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Integration of Sharia Economic Principles and Ecological Economic Approaches in Oil Palm Plantation Management

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ABSTRACT

Palm oil is a vital commodity in tropical countries, yet its cultivation often leads to environmental degradation and economic burdens, as experienced by the Mekar Indah Jaya Farmer Group in Tulang Bawang, Lampung. This study explores the integration of Islamic economic principles and ecological economics in palm oil plantation management using a qualitative approach through interviews, focus group discussions, and participatory observation. The findings reveal that the use of organic fertilizer derived from palm waste reduces dependence on chemical fertilizers, increases crop yields, and minimizes environmental damage. Additionally, the application of Islamic values such as justice, sustainability, and cooperation enhances farmers' welfare and empowers the surrounding community. The study recommends the development of policies that integrate Islamic and ecological principles to promote more sustainable palm oil farming practices.

1. Introduction

Oil palm plantations have become one of the main agricultural sectors in tropical countries, particularly in Indonesia and Malaysia, which are the world's largest producers of palm oil. The industry plays an important role in local and national economies by contributing significantly to income and employment for smallholders (Cramb & McCarthy, 2016). However, the expansion of oil palm plantations often comes with serious environmental consequences. Clearing land for oil palm plantations often results in extensive deforestation, destroying tropical forest ecosystems and threatening biodiversity. This process not only reduces natural habitats for flora and fauna, but also exacerbates global climate change through increased carbon emissions, as forests that previously served as carbon sinks are lost. In addition to environmental impacts, smallholders also face social challenges such as market uncertainty, low wages and inequity in profit distribution, which are often exacerbated by a lack of support and access to sustainable agricultural technologies.

Oil palm plantations have long been an important component of the agricultural industry, especially in tropical regions like Indonesia. In Tulang Bawang, Lampung, oil palm plantations are the main source of income for many farmers. However, the intensive use of chemical fertilizers in the management of oil palm plantations has caused various problems, both from an environmental and economic perspective. Excessive use of chemical fertilizers causes soil and water pollution, soil quality degradation, and ecosystem damage

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(Darras, T., Damayanti, S., & Foerster, 2020). This pollution not only affects the health of the soil but also affects the health of the surrounding community and increases operational costs for farmers (Varkkey, H., Lim, S. S., & Tan, 2018).

The Mekar Indah Jaya Tulang Bawang Farmer Group, in the management of their oil palm plantation, faces various challenges that affect the effectiveness and sustainability of their farming practices. One of the main challenges is environmental degradation. The use of conventional chemical fertilizers in oil palm plantations often results in soil and water pollution, as well as soil degradation that can hinder plant growth and threaten local biodiversity. This pollution can also affect the health of surrounding communities that depend on these natural resources.

In addition to environmental challenges, there are also significant economic challenges. Expensive chemical fertilizers and reliance on non-renewable raw materials add to the financial burden for smallholders. Fluctuating market prices and high production costs can reduce profit margins, impacting farmers' economic well-being. Identifying more cost-effective and environmentally friendly alternatives is therefore crucial.

On the social side, the Mekar Indah Jaya Tulang Bawang Farmer Group faces a lack of knowledge and skills regarding sustainable agricultural practices. Lack of access to training and information on the latest agricultural technologies can hinder the adoption of more effective and environmentally friendly methods, such as the use of organic fertilizer from palm trunks. The Mekar Indah Jaya Farmer Group in Tulang Bawang, which manages oil palm plantations, faces the challenge of adopting more environmentally and economically friendly farming practices. The integration of sharia economic principles and ecological economic approaches by utilizing fertilizer from palm trunks is a strategic step to address the problem. This not only helps in reducing negative impacts on the environment but also enhances economic and social sustainability, in accordance with the values upheld by sharia economics (Krisnadi, A., Pratama, A., & Wibowo, 2022).

Faced with these challenges, the integration of Islamic economic principles and ecological economic approaches can be an effective solution. Islamic economic principles, which emphasize fairness, transparency and social responsibility, offer ethical guidance in resource management. By applying these principles, farmers can ensure that their farming practices not only meet environmental sustainability standards but also provide equitable social benefits for the entire community. The application of these principles in oil palm plantation management involves the use of fair and sustainable practices, such as the utilization of organic fertilizers from palm trunks, which are a by-product of the harvesting process. This fertilizer can reduce dependence on chemical fertilizers and reduce waste (Sukartono, T., Wicaksono, A., & Haryanto, 2019).

Islamic economic principles offer an alternative approach that can help address these challenges. Islamic economics, with its foundation in Islamic principles such as justice, social responsibility and balance, provides a framework for more equitable and sustainable management practices. The principles of *mudarabah* and *musyarakah* in Islamic financing, for example, can share risks and profits more fairly between farmers and investors, while the principle of *ihsan* emphasizes the need to take care of the environment and surrounding communities (Hasan, 2020). These principles encourage industry players to integrate social and environmental responsibility into their economic activities, which can help mitigate the negative impacts of oil palm plantation expansion.

In addition, the ecological economics approach, which focuses on achieving a balance between economic and ecological aspects, is also relevant in the management of oil palm plantations. This approach encourages the adoption of environmentally friendly and sustainable agricultural practices, which consider both productivity and environmental impacts of agricultural activities (Ekins, 2002). The ecological economics approach focuses on environmental sustainability and resource efficiency, which is in line with Islamic economic principles. In this case, organic fertilizer from palm trunks, as an alternative to chemical fertilizers, not only reduces negative environmental impacts but also improves soil health and nutrient cycling. The use of these fertilizers can improve soil quality, reduce pollution, and optimize the use of existing resources, which in turn can increase crop yields and reduce operational costs (Lee, S. B., Yun, J. I., & Kim, 2020).

The ecological economy approach also emphasizes efficient use of resources and minimization of environmental impacts. The use of organic fertilizer from palm trunks is an example of this approach, as it

reduces dependence on synthetic chemicals and improves soil health. Organic fertilizers not only increase soil fertility but also reduce negative impacts on the environment, which is in line with Islamic economic principles of responsibility towards the environment and society.

The integration of these two approaches helps the Mekar Indah Jaya Tulang Bawang Farmer Group to face its challenges in a more sustainable and ethical way. The application of sharia economic principles in the management of oil palm plantations can ensure that agricultural practices are carried out with integrity and fairness, while an ecological economic approach can improve efficiency and reduce environmental impacts. By combining these two approaches, farmers can achieve better outcomes in terms of both environmental sustainability and economic well-being.

By utilizing organic fertilizer from palm oil waste, the Mekar Indah Jaya Farmer Group can not only reduce dependence on chemical fertilizers but can also improve resource use efficiency and reduce environmental impacts, as well as comply with the principles of justice and sustainability in sharia economics. The integration of sharia economic principles with an ecological economics approach may offer a more holistic solution, combining economic benefits with environmental and social responsibility. Further research is needed to evaluate the effectiveness and practical implementation of this approach in the context of oil palm plantations in Tulang Bawang.

The integration of Islamic economic principles and ecological economic approaches in oil palm plantation management has been the focus of interesting research. One study highlights how Islamic Islamic economic principles can be integrated in the development of a green economy in Indonesia, emphasizing green financing by banks and investment in renewable energy as concrete examples (Romli, 2024). Another study examines the application of green economy based on Islamic economics as an effort towards sustainable development, highlighting the importance of natural resource efficiency and wealth redistribution (Andini et al., 2024). In addition, a study on the integration of Maqashid Shariah principles into the green economy shows that the alignment of these principles provides a holistic approach to achieving economic, social and ecological balance (Ratna Delfita, 2025). Overall, these studies emphasize that the application of sharia economic principles in oil palm plantation management can encourage green and sustainable economic growth, while maintaining ecological balance.

Although there have been several studies that examine the integration of Islamic economic principles and ecological economics, most studies tend to focus on basic theories and principles without exploring their practical application in specific industries, such as oil palm plantation management. Many existing studies are also still limited to financial or social aspects, while ecological aspects in the context of sustainable and environmentally friendly oil palm plantations have not been thoroughly discussed within the framework of Islamic economics. In addition, most studies are still lacking in developing clear operational models related to the application of Maqashid Shariah principles in line with the ecosystem and green market needs.

This research offers a more applicable approach in integrating sharia economic principles with ecological economic approaches in oil palm plantation management, with a focus on implementing strategies that are not only financially and socially sustainable, but also ecological. The novelty lies in the development of an oil palm plantation management model that combines the philosophy of sharia economics (especially the principles of principles justice, sustainability, and the welfare of the people) with the of ecological economics that emphasize wise management of natural resources.

a. Literature

Oil palm plantations have become one of the main agricultural sectors in tropical countries, such as Indonesia and Malaysia, but they are often associated with significant environmental impacts. Research by Carlson et al. (2012) shows that the conversion of forests to oil palm plantations in Malaysia contributes significantly to carbon emissions, which exacerbate global climate change. Goh and Moon (2017) add that the expansion of oil palm plantations threatens biodiversity and causes profound ecosystem damage. Although these studies provide a clear picture of the environmental challenges facing the oil palm industry, they do not examine solutions based on sharia economic principles or integrate an ecological economic approach in oil palm plantation management.

Sharia economic principles, which include justice, social responsibility, and balance, have been applied in various agricultural sectors, but not yet in the context of oil palm plantations. Hasan (2020) discusses the

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application of the principles of *mudarabah* and musyarakah in sustainable agricultural financing, with a focus on fair risk sharing and profit sharing. The principle of ihsan also emphasizes the importance of social and environmental responsibility in economic activities. However, there is no research that specifically links these principles to environmentally friendly oil palm management practices.

The ecological economic approach, which focuses on achieving a balance between economic and ecological aspects, is a relevant framework in natural resource management. Ekins (2000) outlines how this approach encourages practices that integrate economic productivity with environmental sustainability. In the palm oil sector, despite efforts to implement sustainable practices, there are no studies that link this approach to sharia economic principles.

Several sustainable management models, such as RSPO (*Roundtable on Sustainable Palm Oil*) certification, seek to reduce environmental impacts while improving the welfare of farmers (Cramb & McCarthy, 2016). However, these models generally focus on international standards without considering the principles of Islamic economics or the ecological economic approach specifically. This study aims to fill the gap by developing an oil palm management model that integrates the principles of Islamic economics and the ecological economic approach.

The following table summarizes the literature related to oil palm plantations, environmental impacts, sharia economic principles, and ecological economic approaches, and explains the existing gaps and the contribution of this study:

Table 1. Previous Research

Research Area	Previous Studies	Key Findings	Research Gaps
Environmental Impact of Palm Oil	Carlson et al. (2012); Goh and Moon (2017)	- Forest conversion to palm plantations contributes to carbon emissions and climate change. - Expansion threatens biodiversity and causes ecosystem damage.	Do not explore solutions based on Sharia principles or integrate ecological economics into palm oil management.
Application of Sharia Economic Principles in Agriculture	Hasan (2020)	- *Mudarabah* and *musyarakah* promote fair risk and profit sharing in sustainable agriculture. - *Ihsan* emphasizes social and environmental responsibility.	Lack of connection between these principles and environmentally friendly palm oil management.
Ecological Economics Approach	Ekins (2000)	- Promotes integration of economic productivity with environmental sustainability.	No studies link ecological economics with Sharia principles in palm oil management.
Sustainable Palm Oil Management Models	Cramb & McCarthy (2016)	- RSPO certification seeks to reduce environmental impact and improve farmer welfare.	Focuses on international standards without considering Sharia principles or the ecological economics approach specifically.

This research will produce policy recommendations and best practices that combine Islamic economic principles with an ecological economic approach. These recommendations will provide new practical guidance for policymakers, companies, and farmers, different from recommendations that often only focus on international standards without considering the integration of sharia principles. By touching on these aspects, this research has the potential to make a significant contribution to the management of palm oil plantations that are more sustainable, fair, and environmentally friendly.

a.1. Principles of Sharia Economics

Islamic economics, or Islamic economics, is an economic system based on the principles of Islamic law, which not only covers economic aspects but also includes social, ethical and environmental dimensions. The principles of Islamic economics aim to create balance and justice in economic activity, as well as ensuring that economic activities are conducted in a manner that is in accordance with Islamic teachings.

In this article, we will discuss the key principles in Islamic economics, including justice, social responsibility and balance, and how these principles are applied in economic practice.

a. Principle of Justice

The principle of justice is one of the main pillars in Islamic economics. This principle emphasizes that all economic transactions must be conducted in a fair manner, without any injustice or exploitation. Fairness in Islamic economics covers several aspects:

1) Fairness in Transactions: In Islam, economic transactions should be free from elements of usury (interest), gharar (uncertainty), and maysir (gambling), which can lead to injustice and exploitation (Hasan, 2020). Usury is prohibited because it is considered an unfair form of adding profit to debt. Gharar and maysir are prohibited because they can create uncertainty and disproportionate risk for one of the parties in the transaction.
2) Fairness in Profit Sharing: The principle of justice also includes the fair distribution of profits between the parties involved in economic transactions. In the Islamic system, the principles of *mudarabah* (business partnership) and *musyarakah* (capital participation) regulate how profits and losses should be shared proportionally and fairly according to the contribution of each party (Al-Qaradawi, 2018).
3) Social Justice: The principle of justice in Islamic economics also includes the responsibility to ensure social welfare. This means that economic activities should be conducted in a way that not only benefits individuals but also provides benefits to society as a whole (Hasan, 2020).

b. Principles of Social Responsibility

Islamic economics emphasizes the importance of social responsibility in every aspect of economic activity. This principle refers to the obligation of individuals and companies to consider the social impact of their economic activities and contribute to the well-being of society. The main aspects of social responsibility in Islamic economics include:

1) Zakat and Sadaqah: One of the main ways to fulfill social responsibility in Islamic economics is through zakat (charitable tax) and sadaqah (donation). Zakat is a religious obligation that individuals and companies must spend from their wealth to help the less fortunate. Sadaqah is a form of voluntary donation that also supports the welfare of society (Al-Qaradawi, 2018).
2) Worker Welfare: Islamic economics emphasizes the need to ensure worker welfare through fair wages, good working conditions, and protected worker rights. This principle includes fair treatment of workers and the creation of a safe and conducive working environment (Hasan, 2020).
3) Concern for the Environment: The principle of social responsibility also includes protection of the environment. Islamic economics encourages the wise use of natural resources and the avoidance of environmental damage. This is in line with the teachings of Islam which requires its people to preserve and protect the earth as a mandate from Allah (Ekins, 2002).

c. Principle of Balance

The principle of balance in Islamic economics emphasizes the need to create a balance between economic, social, and environmental aspects. This principle focuses on ensuring that economic activities are not only oriented towards financial gain but also pay attention to their impact on society and the environment. Some aspects of the principle of balance include:

1) Economic and Social Balance: In Islamic economics, the balance between economic profit and social welfare is very important. This means that economic activities should be carried out in a way that is not only financially profitable but also provides benefits to society and reduces social inequality (Hasan, 2020).
2) Economic and Environmental Balance: The principle of balance also includes the need to protect the environment and ensure the sustainability of natural resources. Islamic economics encourages business practices that are environmentally friendly and avoid damage that could threaten the balance of the ecosystem (Ekins, 2002).
3) Balance between Individual Needs and Public Interest: Islamic economics also emphasizes the importance of maintaining a balance between individual needs and the public interest. This means that individuals should pay attention to the impact of their economic activities on society at large and not just focus on personal interests (Al-Qaradawi, 2018).

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d. Application of Sharia Economic Principles in *Practice*

The application of Islamic economic principles in practice can be found in various aspects of economic activities, including banking, investment, and business. Some examples of the application of this principle are:

1) Islamic Banking: Islamic banking operates without usury and adopts the principles of *mudharabah* (partnership) and *musyarakah* (capital participation) in financing. Islamic banks also engage in social activities through zakat and alms and ensure that their investments do not contravene sharia principles (Hasan, 2020).
2) Islamic Investments: Islamic investments follow the principles of justice and social responsibility by avoiding investments in businesses that are considered haram (forbidden), such as alcohol, gambling, and products that harm society. It also emphasizes transparency and fairness in profit sharing (Al-Qaradawi, 2018).
3) Sharia Business: Businesses that operate according to sharia economic principles are committed to conducting their activities fairly, providing good treatment of workers, and contributing to the welfare of society. These businesses also adhere to sharia rules in transactions, marketing, and social responsibility (Ekins, 2002).

The principles of Islamic economics, namely, social responsibility and balance, provide a fairnessfair, ethical and sustainable manner. The principle of fairness ensures that all transactions are conducted in a fair manner, while the principle of social responsibility emphasizes the importance of contributing to the welfare of society and environmental protection. The principle of balance encourages integration between economic, social, and environmental aspects to create a more holistic management model. The application of these principles in various economic aspects, including banking, investment, and business, shows how the Islamic economy can contribute to fairer and more sustainable economic development.

2.2. Ecological Economics

Ecological economics is a field of study that combines economic principles with ecology to understand and manage the relationship between economic systems and the natural environment. The concept emerged in response to the growing awareness of the negative impacts of economic activities on the environment and the need to seek sustainable solutions. In this article, we will discuss the theoretical foundations of ecological economics, including basic principles, key theories, and practical applications in natural resource management and sustainable development.

a. Basic Principles of Ecological Economics

Ecological economics focuses on the reciprocal relationship between the economy and the environment, with the goal of achieving a balance between human needs and ecosystem capacity. Some basic principles in ecological economics include:

1) Linkages between Economic and Ecological Systems: Ecological economics emphasizes that economic systems and environmental ecosystems are inseparable. Economic activities depend on natural resources and ecosystem services, while changes in the environment can affect economic conditions (Ekins, 2002). This principle promotes the understanding that ecosystems are an integral part of the economic system and should be considered in economic planning.
2) Natural Capital and Ecological Capital: Natural capital refers to environmental assets such as land, water, and biodiversity that support economic activities. Ecological capital includes the ability of ecosystems to provide ecosystem services such as water filtration, climate control, and resource regeneration. Ecological economics recognizes the importance of ecological capital in supporting human well-being and maintaining the sustainability of economic systems.
3) Environmental *Carrying Capacity*: The concept of environmental carrying capacity refers to the limits of the environment's capacity to support economic activities without suffering irreparable damage. This includes limits on the utilization of natural resources and the ability of ecosystems to absorb waste and pollution (Hannon, 1991). Ecological economics encourages the use of resources in a way that considers the carrying capacity of the environment and prevents overexploitation.

4) *Sustainable Development*: Ecological economics supports the principle of sustainable development, which means meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development encompasses economic, social, and environmental aspects, and emphasizes the need for a holistic approach to planning and management.

b. Practical Applications of Ecological Economics

Ecological economics has various practical applications in natural resource management and sustainable development:

1) Natural Resource Management: A major application of ecological economics is in the sustainable management of natural resources. This includes the use of techniques such as life cycle analysis (LCA) to assess the environmental impact of products and processes, as well as the development of policies that promote resource conservation and efficiency.
2) Valuation of Ecosystem Services: Valuation of ecosystem services is an important tool in ecological economics for identifying and quantifying the contribution of ecosystems to human well-being. It assists in planning and decision-making by providing information on the economic value of ecosystem services that are often not accounted for in markets (Costanza et al, 2007).
3) Environmental Policy and Economics: Ecological economics contributes to the development of policies that integrate environmental considerations into economic decisions. These include policies such as carbon taxes, cap and trade, and subsidies for clean technologies designed to reduce the negative environmental impacts of economic activities.
4) Ecosystem Conservation and Rehabilitation: In the context of conservation, ecological economics helps design strategies to protect and restore damaged ecosystems. This includes programs such as habitat restoration, protected area management, and initiatives to repair environmental damage caused by human activities.

c. Challenges and Critiques of Ecological Economics

While ecological economics provides an important framework for understanding the relationship between the economy and the environment, some challenges and criticisms should also be noted:

1) Difficulties in Measuring the Value of Ecosystem Services: One of the main challenges is accurately measuring the value of ecosystem services. Although methods such as ecosystem economic valuation have been developed, estimating the total value of ecosystem services remains difficult due to the complexity and uncertainty in ecosystems (Costanza, et al, 2007).
2) Integration in Public Policy: The integration of ecological economics principles into public policy often faces political and economic barriers. Policies that consider environmental impacts are often confronted with industrial interests and implementation challenges (Ekins, 2002).
3) Dependence on Data and Models: Ecological economics relies heavily on data and models for the analysis of environmental impacts and the value of ecosystem services. This dependence can lead to uncertainty in the results of the analysis and the decisions made.

Ecological economics is an important field in understanding and managing the relationship between economic systems and the environment. The basic principles of ecological economics, including the interconnectedness of economic and ecological systems, natural capital, environmental carrying capacity, and sustainable development, provide a framework for promoting balance and sustainability. Key theories such as ecosystem services, ecological capital, environmental economics, and social metabolism provide the basis for analysis and practical application in natural resource management and environmental policy. Despite challenges and criticisms, ecological economics remains a vital tool in the quest to achieve more sustainable development in harmony with the environment.

2.3. Integration of Sharia Economics and Ecological Economics

Integrating the principles of Islamic economics with ecological economics can create a more holistic and sustainable management model. Some aspects of this integration include:

a. Economic and Environmental Balance: The principle of balance in Islamic economics, which emphasizes harmony between the economy and the environment, is in line with the principle of environmental carrying capacity in ecological economics. Integrating these principles means prioritizing the sustainable use of resources and ensuring that economic activities do not harm the ecosystem. This

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includes the adoption of environmentally friendly agricultural practices and careful management of natural resources (Hasan, 2020).

b. The principle of social responsibility in Islamic economics, Social Justice and Welfare: such as zakat and sadaqah, contributes to the welfare of society and the protection of underprivileged groups. This is in line with the principles of ecological economics that encourage equitable resource management and ensure benefits for all parties. The integration of these principles can create a management model that focuses not only on economic profit but also on social and environmental welfare (Al-Qaradawi, 2018).
c. Ecological Capital and Equity in Resource Use: The principle of natural capital and ecological capital in ecological economics recognizes the importance of maintaining the quality and sustainability of natural resources. This principle can be integrated with the justice principle of Islamic economics that ensures fair use of resources and does not harm the environment. This approach can encourage more sustainable and ethical resource management (Hasan, 2020).
d. Application in Economic Practice: Integrating Islamic economics with ecological economics in economic practice can be done through the development of business models and policies that prioritize sustainability and equity. For example, Islamic banks can apply sharia principles in investments that support environmentally friendly practices, and companies can adopt business strategies that consider the social and environmental impacts of their activities (Ekins, 2002).

While the integration of Islamic economic principles and ecological economics offers many benefits, some challenges need to be overcome:

a. Difficulties in Measuring and Assessing: Measuring the impact of practices that integrate Shariah and ecological principles is often difficult due to the complexity of economic and environmental systems. Assessing the value of ecosystem services and social impacts of economic activities requires accurate methods and data (Costanza et al, 2007).
b. Barriers to Policy Implementation: Implementation of policies that integrate economic principles Limitations in Knowledge and Awareness: Sharia and ecological economics can face political and economic barriers. Industry interests and deficiencies in public policy can hinder the application of these principles in practice (Ekins, 2002).
c. Lack of knowledge and awareness of the benefits and application of Islamic economic principles and ecological economics may limit effective integration. Education and training are needed to increase understanding and support for these approaches (Hasan, 2020).

The integration of the principles of Islamic economics and ecological economics offers a approach holistic and sustainable to the management of natural resources and economic activities. The principles of justice, social responsibility, and balance in Islamic economics can be combined with the principles of interconnectedness between the economy and the environment, natural capital, and environmental carrying capacity in ecological economics to create a more ethical and sustainable management model. Despite implementation challenges, this integration has the potential to achieve more sustainable and equitable development goals.

3. Research Methodology

The research method used in this study is qualitative, focusing on in-depth analysis with a comprehensive approach to ensure accurate and relevant data collection (Creswell & Poth, 2016). Various qualitative data collection techniques were employed, including in-depth interviews, focus group discussions (FGDs), participatory observation, and documentation (Angrosino, 2007). In-depth interviews were conducted to explore the views and experiences of farmers, plantation managers, experts, and sharia economic practitioners, particularly regarding the use of organic fertilizer derived from palm trunks and the application of Islamic economic principles. A total of 12 informants were interviewed, including farmers, plantation managers, academics, and Islamic economic practitioners. The interviews were guided by open-ended questions and analyzed using a thematic analysis method.

The FGDs involved 10 participants from palm oil farming communities and local stakeholders, aimed at gathering group perspectives on organic fertilizer practices and the application of sharia economic principles. Participatory observation allowed the researchers to directly observe the application of organic fertilizers in palm oil plantations, offering deeper insights into the agricultural practices on-site.

Documentation and literature reviews complemented the qualitative data with secondary information such as research reports and relevant academic literature (Silverman & Patterson, 2021).

The data were analyzed inductively, beginning with open coding, followed by axial and selective coding to identify key themes. The findings were then categorized into thematic groups, including farmer perceptions, sustainability practices, sharia principles in agriculture, and socio-economic dynamics. Validation was carried out using triangulation of sources and methods to ensure the consistency and accuracy of results.

Nevertheless, this study has several limitations. The research was limited to one plantation area, and the number of informants remains relatively small, which restricts the generalizability of the findings. Moreover, limited time and access to more detailed field data also influenced the depth of the analysis. Despite these limitations, this study provides a comprehensive understanding of the integration of Islamic economic principles and ecological economics in sustainable palm oil plantation management and offers strategic recommendations for future policies and practices.

4. Results and Discussion

4.1 Palm Oil Plantation Management Practices in Mekar Indah Jaya Tulang Bawang Farmer Group

Mekar Indah Jaya Farmer Group Mekar Indah Jaya, located in Banjar Baru Sub-district, Tulang Bawang Regency, is an organization of oil palm farmers committed to improving the welfare of its members through sustainable plantation management. The organization oversees palm oil farmers in the local area with the aim of promoting efficient, environmentally friendly agricultural practices based on sharia economic values. Mekar Indah Jaya has a vision to become an independent and competitive Mekar Indah Jaya Farmer Group by prioritizing social justice, environmental responsibility, and a balance between economic and ecological interests.

Led by Dr. KH Anwar Nawawi, S.H.I., M.Ag. as Chairman, