



Waqf-Based Forests: A Sustainable Solution for Agromaritime Development through Islamic Social Finance

Khalifah Muhamad Ali^{1*}, Miftahul Jannah², Mu'minah Mustaqimah³,
Romzie Rosman⁴

¹Department of Islamic Economics, IPB University, Jl. Raya Dramaga, Kampus IPB Dramaga, Kab. Bogor 16680, Jawa Barat, Indonesia, khalifahma@apps.ipb.ac.id*

²Waqf Forest Institute, Bogor Waqf Forest Foundation, Green View Residence, Cifor, Bogor, Indonesia

³Waqf Forest Institute, Bogor Waqf Forest Foundation, Green View Residence, Cifor, Bogor, Indonesia

⁴Institute of Islamic Banking and Finance, International Islamic University Malaysia, Jl. Gombak, 53100 Kuala Lumpur, Selangor, Malaysia

*) Corresponding author

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Abstract. Deforestation remains a critical issue globally, significantly impacting Indonesia's agromaritime regions. This study explores the innovative concept of waqf-based forests as a sustainable solution for forest conservation and agromaritime development through Islamic social finance. Despite increasing research, a comprehensive analysis of their potential remains limited. This research addresses this gap by drawing on Islamic literature, Indonesian regulations, in-depth interviews, and observing several waqf-based forest practices in Indonesia. Using a descriptive analysis approach, the study finds that waqf-based forests, established on waqf land, serve as a unique form of land waqf for forest preservation and sustainable land use in agromaritime areas. This concept, with historical roots in the Utsmaniyyah Caliphate, aligns with Islamic principles and Indonesian laws that protect waqf assets. Currently, waqf-based forests are expanding across Indonesian provinces, presenting a model for sustainable forest and agromaritime development. This practice integrates religious, social, and financial instruments, positioning Waqf as a vital contributor to forest preservation and agromaritime sustainability. The study advocates for promoting waqf-based forests as a comprehensive solution to deforestation and a catalyst for agromaritime development, urging active engagement from government bodies, companies, and communities to support this sustainable conservation effort through Islamic social finance.

Abstrak. Deforestasi masih menjadi isu kritis global, yang berdampak signifikan terhadap kawasan agromaritim Indonesia. Studi ini mengeksplorasi konsep inovatif hutan wakaf sebagai solusi berkelanjutan untuk konservasi hutan dan pembangunan agromaritim melalui keuangan sosial Islam. Meskipun penelitian terus meningkat, analisis komprehensif mengenai potensinya masih terbatas. Penelitian ini menjawab kesenjangan ini dengan memanfaatkan literatur Islam, peraturan Indonesia, wawancara mendalam, dan mengamati beberapa praktik kehutanan berbasis wakaf di Indonesia. Dengan pendekatan analisis deskriptif, studi ini menemukan bahwa hutan wakaf, yang dibangun di atas tanah wakaf, berfungsi sebagai bentuk wakaf tanah yang unik untuk pelestarian hutan dan pemanfaatan lahan berkelanjutan di kawasan agromaritim. Konsep ini, yang berakar pada sejarah Kekhalifahan Utsmaniyyah, sejalan dengan prinsip-prinsip Islam dan hukum Indonesia yang melindungi aset wakaf. Saat ini, hutan wakaf sedang berkembang di seluruh provinsi di Indonesia, menghadirkan model untuk pembangunan hutan dan agromaritim yang berkelanjutan. Praktik ini mengintegrasikan instrumen keagamaan, sosial, dan keuangan, yang memosisikan wakaf sebagai kontributor vital bagi pelestarian hutan dan keberlanjutan agromaritim. Studi ini menganjurkan untuk mempromosikan

hutan berbasis wakaf sebagai solusi komprehensif terhadap deforestasi dan katalisator pengembangan agromaritim, mendesak keterlibatan aktif dari badan pemerintah, perusahaan, dan masyarakat untuk mendukung upaya konservasi berkelanjutan ini melalui keuangan sosial Islam.

INTRODUCTION

Deforestation is one of the biggest environmental problems with a severe global impact. Every year, millions of hectares of forest are lost due to illegal logging, land conversion for agriculture, infrastructure development, and various other human activities (Austin et al., 2019). Deforestation has a severe impact on Indonesia, especially on agromaritime areas. Indonesia's agromaritime region, which includes the agricultural and marine sectors, is highly dependent on forests as ecosystem buffers, water sources, and habitats for various species of flora and fauna (Maryani et al., 2015).

Forest destruction threatens biodiversity and disrupts the balance of the ecosystem, which is crucial for the survival of the agricultural and marine sectors. Deforestation causes land degradation, soil erosion, and decreased water quality, directly affecting agricultural and fisheries productivity. In addition, forest loss will reduce nature's ability to absorb carbon, contributing to global climate change (Arshad et al., 2020).

