360	100
Last Education						
Elementary School	84	37	93	72	177	49
Middle School	119	52	15	12	134	37
High School	17	7	12	9	29	8
University	10	4	10	7	20	6
Total	230	100	130	100	360	100%

Source: Processed Primary Data (2024)

The majority of respondents in the Bogor Wakaf Forest and Leuweung Sabilulungan Wakaf Forest are male, aged 45-56, with primary and middle school education being the most common. The majority benefit from the wakaf forest, with 49% having primary school and 37% having middle school. The majority of respondents in the Bogor Wakaf Forest and Leuweung Sabilulungan Wakaf Forest are self-employed, with

87% and 75% respectively. Most respondents do not work in the wakaf forest, with 66% in the Bogor Wakaf Forest and 72% in the Leuweung Sabilulungan Wakaf Forest. The majority of respondents live within 1 kilometer of the forest, with 57% living within 1 kilometer and 72% in the Leuweung Sabilulungan Wakaf Forest. Only a small percentage live more than 2 kilometers away. The majority of respondents are self-employed, with 61 employees and 67.78% not working in the wakaf forest.

Table 2 Respondent Characteristics: Employment Status, Working in the Wakaf Forest, and Distance from Home to the Wakaf Forest

Characteristics	Bogor Wakaf Forest (a)		Leuweuang Sabilulungan Wakaf Forest (b)		Total (a+b)	
	n	(%)	n	(%)	n	(%)
Employment Status						
Self-Employed	201	87	98	75	299	83,06
Employee	29	13	32	25	61	16,94
Unemplyed	-	-	-	-	-	-
Total	230	100	130	100	360	100
Working in Wakaf Forest						
Yes	79	34	37	28	116	32,22
No	151	66	93	72	244	67,78
Total	230	100	130	100	360	100
Distance from Home to Wakaf Forest						
< 1 KM	132	57	27	20	159	44,17
1 KM-2 KM	84	37	93	72	177	49,17
2 KM-3 KM	11	5	9	7	20	05,55
>3 KM	3	1	1	1	4	01,11
Total	230	100	130	100	360	100

Source: Processed Primary Data (2024)

Research Findings Analysis

Descriptive Analysis

Descriptive analysis is a statistical method used to analyze data distribution by calculating mean, standard deviation, and coefficient of variation percentage. It assesses respondents' achievement levels using criteria like Excellent, Good, Fair, Poor, and Very Poor. Latent variables, which cannot be directly measured, are considered valid and reliable for further data analysis.; Description of the Wakaf Forest Institutional Variable (X1). The latent variable of Wakaf Forest Institution measured in this study consists of four manifest variables: governance structure, institutional capacity, adaptive management systems, and policy and regulation advocacy. These manifest variables have passed the pre-test stage. The description of the wakaf forest institutional variable is as follows:

The latent variables of Wakaf Forest Institution measured in this study consist of four manifest variables: governance structure, institutional capacity, adaptive management system, and policy and regulation advocacy. These manifest variables have undergone a pre-test stage. The descriptive results of the wakaf forest institutional variables are as follows:

Table 3 Frequency Distribution of Wakaf Forest Institutional Variables

No	Manifest Variable	Statement	Mean	TCR	Des	STDEV

1	Governance Structure	S1	4.31	86.2	Good	0.771
		S2	4,38	87,6	Good	0,677
		S3	4,28	85,6	Good	0,782
		S4	4,45	89,6	Good	0,665
		S5	4,37	87,4	Good	0,734
		Average	**4,37**	**87,55**	**Good**	**0,7145**
2	Institutional Capacity	S1	4,39	87,8	Good	0,704
		S2	4,44	88,8	Good	0,656
		S3	4,30	86	Good	0,777
		S4	4,39	87,8	Good	0,704
		S5	4,31	86,2	Good	0,711
		Average	**4,38**	**87,6**	**Good**	**0,71025**
3	Adaptive Management System	S1	4,38	87,6	**Good**	0,689
		S2	4,45	89	Good	0,640
		S3	4,38	87,6	Good	0,743
		S4	4,43	88,6	Good	0.638
		S5	4,41	88,2	Good	0,698
		Average	**4,41**	**88,2**	**Good**	**0,6925**
4	Policy and Regulation Advocacy	S1	4,4	88,8	Good	0,704
		S2	4,40	88	**Good**	0,685
		S3	4,35	87	Good	0,715
		S4	4,44	88,8	Good	0,639
		S5	4,49	89,3	Good	0,587
		Average	**4,38**	**87,93**	**Good**	**0,701**
		Total	**87.75**	**1756.4**	**Good**	**13.919**
		Overall	**4.3875**	**87.82**	**Good**	**0.69595**

