

IMPLEMENTATION OF ECO-PESANTREN AS POLITICAL WILL IN ISLAMIC BOARDING SCHOOLS (PESANTREN) TO GREEN ECONOMIC RESILIENCE IN THE GLOBAL SOUTH: A CASE STUDY OF INDONESIA

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ABSTRACT

Global South, from a geo-economic perspective, are regions with significant potential for the development of the green economy sector. Social turbulence and efforts for economic resilience are crucial issues in sustainable economic development in the Global South. Indonesia, as one of the Global South, has the potential for green economy development, including in the agricultural sector. The development of agriculture in Indonesia is also driven by Pesantren (Islamic boarding schools) as educational institutions based on Islamic values. The significant growth in the number of Pesantren also signifies their influence in gaining social legitimacy. This has made Pesantren a driving force for the community, due to their ability to provide character-building education. Most Pesantren are located in agrarian sectors, which gives them the political will to support agricultural development. This research employs a qualitative method with a case study approach. Specifically, the primary data for this research were obtained through interviews and observations with stakeholders at Pesantren Nurul Haramain, Narmada, Lombok. This Pesantren has the potential to contribute to the green economy development in Indonesia. This study integrates concepts from International Relations and agrotechnology to support the green economic resilience efforts. The findings from this research indicate that Pesantren Nurul Haramain has a positive potential and opportunity due to its political will, contributing to regional green economic development. However, it faces challenges in optimizing macroeconomic efforts as indicators of economic resilience. On the other hand, the implementation of eco-Pesantren has a positive impact on efforts to promote green economic resilience in Indonesia.

Keywords : Eco-Pesantren, Political Will, Green economy development, Global South, Indonesia

BACKGROUND

Green economy is an international agenda and a contemporary economic concept that responds to environmental issues. Green economy has become a main orientation in economic development, focusing on ecosystem balance, climate change mitigation, and ensuring the sustainability and health of the environment. A green economy guarantees business activities while building a sustainable environment, ensuring that development does not slow down human social and economic progress. Green economy involves ecological mitigation, as well as managing risks and resource scarcity. In other words, a green economy creates an environmentally friendly economy, sustainability, and resilience across all sectors related to environmentally based products (John Ogbonna, 2022).

As global actors, the Global South countries are developing nations with geo-economic influence, including their potential to drive green economic growth as part of sustainable development actions. This includes the existence of green industrial policies, renewable energy,

first-mover advantages for domestic companies, competitive environmental technologies, the development of national innovation systems, as well as knowledge and technology transfer (Herman, 2023).

In applying the green economy within the framework of 'Think Globally, Act Locally,' the role of actors who politically empower the three pillars of sustainability economy, environment, and society is essential. The role of stakeholders is critical in the development of the green economy. In addition to the government, non-governmental actors also play a significant role in mobilizing society through education, such as Islamic boarding schools (pesantren). Pesantren have a political role in the development agenda in the Global South. Therefore, the case study for this research is Indonesia, part of the trio of rapidly developing countries in the Global South, alongside Brazil and India. Indonesia has the largest number of pesantren in the world. According to data from the Ministry of Religious Affairs of Indonesia, there were 39,551 pesantren recorded in the 2023/2024 period, with a total of 4.9 million students (santri). The independence of pesantren through business incubation or pesantren business units is also one of the priority programs of the Ministry of Religious Affairs. The potential and opportunities of pesantren as a new political actor in Indonesia's development are supported by regulations regarding their role and function as part of the country's development (Kementerian Agama RI, 2024).