To find sustainable solutions to overcome deforestation and support agromaritime development, the waqf-based forest concept offers an innovative approach. As an Islamic social financial instrument, waqf has great potential to support environmental conservation and sustainable development (Budiman, 2011). According to Law of the Republic of Indonesia No. 41 of 2004 on Waqf, waqf is a form of asset donation intended for social and religious purposes, regulated by Islamic principles. Waqf assets, including land, may not be sold or inherited, and the proceeds from these assets must be used for public purposes (Kahf, 2003).

The waqf-based forest concept utilizes waqf land for forest conservation and sustainable agromaritime development. Waqf-based forests may function as ecosystem buffers, providers of natural resources, and places for education and research (Ali & Kassim, 2020). This concept is also a step to realizing the vision and mission of the President of the Republic of Indonesia, *Asta Cita*, which aims to strengthen the country's defense and security system and encourage national independence through self-sufficiency in food, energy, water, creative economy, green economy, and blue economy. By combining religious, social, and environmental aspects, waqf-based forests help preserve forests and strengthen community involvement in conservation efforts, while staying productive and supporting the green economy.

This research aims to explore the potential of waqf-based forests as a sustainable solution for forest conservation and agromaritime development in Indonesia. Despite the increasing research on waqf-based forests, comprehensive analysis of their potential for agromaritime development remains limited. Therefore, this research fills this gap by reviewing Islamic literature and Indonesian regulations related to waqf and conducting in-depth observations and interviews with waqf experts. Hopefully, this research will provide a better understanding of the implementation of waqf-based forests and their benefits for the environment and society.

Through a descriptive analysis approach, this research identifies various factors that influence the implementation of waqf-based forests, the challenges faced, and the opportunities to develop this model further. This research also provides practical recommendations to support the development of waqf forests as a sustainable solution to overcome deforestation and support agromaritime development in Indonesia. Thus, waqf-based forests can become an essential catalyst in conservation and sustainable development efforts at the local and national levels.

LITERATURE REVIEW

Indonesia is a country with extensive forest areas. According to Law No. 41 of 1999, what is meant by forest is an ecosystem consisting of an area of land with biodiversity dominated by trees that are inseparable from each other (Jannah, 2024). The forests are divided into three functions: production forests, conservation forests, and protected forests. Indonesia has a forest area of up to 120.6 million hectares, or 63% of the country's total area, designated as a state forest area (Ministry of Environment and Forestry, 2022).

In Indonesia, economically, forests play a role as producers of timber and non-timber products and generate foreign exchange for the country. Forests also provide forest products and land needed to develop other sectors such as plantations and industry (Mangatas, 2021). Forests also have a close relationship with water availability, for example, fog and cloud water capture, infiltration, and groundwater recharge, as well as for flood mitigation and moderation (Ellison et al., 2017); this correlates with other sectors that need water to operate.

Indonesia has several forest issues that need to be addressed, such as forest fires, haze, and deforestation (Macdonald & Toth, 2017). Forest fires and haze are among the big forestry problems in Indonesia, triggered by structural factors such as poverty, development policies, governance, lack of punishment for forest burners, and palm oil demand (Macdonald & Toth, 2017; Rasyid, 2014). Meanwhile, although the value of deforestation has decreased, it continues to occur in Indonesia (Ministry of Environment and Forestry, 2022). Deforestation has negative impacts, such as natural disasters (floods, landslides, eruptions), biodiversity loss, climate change, and contributes to poverty (Jannah, 2024; Chakravarty & Shukl, 2012).

Until now, various efforts to maintain the existence of forests in Indonesia continue to be carried out, one of which is the smart forestry concept, which includes the implementation of agromaritime 4.0 (Rustiadi et al., 2019). Agromaritime can be defined as a development platform that integrates the management of land and sea areas inclusively. This concept views land, sea, and air as a single unit involving integrated social, economic, and ecological systems, so it requires a multidisciplinary and participatory approach. Agromaritime development aims to create sustainability, prosperity, justice, and sovereignty in Indonesia (Rustiadi et al., 2019).

Forest management using an agromaritime approach can be interpreted as forest management that combines socio-economic and ecological systems with a multidisciplinary and participatory approach. In agromaritime 4.0, the 'smart forestry' method was introduced as a forest management concept. This concept optimizes the use of technology in aspects of forest management, such as forest inventory (wildlife-based and tree-based). The results of the forest inventory become an integrated database for various subsequent processes, such as early warning systems (fire risk and haze trajectory), forest-product processing (timber and non-timber), and forest certification (green smart certification) (Rustiadi et al., 2019).