The study examines the socio-economic benefits of wakaf forests, focusing on income and livelihood, employment opportunities, access to basic services, and social equality and inclusivity. The results show that income and livelihood increase, employment opportunities increase, access to basic services improves local communities' access to economic, social, cultural, and environmental aspects, and social equality and inclusivity improves marginalized groups' distribution.

Table 4 Frequency Distribution of Wakaf Forest Institutional Variables

No	Manifest Variable	Statement	Mean	TCR	Des	STDEV
1	Income and Livelihood	S1	4,36	87,2	Good	0,647
		S2	4,3	86	Good	0,703
		S3	4,42	88,4	Good	0,678
		S4	4,37	87,4	Good	0,655
		S5	4,37	87,4	Good	0,650
		Average	**4,36**	**87,82**	**Good**	**0,666**
2	Employment Opportunities	S1	4,44	88,8	Good	0,677
		S2	4,48	89,6	Good	0,605
		S3	4,34	86,8	Good	0,773
		S4	4,31	86,2	Good	0,655
		S5	4,38	87,6	Good	0,644

		Average	**4,39**	**87,8**	Good	**0,6708**
3	Access to Basic Services	S1	4,36	87,2	**Good**	0,693
		S2	4,35	87	Good	0,668
		S3	4,42	88,4	Good	0,712
		S4	4,35	87	Good	0,668
		S5	4,39	87,8	Good	0,687
		Average	**4,37**	**87,48**	Good	**0,6856**
4	Social Equality and Inclusivity	S1	4,41	88,8	Good	0,725
		S2	4,40	88	**Good**	0,873
		S3	4,41	88,2	Good	0,730
		S4	4.33	86,6	Good	0,724
		S5	4,28	85,6	Good	0,704
		Average	**4,37**	**87,44**	Good	**0,7512**
		Total	87.47	1750	Good	13.871
		Overall	4.37	87.5	Good	0.69355

Table 4 shows the socio-economic benefits of wakaf forests, with an average achievement rate of 87.5%. The forest provides job opportunities and financial independence, leading to increased income and livelihood for the surrounding community. The employment opportunities manifest variable shows an increase in job opportunities, while the social equality and inclusivity manifest variable shows the forest's role in ensuring fair and sustainable benefits for all societal layers. The forest's diversity of livelihoods and clean air and water contribute to its economic benefits.

Inductive Analysis

The loading factor evaluates the relationship between manifest and latent variables, with indicators with high loading factors explaining stronger latent variables and those with low loading factors being invalid.

Table 5. Loading Factor for Wakaf Forest Institution, Socio-Economic

Endogen Variable	Wakaf Forest Institution	Socio-Economic
1	0,702	0,705
2	0,718	0,711
3	0,704	0,706
4	0,702	0,707
5	0,702	0,709
6	0,715	0,708
7	0,705	0,707
8	0,720	0,715
9	0,723	0,714
10	0,701	0,704
11	0,703	0,712
12	0,714	0,704
13	0,703	0,713
14	0,707	0,704
15	0,720	0,707
16	0,710	0,706
17	0,709	0,707
18	0,705	0,708
19	0,723	0,705
20	0,704	0,702

Source: Processed by the researcher using Smart-PLS 3.0 (2024)

Based on Table 5 above, it can be seen that the loading factor values for each Manifest Variable have a loading factor value > 0.70, which means that all items of the wakaf forest institution variable are declared valid because the resulting loading factor values are > 0.70. This indicates that each item in the questionnaire has a strong relationship with the construct variable being measured, which is the wakaf forest institution, and the loading factor values for each indicator are > 0.70. Therefore, it can be concluded that all items of the Sustainable Socio-Economic Benefits of Wakaf Forest variables are considered valid because they meet the criteria of the resulting loading factor values, which are > 0.70. This means that each item in the questionnaire has a strong relationship with the construct variable being measured, which is the Socio-Economic Benefits of Wakaf Forest.

Convergent Validity measures construct validity by assessing the correlation between a construct and other constructs. The average variance extracted (AVE) is used to evaluate this, with a minimum acceptable value of 0.50 or higher indicating the construct can explain 50% or more of the variance of the items.

Table 6. The Test Results Convergent Validity

Variable	Average Variance Extracted (AVE)
Wakaf Forest Institution (X)	0,503
Socio-Economic (Y)	0,501

Source: Processed by the researcher using Smart-PLS 3.0 (2024)

Based on Table 2, it is known that the Cronbach's alpha values for each construct variable are above 0.6, indicating reliable values. Similarly, the composite reliability values are also above 0.6, indicating reliable results as well. From these two results, it is assumed that composite reliability values are higher than Cronbach's alpha, making composite reliability more appropriate for testing the reliability of each construct variable. Thus, the five construct variables discussed in this study can be considered reliable. Therefore, the manifest variables that have been established are capable of accurately measuring each construct, or in other words, the measurement model for these three variables can be considered reliable.

Inner Model Analysis

Inner Model testing is a crucial stage in structural analysis, estimating a complete model incorporating tested manifest variables. The model aims to predict the influence of Exogenous Latent Variables on Endogenous Latent Variables, allowing hypothesis testing. Evaluations include coefficient of determination, predictive relevance, and path coefficients. A model with a Q^2 value greater than zero indicates good predictive relevance. Based on Table 3 below, it can be explained that the Q^2 values found in this study are greater than 0 (zero), indicating that the explanatory variables are able to predict the relevance well for Wakaf Forest Ecological Restoration and the Sustainable Socio-Economic Benefits of Wakaf Forests.

Table 7. Predictive Relevance Values (Q^2)

Endogenous Variable	Q^2 Prediction
Wakaf Forest Ecological Restoration (Y1)	0,087
Sustainable Socio-Economic Benefits of Wakaf Forests (Y2)	0,190

Source: Processed by the researcher using Smart-PLS 3.0 (2024)

The goodness of fit test evaluates a model using two indicators: Standardized Root Mean Square Residual (SRMR) and Normal Fit Index (NFI). The SRMR is considered good if less than 0.1 and the NFI is closer to 1.

Table 8. GFI Test Results

	Saturated Model	Estimated Model
SRMR	0.056	0.056
d_ULS	17.192	17.192
d_G	6.708	6.708
Chi-Square	11007.890	11007.890
NFI	0.639	0.639

Source: Processed by the researcher using Smart-PLS 3.0 (2024)

The study examined the R square value, a coefficient of determination for endogenous variables, focusing on Wakaf Forest Ecological Restoration and Sustainable Socio-Economic Benefits. The R^2 values ranged from 0.67 to 0.19, indicating the influence of exogenous variables.

Table 9. Analysis of Coefficient of Determination (R^2)

Endogenous Variable	*R*-Square
Wakaf Forest Ecological Restoration (Y1)	0,182
Sustainable Socio-Economic Benefits of Wakaf Forests (Y2)	0,387

Source: Processed by the researcher using Smart-PLS 3.0 (2024)

Path Analysis

Path analysis is used to determine the strength of one variable's influence on another, either directly or indirectly. In this study, interpreting path analysis data is critical in understanding the clear role of wakaf woods in increasing socioeconomic benefits. To investigate the influence of path coefficients, the bootstrapping approach yields significant results. The findings are expressed as t-statistic values, which are compared to key z-values in a two-tailed test, such as 1.65 (at a 10% significance level), 1.96 (at a 5% significance level), and 2.58 (at a 1% significant level). If the t-statistic value exceeds the threshold z-value, then the path coefficient is considered significant; otherwise, it is not. In this research, the hypothesis is accepted at a 5% significance level, with a critical value of 1.96.

The direct influence of exogenous variables on endogenous variables is as follows: The analysis results show that the path coefficient value of the Wakaf Forest Institution (X1) on the Socio-Economic Benefits of Wakaf Forest (Y2) is 0.264, with a P Value (α) of 0.000 < 0.05. This indicates that as the value of the Wakaf Forest Institution increases, it will enhance the sustainability of the Socio-Economic Benefits of the Wakaf Forest by 26.4%. The analysis results show that the path coefficient value of the Wakaf Forest Institution (X1) on the Ecological Restoration of Wakaf Forest (Y1) is 0.139, with a P Value (α) of 0.008 < 0.05. This indicates that as the value of the Wakaf Forest Institution increases, it will enhance the Ecological Restoration of the Wakaf Forest by 13.9%.

The analysis results of the Wakaf Forest Institution variable (X1) show a positive influence on the Socio-Economic Benefits of the Wakaf Forest (Y2) mediated by the Ecological Restoration of the Wakaf Forest (Y1). The path coefficient of this variable is indicated by a value of 0.041 and significance at a P Value (α) of 0.027. This analysis shows that the Wakaf Forest Institution significantly influences the sustainability of the socio-economic benefits of the wakaf forest, mediated by the ecological restoration of the wakaf forest.

Based on the analysis, it can be stated that the hypothesis test results for the Wakaf Forest Institution variable show a t-value of 5.489, which is greater than the critical value of 1.96, and a P Value (α) of 0.000, which is less than 0.05. Therefore, it can be concluded that the alternative hypothesis (Ha) is accepted, meaning that the Wakaf Forest Institution has a significant impact on the socio-economic benefits of the wakaf forest.

The analysis results have shown that the wakaf forest institution has a significant impact on the socio-economic benefits of the wakaf forest. The findings of this hypothesis testing provide a deep understanding of institutional aspects, local wisdom, and social capital as driving factors in the process of wakaf forest restoration, which aims to restore ecological functions and integrate them to enhance socio-economic benefits in degraded and deforested forest landscapes. Therefore, discussing the justification of these research results becomes relevant for a better understanding from the perspective of sustainable development.

The Influence of Wakaf Forest Institution on the Socio-Economic Benefits of Wakaf Forests

The wakaf forest institution significantly influences the socio-economic benefits of the wakaf forest. The effectiveness of the wakaf forest foundation in achieving its institutional goals has enabled the local community to derive benefits from sustainable forest resource management. The wakaf forest is managed by an institution responsible for wakaf donations from the community. This wakaf forest is protected from land use changes according to Indonesian laws and Islamic Sharia regulations. With the strengthening of the legal status of a well-functioning wakaf forest institution, forest products and non-timber forest products (NTFPs) have been utilized as sources of income and livelihood for the local community. Broughel and Hampl (2018) argued that community-based finance can be used to address environmental innovation challenges, such as deforestation. Nienhaus (2018) highlighted the exponential trend in wakaf development strategies as an important alternative instrument to enhance financial accessibility and achieve socio-economic justice. This mechanism provides benefits, especially in meeting liquidity needs not yet fulfilled by the government (Forson, 2020).

The wakaf forest foundation is committed to implementing land management functions to provide tangible benefits to the surrounding community. The sustainability of the wakaf forest benefits is the primary focus in enhancing the forest's function as a source of livelihood for the dependent local community. In this context, the wakaf forest foundation has considered uncertainties, change scenarios, and adapted policy actions accordingly. Strategic site selection is calculated to improve the quality of service access for the local community. The wakaf forest is managed by focusing on how the forest can function as an integral part of the local community's livelihood system, such as economically valuable fruit trees, medicinal plants, and nutritious foods beneficial to the community's health. Job opportunities and economic empowerment are adapted to environmental changes and local community needs, especially in facing climate change challenges. According to Shirvani, Z (2020), rural households around forests tend to have uncertain environmental risks, thus forest management involves site selection considering both physical and non-physical aspects, such as good land conditions for enhancing natural resources and optimizing forests to achieve adequate forest landscape benefits.

The wakaf forest institution has an effectively organized framework structure for forest resource management. Wakaf forest governance policies contain rules and objectives for the benefits of forest resources to be managed optimally for the local community's welfare. With an inclusive governance system, the local community is allowed access to benefits such as clean water, firewood, livestock feed, fruits, vegetables, and spices available in the wakaf forest, as long as they do not damage the forest ecosystem. Besides the wakaf forest foundation management, coordination with field partners from local community members has been well established. This is reflected in community empowerment activities, seed planting, and plant maintenance to increase income from NTFPs in the wakaf forest. Collaboration with external partners such as BAZNAS, state-owned enterprises, and government programs has supported the optimization of the wakaf forest's potential. The local wakaf forest community receives financial support and skills needed to increase income and diversify livelihoods, such as developing processed forest products. Roengtam, S., & Agustiyara, A (2022) emphasized that strategic partnership collaboration with various stakeholders can promote sustainable land use. According to Koen, Kusters, et al. (2022), an accountable governance structure can foster a sense of community ownership in enhancing sustainable forest benefits.

From a managerial aspect, the wakaf forest development is managed with professional human resources and the ability to advocate for community interests according to local potential. The wakaf forest has

created job opportunities from productive ventures such as horticulture, livestock, or other forest product production. Financial sources obtained from productive ventures or other assistance are allocated for the operational management of the wakaf forest. Marinus Verhoeven, et al. (2019) stated that professional human resource qualifications and better-planned financial allocation capabilities are key to realizing forest management benefits. On the other hand, the wakaf forest foundation has created a harmonious environment for all parties involved. The local community has equal opportunities in forest management, applicable to all parties without discrimination or unfair treatment. These social equality benefits have advocated for government environmental policies and regulations concerning social conflicts in obtaining forest management benefits. The study by Marlène Elias, et al. (2020) stated that equal opportunities for women, youth, the poor, or marginalized communities to benefit from forest resources create harmonious relationships and respect for diversity within the local community.

CONCLUSSION

This study investigates the impact of the Wakaf Forest Institution on the socio-economic benefits and ecological restoration of wakaf forests, specifically within the context of Cibunian and Cibeureum villages in Indonesia. The findings reveal that the Wakaf Forest Institution significantly contributes to the socio-economic benefits of the wakaf forest, with impacts measured at 26.4% and 13.9%, respectively. Furthermore, the institution plays a critical role in enhancing ecological restoration by 13.9%. These results underscore the positive influence of the Wakaf Forest Institution on the sustainability of socio-economic benefits, confirming the alternative hypothesis (Ha). The Wakaf Forest Institution emerges as a crucial player in promoting sustainable forest resource management, thereby improving the welfare of local communities. Managed according to Indonesian laws and Islamic Sharia regulations, the institution effectively utilizes forest products and non-timber forest products (NTFPs) as sources of income and livelihood. The study highlights the potential of community-based finance to address environmental challenges such as deforestation, while also advancing financial accessibility and socio-economic justice through strategic wakaf development.

The foundation's commitment to land management functions, strategic site selection, and policy adaptation ensures tangible benefits for surrounding communities. The organized framework for forest resource management, combined with professional human resources, fosters a harmonious environment that promotes social equality and respects diversity. This research contributes novel insights into the sustainability of socio-economic benefits of wakaf forests through ecological restoration, using a landscape restoration approach. The study fills a gap in the existing literature, providing a comprehensive analysis of the wakaf forest institution, social capital, and local wisdom, and their direct and indirect impacts on local community benefits. The implications of this study advocate for the integration of educational initiatives, community-based financial models, and strategic partnerships to address broader environmental challenges and promote sustainable development.

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