Specifically, the object of this study is Pesantren Nurul Haramain, which applies the green economy concept as a manifestation of its economic independence, through the development of the agricultural sector via the eco-pesantren model. This is of particular interest because Pesantren Nurul Haramain has a large plantation area with potential for further development, as well as a greenhouse that serves as a research and development (R&D) facility. It is also supported by the construction of an irrigation system built specifically for the plantation. Pesantren Nurul Haramain is one of three pesantren selected by Bank Indonesia to develop smart farming in 2024 (NTBsatu, 2024). The image of Pesantren Nurul Haramain, which has successfully implemented the 'eco-pesantren' concept as part of green economy practices, fosters political will that demonstrates pesantren not only understand environmental preservation as part of religious teachings but also successfully implement it in practice. The influence of pesantren as a communal actor, with an increasing number of institutions, positions them as new stakeholders capable of achieving sustainable economic development. In this case, it is about realizing green economic resilience in the Global South. Therefore, the research problem formulation in this study is: What are the potentials, opportunities, and challenges of political will in pesantren to realize green economic resilience in the Global South, particularly in Indonesia.

The urgency of this research is as follows: First, environmental issues remain a global concern, particularly in the Global South. Second, the Global South is a region with significant potential, particularly in the agricultural sector, and holds immense opportunities to develop the green economy sector, thus empowering both natural and human capital in agricultural development. Third, pesantren still face challenges in optimizing downstream processes in macroeconomic aspects, such as export. Fourth, pesantren are stakeholders with political will to provide solutions to society and are capable of offering policy recommendations to the government to realize green economic resilience, which can be implemented by other pesantren across Indonesia.

RESEARCH METHOD

This research used qualitative method. It approaches employed is based on the major method, specifically using a case study as the research object specification. Case studies refer to a detailed specification and description of the subject. The case study approach involves setting boundaries in identifying a case, while also recognizing the interconnections between elements. In this study, the case study approach emphasizes the environment that influences the existence of the case (Christensen *et al.*, 2014). The case study plays an important role in this research as a form of data validation. Therefore, the researcher employed data collection techniques, such as interviews and observations at Pesantren Nurul Haramain, Narmada, West Lombok, West Nusa Tenggara, as the specific subject that applies green economic resilience in Indonesia through the conceptualization of eco-pesantren. The stakeholders interviewed include the pesantren leader and architect of the eco-pesantren model, the Head of the Pesantren Business Unit, the integrated farming developer, and the next generation of pesantren business unit developers.

The conceptual framework of this research uses an integrated approach between the fields of International Relations and Agrotechnology. From the perspective of International Relations, the researcher analyzes the political will of pesantren as contributors to economic resilience. Meanwhile, from the Agrotechnology perspective, the researcher examines the implementation of eco-pesantren. The researcher has designed the conceptual framework as follows:

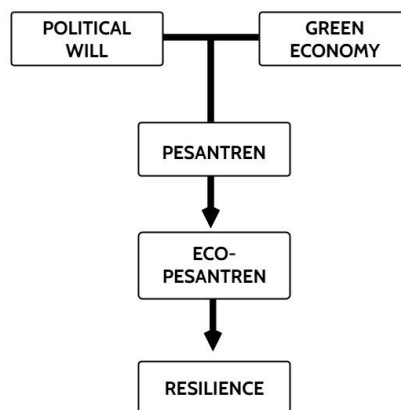


Figure 1. Flow Diagram of the Conceptual Framework of the Research

RESULT AND DISCUSSION

Political Will in Islamic Boarding Schools (Pesantren) for Green Economic Resilience in the Global South: The Case of Pesantren Nurul Haramain in Indonesia

Pesantren play a political role in the social aspect. This is due to their growing number, alongside the significant increase in the number of students (santri). The image of pesantren in society is not only strong in terms of religious-based education, but also in the social behavior of the students within the community. The strong influence of pesantren in society positions them as

political will actors who provide solutions to social issues. This is further reinforced by the strategic role of pesantren as a medium for knowledge dissemination and as agents of social transformation within the community (Widianto *et al.*, 2023).

Indonesia is the country with the largest Muslim population in the Global South and has significant religious-based social dynamics that draw public attention. The influence of pesantren as stakeholders is evident in Indonesia, especially as the number of pesantren continues to grow significantly. By 2024, their number is expected to reach 34,000 (Waluyo, 2024). Pesantren in Indonesia are a manifestation of class transformation power, as they provide educational services regardless of social strata. The educational model of pesantren shapes competencies and skills through a system of mentorship, which in turn helps shape the social status of Muslims in Indonesian society. In addition, pesantren have social resilience, contribute to community development, foster scientific and cultural traditions, and achieve economic independence (Assa'idi, 2021).

Pesantren have a strong track record in economic development, including the development of human capital through education. This is evident from the many pesantren that have business units managed as a manifestation of the pesantren's economic independence. The management of pesantren businesses varies across different sectors, including in the agricultural sector as part of the implementation of green economy initiatives. This potential is closely linked to the location of most pesantren in Indonesia, which are predominantly in rural and agricultural areas (Mardhiah & Aulia, 2017). Pesantren Nurul Haramain, located in Narmada, West Lombok, is a pesantren with crucial political will and often serves as a pioneer in regional agricultural development. This is carried out through an Islamic theological mindset, mapping out the eco-pesantren concept as an outstanding program that contributes to green economic resilience.

This research involves three areas of analysis regarding the political will of pesantren through the eco-pesantren concept as contributors to green economic resilience, namely potential, opportunities, and challenges, as follows:

Potential of Eco-Pesantren

Eco-pesantren provides a way for pesantren to implement environmental care actions. The application of eco-pesantren is the actualization of blessings from the hard work being done. The process is closely linked to the principle of "I'malu fauqo ma'amilu", meaning "to strive above the average" and "I do, what I do", which means to do something sincerely and earnestly. In other words, the greening efforts undertaken by pesantren are not based on calculation or business interest orientation (Muis, 2024b). Muslims must pay attention to their duties carefully, so that the achievements resulting from these efforts reflect maximum work.

Pesantren Nurul Haramain created the "Kitab Hijau" (Green Book), initiated by Tuan Guru Hasanain Junaini, the leader of Pesantren Nurul Haramain, in 2002 (Muis, 2024c). It serves as a teaching tool for the community to foster environmental love and promote greening efforts by utilizing dry land, such as the Madani Supercamp located in a different area, used as a nature-based learning center. In the Madani garden area, there is also a Trigona honey garden that cultivates trigona honey, vanilla, passion fruit, and organic fertilizer production (Muis, 2024a).

Secondly, there is the Mass Waste Incinerator. As part of implementing the green economy since 2014, Pesantren Nurul Haramain has also addressed the issue of mass waste management, with the pesantren generating up to 1 ton of waste per day. This is compounded by the passive involvement of external waste management staff. Therefore, the pesantren developed a 'Waste Incinerator' method to burn the accumulating waste. This incinerator is designed conventionally and uses simple technology so that the general public can replicate it without requiring large capital investment. The incineration process can dispose of 1 ton of waste per day. The incinerator is two-tiered, with the top tier designed to burn the waste completely and a chimney designed to prevent smoke from accumulating and polluting the surrounding air. The lower tier allows for circulation of cool air. To support this process, waste incineration is carried out after midnight, during hours outside of the pesantren's productive activities. This method has proven to be an effective solution for the problem of mass waste pollution in a short period of time, without disturbing the surrounding community (Muis, 2024c).

Thirdly, Haramain Farming as Agricultural Integration. Haramain Farming is a food security initiative that has been in place since 1994 and continues to the present in 2024. Haramain Farming covers a total area of 56 hectares spread across various locations, including the pesantren's central garden, Sekotong, the coastal area, and Madani Supercamp. Haramain Farming was created in response to the challenges faced by local farmers who struggle with managing organic fertilizers, animal feed, and chemicals, which makes farming unprofitable due to inaccessible capital. Additionally, farmers lack the skills to process derivative products (agriculture downstream) (Muis, 2024c).

Haramain Farming developed strategies to reduce the cost of animal feed and empower plant-based feed alternatives, such as Lenma Minor, which grows in ponds and serves as supplementary feed for fish, alongside pellets. Furthermore, the empowerment of goat manure into organic fertilizer provides natural nutrients for plant cultivation, thus improving fertilizer cost efficiency (Muis, 2024c).

The performance of Haramain Farming represents a balanced economic contribution in West Nusa Tenggara (NTB). During the Covid-19 pandemic, NTB experienced relatively low economic losses because its economic cycle still depended on agricultural products, rather than on industrialization, which had not yet been fully developed. Haramain Farming has also been involved in national greening projects, such as a grant from Bank Indonesia (BI) for the construction of a guest house, a grant from the Agricultural Instrument Standards Agency (BSIP) for the development of vanilla plants, and consultations from the Ministry of Forestry (Muis, 2024a).

Implementation of 'Eco-Pesantren' through Integrated Farming at Pesantren Nurul Haramain as a Contributor to Green Economic Resilience in Lombok, Indonesia

The economic cycle that occurs is derived from ecology, environment, and industry. The development of the ecological economic cycle, such as the use of organic fertilizers and plant-based pesticides, plays a role in the "green" function of the economy. The purpose of this is to enhance biodiversity, both above and below the ground (Rohmawati *et al.*, 2015). The implementation of Eco-Pesantren at Pondok Pesantren Nurul Haramain contributes to green economic resilience. Pondok Pesantren Nurul Haramain has been developing an integrated farming system since its

establishment to this day. This development has a noble goal, which is from the community for the community. Through integrated farming activities, education is also provided to the students (santri and santriwati) so they can reflect on Allah's creations while practicing environmental preservation and food self-sufficiency education. The integrated farming system at Pondok Pesantren Nurul Haramain can be described as follows:

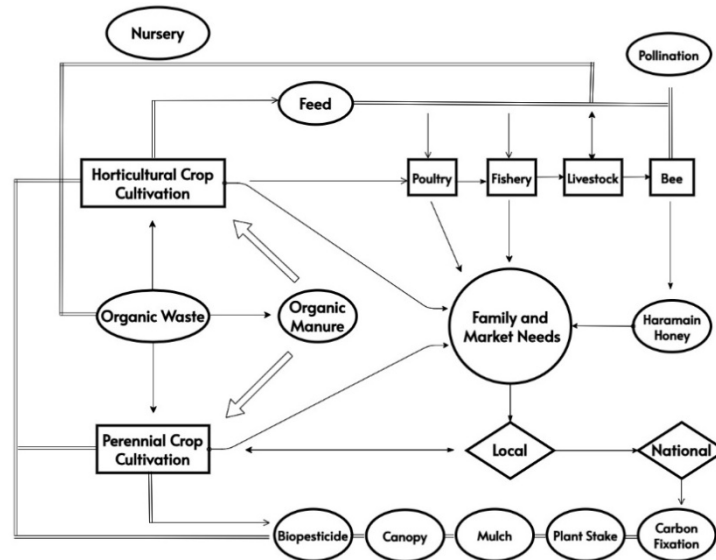


Figure 2: Simple Mapping of the Integrated Farming System at Nurul Haramain Islamic Boarding School

- 1) *Nursery*
Initial stage where plant seeds are prepared and cultivated for further growth.
- 2) *Horticultural crop cultivation*
Growing various horticultural crops that are supported by inputs from the organic waste and organic manure.
- 3) *Organic waste*
Waste generated from the system that is recycled and processed into organic fertilizer.
- 4) *Organic manure*
Organic manure produced from organic waste, used as fertilizer in cultivating perennial and horticultural crops.
- 5) *Perennial crop cultivation*
Cultivation of crops that grow and are harvested annual, biennial, or perennial using organic fertilizers as nutrients.
- 6) *Feed*
Source of food for poultry, fish, livestock, and bees, creating a sustainable cycle within the system.
- 7) *Poultry, fishery, livestock, bees*
Animals that are part of the farming system, providing food and pollination services.
- 8) *Pollination*
Pollination services are primarily provided by bees, essential for crop production.
- 9) *Family and market needs*

The final products from crops and livestock are distributed to the families associated with the boarding school and to the local market.

10) *Haramain honey*

Honey produced from bees, branded as "Haramain Honey," is marketed for additional revenue.

11) *Community and national level*

The integrated farming system supports the local community and contributes to national objectives in agriculture.

12) *Additional components:*

- a. Biopesticide: natural pest control used for crop protection.
- b. Natural canopy, plant stake, mulch: various farming aids to support plant growth.
- c. Carbon fixation: environmental benefit where carbon is captured to reduce the carbon footprint of the system.

Nurul Haramain Islamic Boarding School has maximized land function, or land intensification, by implementing integrated farming. This approach enhances biodiversity through the integration of agriculture, aquaculture, and livestock farming. Horticultural crop cultivation includes vegetable and fruit plants. Perennial crop cultivation consists of seasonal fruit plants, shade trees, and fence plants. Aquaculture involves freshwater fish and ornamental fish. Livestock farming includes poultry, cows, goats, and bees.

Integrated farming is reflected in the efficient use of inputs from one cultivation activity to support another. The principles of zero waste in the integrated farming system to support environmental sustainability have been applied, although not yet perfectly. This is implemented through the reuse of organic waste, integrated with agriculture, aquaculture, and livestock models. From nature to nature, whatever has been taken from nature is returned as much as possible to maintain the balance of the earth. Some of the strategies implemented by Nurul Haramain Islamic Boarding School in this regard (Figure 2) include:

- a) **Livestock Output:** Goat manure is reused as compost, and livestock urine is used to make organic liquid fertilizer. The fertilizer-making process is developed independently through fermentation techniques. The composting product is applied to the land as a primary nutrient source for crop cultivation. Applying organic fertilizer to the soil restores and enhances soil fertility after previous planting cycles.
- b) **Kitchen Waste and Soybean Husk:** Waste from the kitchen and soybean husk from tempeh production are reused in poultry farming as a source of poultry feed. Soybean husk has been proven as poultry feed due to its high crude fiber, crude protein, crude fat, and metabolizable energy content .
- c) **Coconut Biomass:** The accumulation of coconut husks is reused as organic mulch for vanilla (*Vanilla planifolia*) cultivation to maintain soil moisture during the vanilla growth period. Vanilla, known as "green gold," requires specific growing conditions: air temperature between 20-30°C, an average rainfall of 1000-2000 mm/year or 8-9 wet months, and sunlight intensity of around 30-50% (Kementrian Pertanian, 2011). Natural shade and biological supports are also used in vanilla cultivation, adapting to vanilla's growth requirements.
- d) **Weed Biomass:** Weeds, which usually disrupt the growth of main crops, are reused as organic mulch. Like organic fertilizers, organic mulch enhances soil function as a planting medium. Mulch significantly reduces the growth of other weeds by limiting resources such as sunlight

reaching the soil surface. Another benefit of organic mulch is balancing soil moisture availability, reducing evaporation (Petrikovszki *et al.*, 2020).

- e) Pruning Biomass: Biomass from the pruning of perennial plants such as Gliricidia, mahogany, ketapang, and papaya leaves. Pruned Gliricidia and mahogany leaves are used as a source of biopesticides. Biopesticides, which contain natural ingredients easily found in the surrounding environment, control pests due to beneficial phytochemicals. Papaya and ketapang leaves are used as a natural antibiotic source in aquaculture. Papaya contains a bitter substance called papain, which can repel pests and diseases affecting plants or livestock (Suliantini *et al.*, 2022).

Input Efficiency

Minimizing external inputs by utilizing internal resources is a principle of integrated farming. In addition to organic waste, Nurul Haramain Islamic Boarding School achieves input efficiency through the following natural resources:

- a) Independent Seed Production: Through vegetative and generative parts of plants. Some fruits are selected for seeds, which are then processed into seedlings. Vegetative propagation, such as cuttings and grafting, is also intensively practiced to reduce external input costs.
- b) Natural Supports and Shade: Natural supports using living plants. Mahogany and Gliricidia trees are used as supports for climbing plants like vanilla. The canopy of these trees also serves as natural shade, protecting vanilla plants from direct sunlight.
- c) Lemna Minor Cultivation: Lemna minor is cultivated as an additional vitamin source in aquaculture. Lemna minor is a small monocot, macrophyte plant that grows in water and has proven beneficial for its environment. It helps absorb heavy metal pollutants from water, thus maintaining water quality. Consumed by aquatic organisms, it has antimutagenic effects, enhancing fish immunity more than regular pellets alone (Tyastuti *et al.*, 2016).
- d) Local Bee Breeding: Nurul Haramain Islamic Boarding School, through its business unit, is developing and breeding local Lombok honey bees. Collaborating with the community to improve the growth environment for Trigona bees, the partnership involves increasing bee colonies and banning chemicals around the beekeeping area, even for passing visitors. Trigona or Tetragonula biroi bees are specially cultivated in a rural "Trigona garden." Known as "klanceng bees" in Java, Trigona bees are safe around humans due to their non-aggressive nature and lack of stingers. Trigona bees help pollinate flowering plants, benefiting both bees and crops. Trigona honey production yields a distinctively sweet, sour, and slightly bitter honey branded as Haramain Trigona Honey (Maryati *et al.*, 2022).

Opportunities for Political Will of Pesantren in Efforts Toward Green Economic Resilience

Integrated Farming System (IFS) is widely recognized globally and considered crucial for sustainable agriculture. Sustainability means a farming system can last long-term, not just temporarily. IFS is achieved by maximizing available resources, considering environmental management impacts, and maintaining social and economic welfare. IFS includes the integration and synergy of agriculture, livestock, aquaculture, agroforestry, waste recycling, beekeeping, and organic farming practices (Chan, 1985). All these potentials have been initiated and developed by Nurul Haramain Islamic Boarding School.

The integration principle at the boarding school emphasizes input efficiency with minimal maintenance, as everything happens naturally. Consequently, the output generated is also

maximized. Agricultural, aquaculture, and livestock products can be harvested daily, weekly, monthly, annually, biannually, and beyond, meeting most of the boarding school's large family's food needs sustainably. Students actively participate in farming activities as a voluntary effort.

By involving the community as innovation management subjects, Nurul Haramain Islamic Boarding School contributes to reducing carbon emissions in the atmosphere. Efforts to preserve natural conditions include planting and distributing 1,000 free tree seedlings. Together with the community, these trees are expected to grow long-term and serve as carbon sinks. This effort preserves Indonesia's natural environment, representing a green investment for sustainability, prosperity, and mutual benefit not only financially but also in terms of natural resources.

The potential of eco-pesantren created by Pesantren Nurul Haramain offers broader opportunities. The performance of eco-pesantren at Pesantren Nurul Haramain has earned national recognition and awards, such as the Kalpataru Award and the Indonesia Green Award, due to its high environmental awareness and sustainability in preserving nature for future generations. The pesantren has collaborated on agricultural development with government bodies, including the Forestry Ministry, the Agriculture Ministry, and the Environmental Ministry, and has received recognition for the pesantren's educational capabilities from the Ministry of Religious Affairs. The agricultural productivity efforts of the pesantren have also been covered by national media, helping to spread information about its existence.

In an international context, the significant influence of pesantren as a contributor to regional green economy resilience has been recognized, earning international awards such as the Ramon Magsaysay Award, considered the Asian version of the Nobel Prize, for developing an environmentally conscious pesantren that respects women and promotes interfaith harmony (Muis, 2024b).

It has also received the Ashoka Award as a leading member for its consistent application of agricultural development programs over the years. Furthermore, as part of international relations, Pesantren Nurul Haramain has contributed as one of the assessors for the Syafi'i Ma'arif Awards and has served as an active trustee for the Ramon Magsaysay Awards, acting as an advisory council. The pesantren has also participated in various international training sessions in Thailand and India organized by these prestigious international bodies (Muis, 2024b). Additionally, Tuan Guru Hasanain has served as a keynote speaker for 19th Island of the World Conference: Island and Resilience for Global Opportunities on 25 June 2024, representing Islamic Boarding School (Pesantren) as a key stakeholder in agricultural development through the conceptualization of eco-pesantren.

As action for green economy network and project, Pesantren Nurul Haramain has a great connection with others Non-Governmental Organization, such as WALHI, CI, and P3M. The significance is it connects to all Pesantren in West Nusa Tenggara that amount 327. The projects were tree plantation and spread one million seeds in the program "Pesantren for the People" until 2017. Indeed, it contributed in crisis land. Moreover, it published the book of Fiqh for Nature (Ethics for Nature) with collaboration all over Pesantren in Indonesia and National Nature Conservation Societies as International Organization. It also campaign nature conservation in national, regional, and International Level (Junaini, 2024).

These national, regional and international achievements have shaped the political will of Pesantren Nurul Haramain as a key stakeholder and political actor among religious groups, actively participating in agricultural development projects and green economic growth in Indonesia. Efforts toward green economic resilience in Indonesia are closely linked to sustainable development, which harmonizes the environment, economy, and social aspects as an integrated unit. The productivity of pesantren as a contributor to agricultural development plays a crucial role in sustainable regional economic growth, such as the integration of upstream and downstream agricultural activities (managed waste and empowerment of peatlands), agricultural productivity, and the creation of livelihoods (Kementerian Bappenas, 2020).

Pesantren Nurul Haramain promotes diversification and sustainability, prioritizing local natural and human resources as capital for development, such as empowering land to become productive, conducting research and development on integrated farming with pesantren business units, and cultivating vegetables such as water spinach and fruits, which are supplied to local markets and Neighborhood Province, that is Bali.

Challenges in Optimizing Green Economic Resilience

On the other hand, the existence of green economic resilience efforts established by Pesantren Nurul Haramain is still not fully optimized. This is due to several challenges. First, the issue of air pollution caused by the smoke from the mass waste burning process has not yet reached a Net Zero status (Muis, 2024c). This is acknowledged because empowering capital with simple technology is much quicker to implement and more cost-effective. However, the pesantren continues to pursue greening efforts in wider community areas, such as the planting of 1,000 trees at the area near Lombok International Airport's bypass (Muis, 2024b).

The second challenge is the suboptimal downstream agricultural processes. The pesantren has pushed for efforts to create derivative products for the community, but these are still in the form of raw products that are consumed directly, and there is no mechanism for packaging agricultural or plantation products into ready-to-use products. Additionally, the pesantren is still a supplier for local markets and Bali. There is also export demand to the Philippines, but due to the limitations of the pesantren's human resources, it has not been able to meet the high and routine mass demand.

The third challenge is the lack of a structured curriculum for empowering the next generation of students (santri). As a result, agricultural development programs are not mandatory for the students. Their involvement is limited to voluntary participation or as part of independent communities of the santri. However, all elements of the pesantren are involved in the development of the integrated farming program, including the teachers. The curriculum or procedures for this program have not been prioritized in order to avoid burdening the internal affairs of the pesantren while still reaching the community. While Pesantren Nurul Haramain does not have an official identity, its existence has become a pioneer in the community.

KESIMPULAN

The potential and opportunities of Pesantren Nurul Haramain play a significant role as a contributor to green economic resilience in Indonesia. This is because the pesantren possesses the political will that can bridge the government and provide solutions to societal problems. This

strategic role of the pesantren gives it legitimacy as a driving force, both in terms of social influence and economic independence. The challenges faced are part of the ongoing process of optimizing empowerment on a macroeconomic scale, which will continue to experience significant development for future economic resilience.

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