Participatory management in the forestry concept in agromaritime places the community as one of the primary forest managers (Rustiadi et al., 2019). However, most communities around forests are still identified as economically weak communities and often encroach on forests to meet their daily needs (Dewi, 2018; Kusmana, 2012). Therefore, to support agromaritime development in the forestry sector, another holistic and participatory approach is needed, one of which is to apply the concept of waqf as part of Islamic social finance.

Waqf is described as maintaining and safeguarding particular resources for the sole benefit of a charitable cause while severely prohibiting any use or exchange of assets for uses other than the specified objective. This notion maintains nonperishable properties, allowing the extraction of advantages and usufruct

without decreasing the actual property (Kahf, 2003). Based on its purpose, waqf could be categorized as waqf *khairi* (dedicated for public benefit), waqf *ahli/dzurri* (intended for the benefit of the donor's family or descendants), and waqf *musytarak* (combination of both). Since waqf *khairi* is philanthropic, it has a more general purpose, such as improving community welfare through public facilities (Kahf, 2003). In its development, waqf can be directed towards preserving the environment (Al-Anzi & Al-Duaij, 2004), including forests (Budiman, 2011; Yaakob et al., 2017; Hasanah & Hakim, 2017).

Waqf-based forests are defined as forests developed on waqf land (Ali & Jannah, 2019). The position of waqf-based forests as one of the waqf assets gives them special characteristics of waqf: perpetuity, irrevocability, and inalienability (Budiman, 2011). Also, it cannot be sold, given, or inherited (As-Sa'di, 2002). Based on Law of the Republic of Indonesia no. 41 of 2004 article 22 e, the development of waqf assets can be carried out innovatively as long as it complies with two things: first, it is always intended to improve the general welfare and does not conflict with Islamic law. Based on this, waqf-based forests can be believed to be under the two laws in the Republic of Indonesia, namely Islamic religious law and state law, so that their sustainability is more guaranteed (Jannah et al., 2021). Waqf-based forests are an example of productive waqf with sustainable ecological, economic, and social da'wah objectives (Jannah, 2024; Sup, 2021).

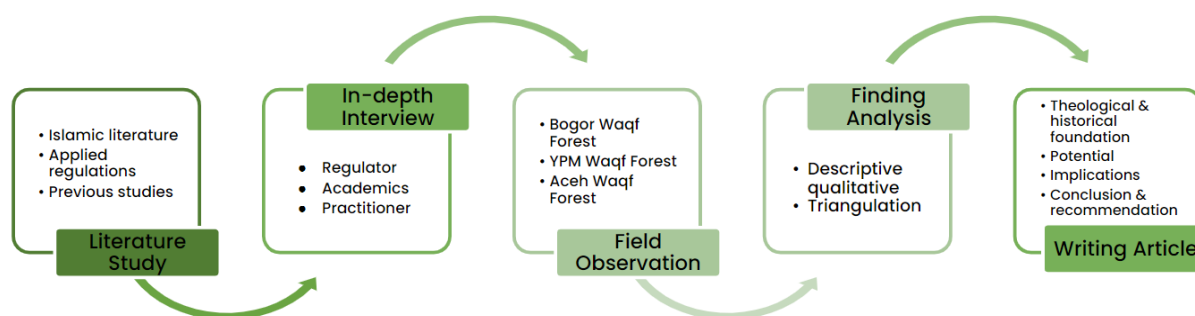
Waqf-based forests can be a sustainable solution for developing agromaritime through an Islamic social finance approach. Based on current forest ownership in Indonesia, waqf-based forests can be addressed as community forests, where the surrounding community becomes the daily manager and primary beneficiary (Ali & Kassim, 2020; Bisjoe, 2023; Rochmah et al., 2020). By being owned and managed in its society, the waqf-based forest can provide benefits, both ecologically, economically, socially, and educationally, for the community.

Research on waqf-based forests continues to develop, marked by various topics discussed over the last four years. For example, a waqf-based forest is one example of a sustainable environmental waqf application for intergenerational justice (Setyorini et al., 2020); it has a positive impact on forest sustainability and SDGs (Ali & Kassim, 2020), is beneficial for surrounding communities through agroforestry (Jannah et al., 2021) and contributes to preventing natural disasters (Ali et al., 2021). Previous studies also highlighted SWOT aspects for waqf-based forest development (Ali & Kassim, 2021), the importance of the waqf-based forest legalization process (Jannah et al., 2020), some criteria for selecting the best waqf-based forest land (Jannah et al., 2024), the potential of waqf-based forest as an Islamic social financial instrument in mitigating climate crisis (Fahrezi, 2025), integrating waqf-based forests and carbon trading (Ali, Tanjung, Sukmana, Jannah, et al., 2025), and developing National Waqf-based Forest Index as a standardized tool to measure the performance of waqf-based forest management practices (Ali, Tanjung, Sukmana, Sari, et al., 2025).

Meanwhile, more research has yet to be found regarding agromaritime. One of the primary references is the book *Agromaritime 4.0: Contribution of IPB Thought to Indonesia* (Rustiadi et al., 2019). Thus, it can be ascertained that no research has discussed the potential of waqf-based forests as a sustainable solution for agromaritime development. So, this research intends to address this gap.

METHOD

This research uses a descriptive analysis approach to explore and understand the potential and challenges of implementing waqf-based forests as a sustainable solution for forest conservation and agromaritime development in Indonesia. This approach involves several data collection methods to gain comprehensive and in-depth insights. Figure 1 presents the steps taken in this research.



Source: Authors, 2024.

Figure 1 Research phases in the research of Waqf-based Forests: A Sustainable Solution for Agromaritime Development through Islamic Social Finance

The first phase is a literature review. A literature review gathered information and perspectives from various relevant sources. Some topics are Islamic literature, Indonesian regulations, case studies, and previous research. Islamic literature consists of classical and contemporary texts that discuss the concept of waqf, the history of waqf, and its application in the context of environmental conservation and social development. Meanwhile, the Indonesian regulations are about some Indonesian government laws and regulations governing waqf, including regulations regarding the management of waqf land and protection of waqf assets. This research studied relevant case studies and previous research on implementing waqf-based forests in Indonesia and other countries and the impact of deforestation and conservation efforts in agromaritime areas.

The next phase is an in-depth interview. In-depth interviews were conducted with waqf experts, practitioners, and related parties to gain deeper and more comprehensive insights. This interview involves several stages: selection of experts, preparation of interview guide, interview, and interview analysis. Experts were selected based on their expertise and experience in waqf and forest conservation. They include academics, ulama, waqf managers, and government officials. After selecting the experts, the interview guide is prepared to ensure the questions asked are relevant and in-depth. Questions covered topics such as the concept and implementation of forest waqf, challenges faced, and recommendations for further development. Interviews are conducted face-to-face or via electronic media, depending on the interviewee's availability and preferences. They were recorded (with the interviewee's permission) to ensure data accuracy. After an interview, the results were analyzed to identify key themes, patterns, and insights relevant to the research objectives.

The third data-collecting process also involved direct/field observation. Direct observations were carried out in several waqf-based forest locations in Indonesia. This observation aims to understand the practical implementation of the waqf-based forest concept, including 1) structure and governance: how waqf-based forests are managed, including organizational structure, management mechanisms, and involvement of various parties. 2) conservation activities and programs: types of activities and programs for forest conservation, such as tree planting, preserving endemic species, and environmental education, and 3) benefits and impacts: benefits obtained from waqf-based forests for local communities include ecological, economic, and social benefits.

The data collected from literature reviews, observations, and interviews were analyzed using a descriptive approach. First, the data were coded to identify key themes and relevant subthemes. Then, categories were created based on the identified themes to facilitate further analysis. Next, the resulting themes and categories were analyzed to identify relationships and patterns relevant to the research objectives. Finally, the analysis's results were interpreted and synthesized to comprehensively understand the potential and

challenges of waqf-based forests and recommendations for further development. Following data analysis, triangulation was used to justify the information collected from the various methods (Carter et al., 2014). Triangulation draws different viewpoints and multiple data sources to understand the investigated situation fully, enhancing study validity (Natow, 2020). In this study, the findings and conclusions from literature reviews and in-depth interviews were confirmed by the discovery of field observation.

With this methodical approach, this research is expected to provide in-depth and comprehensive insight into the waqf-based forest concept. Subsequently, this research would deliver the best practice of this concept to be implemented and developed as a sustainable solution for forest conservation and agromaritime development in Indonesia.

RESULTS AND DISCUSSION

Waqf-based Forest: Theological and Historical Foundations

Theological foundations

The concept of waqf has deep roots in the Islamic tradition, especially in the context of using land and assets for public purposes (Kahf, 2003), because this can provide many benefits, both for humans, as well as animals, plants, and all living things. In the Al-Qur'an, the legal basis for waqf forests is found in the words of Allah SWT:

لَنْ تَنَالُوا الْبِرَّ حَتَّى تُنْفِقُوا مِمَّا تُحِبُّونَ وَمَا تُنْفِقُوا مِنْ شَيْءٍ فَإِنَّ اللَّهَ بِهِ عَلِيمٌ

"You will never achieve righteousness until you donate some of what you cherish. And whatever you give is certainly well known to Allah." (Ali-Imran: 92).

Based on Imam Ibnu Kathir's interpretation, waqf means giving away some of the wealth you love for the sake of Allah. Imam Ibnu Kathir interpreted this verse by telling the story of the garden belonging to Abu Talha and Umar bin Khattab, which then donated as waqf, as quoted by Imam Muslims in Sahih Muslim.

The legal basis for waqf-based forests in Islam in the hadith can be seen in the words of the Prophet Muhammad SAW:

يَا رَسُولَ اللَّهِ إِنِّي أَصْبَيْتُ أَرْضًا بِخَيْبَرَ لَمْ أَصِبْ مَالًا قَطُّ أَنْفَسَ عِنْدِي مِنْهُ فَمَا تَأْمُرُ بِهِ قَالَ إِنْ شِئْتَ حَبَسْتَ أَصْلَهَا وَتَصَدَّقْتَ بِهَا

Umar bin Khattab ra said: "O Messenger of Allah, I have acquired a piece of land in Khaybar, and I have never acquired a property more precious to me than that. What do you command me to do with it?" He said: "If you wish, you can keep its origin as an endowment and give its yield in charity."

This hadith explains the concept of holding/guarding assets and managing them productively, then giving the proceeds to charity. This concept is the basic concept of waqf.

إِذَا مَاتَ ابْنُ آدَمَ انْقَطَعَ عَمَلُهُ إِلَّا مِنْ ثَلَاثٍ: صَدَقَةٍ جَارِيَةٍ، أَوْ عِلْمٍ يُنْتَفَعُ بِهِ، أَوْ وَلَدٍ صَالِحٍ يَدْعُو لَهُ. رَوَاهُ مُسْلِمٌ

"When a man dies, his deeds come to an end except for three things: Sadaqah Jariyah (ceaseless charity); a knowledge which is beneficial, or a virtuous descendant who prays for him (for the deceased)." (Muslim No. 1631).

Sadaqah jariyah is referred to here as alms whose rewards continue to flow, which can also be called waqf. People who make waqf will receive continuous rewards, even after the person dies. For every benefit that arises from the assets or property someone donates, the reward will always return to that person.

In the context of waqf-based forests, Rasulullah SAW gave an example of the behavior of always protecting natural ecosystems, as explained in hadith:

من قطع سدره صوب الله رأسه في النار

"Whoever cuts down a bidara tree, Allah will plunge his head into hellfire." (Abu Daud)

In this hadith, Rasulullah SAW emphasized that cutting down trees without a justifiable reason is a behavior that is very disliked by Allah SWT. Therefore, it is possible to implement a way to protect forest ecosystems through waqf.

Ijma' or agreement regarding waqf law can also be used as the legal basis for waqf forests, that the friends agree that waqf is highly recommended in Islam, and no one rejects waqf among them. There are no significant differences in waqf law according to the four Imam Schools (Abu Hanifah, Malik, Syafi'i, and Ahmad bin Hanbal). According to Imam Malik, Imam Syafi'i, and Imam Ahmad, waqf is considered *sunnah (mandub)*, while according to Hanafi ulama, waqf is considered *mubah* (permissible). Also, waqf law applies to non-Muslims, so non-Muslim waqf is also considered valid (As-Sa'di, 2002).

Historical foundations

Rasulullah SAW lived in Arabia. This area is dominated by rocky mountains and deserts (Al-Mubarakfuri, 1997). In such tropical areas, there are no forests like those found in countries with tropical climates. In the middle of the desert, gardens are the most fertile ecosystems, considered as forests in tropical countries. At this time, it was pretty standard for people to have endowments of date palm gardens, such as Umar bin Khattab ra, Abu Thalha, and Uthman bin Affan ra, and the yield from these date palm gardens were used for the prosperity of the Muslim community (Ali, 2022).

During the Ottoman Caliphate, land waqfs were widely used for various social purposes, including education, health, and environmental conservation (Dursun, 2007). In the nineteenth century, waqf in the Ottoman region came under central administrative responsibility, establishing the Ministry of Imperial Waqf (*Evkaf-ı Humayun Nezareti*) in 1826. In 1907, the waqf-based forest in Turkiye reached an area of more than 107 thousand hectares. Ottoman society optimized land and resource use by integrating Islamic principles with forestry regulations and the concept of waqf-based forests. However, in the period 1924–1935, regulations regarding waqf land led to the liquidation of several waqfs, and waqf functions, including waqf-based forests, were gradually transferred to various state institutions and organizations (Ertem, 2019).

Practical Implementation of Waqf-based Forests in Indonesia

In a modern context, the waqf-based forests discussed in this research will continue the tradition of Rasulullah SAW and the previous caliphate by placing waqf land to achieve forest conservation and agromaritime development. In Indonesia, waqf-based forests have begun to be implemented in several provinces, such as Aceh, West Java, East Java, and South Sulawesi. These projects are established on waqf land, are managed by waqf institutions, and are supported by local communities.

Aceh Waqf Forest started the development of waqf-based forests in Indonesia in 2012, specifically in Jantho City, Aceh Besar. Beginning with the spirit of conservation and endowments, Aceh's waqf-based forest aims to protect the primary water source of the Acehnese people, reforest critical land, and ensure forest availability for future generations. Aceh's waqf-based forest community collects waqf funds with money and uses it to acquire land. The area of Aceh's waqf-based forests has reached 6 hectares and often becomes a place for research, learning, and ecotourism destinations (ikhw.org, 2025).

In West Java, the Bogor Waqf Forest began to be developed by several IPB University academics in 2018 (Ali, 2019). Located in Pamijahan District, Bogor Regency, the Bogor Waqf Forest currently has 4 zones with a total area of around 2.5 hectares. Various ecological activities (planting and maintaining vegetation), economic (agroforestry, ecotourism, and selling non-timber forest products), and social-Islamic (reciting the Qur'an, training, and research) are often carried out in the Bogor Waqf Forest foundation by involving

the community local people who are members of the forest farmer group fostered by *nazhir* (waqf manager) (Firdaus, 2024).

Meanwhile, the waqf-based forest initiative in East Java started in 2020 on land owned by the Ma'arif Education and Social Foundation (YPM), which has an area of 1.6 ha. Initially, this land was a former horticultural farm, and secondary succession was carried out so that it could be reforested. The *nazhir* of Mojokerto Waqf Forest (YPM) has collaborated with various institutions to carry out planting activities, market non-timber forest products from the land, and manage the profits for the benefit of the community, as well as starting education about waqf-based forests by organizing the Waqf Forest School since 2023 (Hutan Wakaf YPM, 2025).

Based on the results of field observations in the Bogor Waqf Forest, Aceh Waqf Forest, and Mojokerto Waqf Forest, there are various ecological, economic, and Islamic social benefits felt by local communities from the practice of managing these waqf-based forests. It is in accordance with previous research that waqf-based forests have the potential to provide tangible and intangible benefits, and can contribute to sustainable development (Ali & Kassim, 2020). Table 1 lists activities carried out at Indonesia's three waqf-based forest locations.

Table 1 List of activities in several waqf-based forest locations in Indonesia

No.	Benefits	Activities	Waqf-based Forest Location		
			Bogor	Aceh	Mojokerto
1.	Ecology	Planting trees	v	v	v
		Maintaining water sources	v	v	v
2.	Economy	Practicing agroforestry	v	v	v
		Becoming an ecotourism destination	v	v	v
		Supporting local people's businesses (through small cafes, selling non-timber forest products, etc.)	v	v	v
3.	Social Da'wah	Empowering local community	v	v	v
		Educating visitors and students	v	v	v
		Practicing Islamic teachings	v	v	v

Source: Research finding by authors, 2024.

Table 1 shows that waqf-based forest land is used for tree planting, forest maintenance, environmental education, and various economic and social activities involving local communities. This implementation example shows that waqf can effectively preserve the environment and empower the community's economy. In the long term, waqf-based forests could also participate in carbon trading. With its potential to

hold sustainability while offering added ecological, economic, social, and Islamic values, waqf-based forests could give high-quality carbon credits and provide a sustainable green economy (Ali, Tanjung, Sukmana, Jannah, et al., 2025).

Various activities and management systems in waqf-based forests also show that waqf-based forests are positively correlated with the direction of agromaritime transformation in Indonesia. Waqf-based forests help restore agro-maritime ecosystems, focusing on the village as a primary growth point and using a participatory and integrated approach.

Involvement of Various Parties

The waqf institution (*nazhir*), as the manager of waqf assets, is responsible for the administration of waqf forest land (Jannah et al., 2020) and is responsible for making the waqf assets productive (Ali & Kassim, 2020). Along the way, the success of waqf-based forests depends on the involvement of various parties, including local communities, government, the private sector, academics, and the media. This pattern of involvement is commonly known as collaboration, namely collaboration between ABCGM (academics, business, community, government, and media) to make a previously planned innovation a success (Syafari, 2018; Halibas et al., 2017).

Villages are considered vital areas that can become centers of agromaritime resources. It has the potential to be an economic growth point because villages can provide industrial raw materials, tourism services, maritime, environmental, and biodiversity (Rustiadi et al., 2019). It is highly correlated with waqf-based forests, where local communities are involved in conservation activities and sustainable use of forests (Firdaus, 2024). However, based on the results of field observations, it was found that the development of local communities around the waqf-based forest area was not optimal. It follows the previous research results that took place in the Bogor Waqf Forest; community participation was not optimal due to internal (technical management) and external (natural disasters) influences (Firdaus & Wahyudi, 2024). Community participation can be further increased if it collaborates with other parties such as the government, private sector, academics, and the media.

The development of waqf-based forests as one of the waqf assets cannot be separated from the role of the government. As reported in the 2022 National Waqf Index, the government can develop waqf assets by providing the authorities with regulatory support, incentives, and guidance (BWI, 2022). Concerning waqf-based forests, this initiative has been well received by the Ministry of Religion, and it has even been emphasized that developing waqf-based forests does not conflict with the law and is an innovation that needs to be developed in synergy with other stakeholders (Ali & Kassim, 2021). Recently, a roadshow for waqf-based forest development was held by the Ministry of Religion in some areas across Indonesia in 2025 (BWI, 2025). This roadshow, followed by Focus Group Discussion, resulted in several agreements and succeeded in expanding the total areas of waqf-based forests in Indonesia, reaching the number of 68 ha. It proves the legitimate support of the government is very crucial for waqf-based forests development.

The private sector can make a real contribution to developing waqf-based forests. One example of its contribution is through corporate social responsibility (CSR) programs. Literature states that the distribution of CSR funds to finance green programs is increasingly widespread (Mo et al., 2022). In waqf-based forest practices, Indonesia's three waqf-based forest locations have often collaborated with companies, for example, in planting and community empowerment activities. Corporate CSR funds can be a solution for *nazhirs* to fund the implementation of various activities in the waqf-based forest locations.

The other pillars are academics and the media. Academics have a significant role in developing waqf-based forests through various research conducted (Ali & Kassim, 2020). Apart from that, academics, together with

the media, can be the primary mouthpiece for socializing ideas and implementation of waqf-based forests to the broader community, both through the publication of research results, as well as coverage of conditions on waqf-based forest land and linking them to developing issues.

The involvement of various parties in the development of waqf-based forests is in line with the three main approaches in the agromaritime concept: transdisciplinary by integrating technology and science in various fields, ecological regional connectivity so that development is not limited by regional administrative barriers, and participatory and integrative by utilizing various social, economic and cultural forces, as well as politics to create strong, sovereign governance (Rustiadi et al., 2019).

Challenges in Implementing Waqf-based Forests

Based on in-depth interviews with waqf-based forest practitioners and direct observations at three waqf-based forest locations in Indonesia, several challenges were found in implementing waqf-based forests as a solution for sustainable agromaritime development. These challenges are public understanding and awareness, regulations and bureaucracy, and limited resources.

One of the main challenges in implementing waqf-based forests is the lack of public understanding and awareness of this concept. Even though previous research results indicate that the younger generation has a relatively high level of concern for the environment (Prameswari, 2024) and the majority of people are interested in the concept of waqf-based forests (Ali, 2022), many people are still not familiar with waqf as an instrument for forest conservation. Therefore, intensive education and outreach efforts are needed to increase public understanding and participation.

Complex regulations and convoluted bureaucracy often become obstacles in implementing waqf-based forests. Even though Indonesia has a legal framework that supports waqf, there are still obstacles to implementation in the field. This is experienced by all waqf-based forest *nazhir*, especially regarding the administration for legalizing the managed waqf-based forest land. Previous research also highlights this (Jannah et al., 2020). Simplifying procedures and increasing coordination between related institutions are necessary to accelerate the implementation of waqf-based forests.

The next challenge is limited resources, both financial and human. It has been confirmed previously by research on SWOT aspects in the development of Bogor Waqf Forests (Ali & Kassim, 2021). Based on the National Waqf-based Forest Index, the existence of appropriate human resources (both in terms of capability and quantity) is one of the keys to gain a good waqf-based forest management (Ali, Tanjung, Sukmana, Sari, et al., 2025). Cooperation with various parties is needed to overcome this, including the government, the private sector, and donor agencies. Funding can be obtained through various sources, including waqf funds, zakat, and CSR.

Waqf-based Forest Development Opportunities

Even though there are challenges in developing waqf-based forests, several opportunities also need to be considered so that waqf forests can further develop and contribute to agromaritime. These opportunities include innovation and technology, economic empowerment, and international collaboration.

The big opportunity for waqf-based forest development lies in innovation and technology. Innovation and technology are one part of the agromaritime concept (Rustiadi et al., 2019). Based on research results at several campuses in Yogyakarta and Central Java, the integration of technology in the form of a digital sharia banking system has been proven to increase the interest of the younger generation in getting involved in waqf projects that are being carried out (Berakon et al., 2021). Modern technology, such as geographic information systems (GIS) and drones, can help monitor and manage waqf-based forest lands

efficiently. Innovations in planting and forest maintenance methods can also increase the productivity and sustainability of waqf-based forests.

The next opportunity is the position of waqf-based forests as a means of economic empowerment. For local communities, non-timber forest products are a food system integrated with forests (Veriasa & Muttaqien, 2025) and can also be a source of income. Thus, waqf-based forests function as a conservation tool and a source of economic empowerment for local communities (Jannah et al., 2021). Selling non-timber forest products, such as honey, fruit, and medicinal plants, can be a source of additional income for the community. Waqf-based forests can also become ecotourism destinations that attract tourists and increase regional income (Jannah, 2024).

Currently, the issue of waqf-based forests is starting to spread internationally. The topic of waqf-based forests is starting to resonate in several world forums (Faith Pavilion, 2023; IKAM, 2023), and even waqf-based forest researchers have included international students (Asia-Japan Research Institute Ritsumeikan University, 2024). It opens up opportunities for international collaboration with countries with experience managing waqf-based forests and can provide significant benefits. The exchange of knowledge and best practices can help Indonesia develop and implement waqf-based forests effectively. This collaboration can also open up opportunities for funding and technical support from international institutions.

Social and Environmental Implications

Waqf-based forests contribute significantly to environmental conservation. Planting trees and maintaining forests help sequester carbon, reduce soil erosion, and maintain water quality (Jannah, 2024). Apart from that, waqf-based forests are also a habitat for various species of flora and fauna, which is essential for maintaining biodiversity (Ali, 2022).

Implementing waqf-based forests provides great social benefits, including empowerment of local communities and increased welfare. Community involvement in waqf forest management creates a sense of ownership and responsibility, increasing project sustainability (Jannah et al., 2024). Apart from that, waqf-based forests also function as places for education and research, which provide added value for society and future generations (Ali & Kassim, 2020).

This research shows that waqf-based forests have great potential as a sustainable solution for forest conservation and agromaritime development in Indonesia. Through religious, social, and environmental approaches, waqf-based forests can effectively overcome deforestation and support sustainable development. However, to achieve the full potential of this concept, collaborative and sustained efforts from various parties are required.

CONCLUSION

Conclusion

This research has explored the potential and challenges of implementing waqf-based forests as a sustainable solution for forest conservation and agromaritime development in Indonesia. Waqf-based forests have great potential to support environmental conservation and community economic empowerment. Utilizing waqf land for forest conservation not only protects the ecosystem but also improves community welfare through the use of non-timber forest products and ecotourism.

The waqf-based forest concept also follows Islamic principles and Indonesian regulations that protect waqf assets. It creates a solid legal and religious foundation for developing waqf-based forests in various regions of Indonesia. However, the successful implementation of waqf-based forests depends on the active

involvement of various parties, including waqf institutions, local communities, government, the private sector, academics, and the media. This collaboration is vital to overcoming regulatory challenges, resource limitations, and increasing public awareness. Lastly, the main challenges in implementing waqf-based forests include a lack of community understanding, complex regulations, and limited resources. However, great opportunities are available through technological innovation and international cooperation.

Recommendations

To optimize the potential of waqf-based forests and overcome existing challenges, education and promotion efforts regarding the concept of waqf and its benefits for forest conservation need to be increased. Educational campaigns must target various levels of society, including local communities, students, and policymakers. Mass media and digital platforms can be used to disseminate information widely. Waqf-based forests also have the potential to be developed as ecotourism destinations. Ecotourism programs integrated with environmental education can attract tourists and generate additional income for local communities. Ecotourism development must also consider environmental sustainability and community welfare.

On the other hand, the government needs to simplify regulations and procedures related to waqf to facilitate the implementation of waqf-based forests. Preparing supportive policies and harmonizing regulations between relevant government institutions is very important to speed up the process of implementing waqf-based forests.

Infrastructure development that supports sustainable management of waqf-based forests must be a priority. It includes facilities for planting trees, processing non-timber forest products, and environmental education centers. Good infrastructure will increase the effectiveness and efficiency of waqf-based forest management.

It is also essential to provide financial and technological support from the government, private sector, and donor agencies to achieve the success of waqf-based forests. Financing programs such as grants, CSR, and zakat funds can be allocated to support waqf-based forest projects. Modern technology, such as GIS and drones, can also help monitor and manage waqf-based forest lands.

Lastly, encouraging international collaboration with countries with experience in forest waqf management could provide significant benefits. Knowledge exchange, best practices, and technical support from international institutions will assist Indonesia in developing and implementing waqf-based forests effectively.

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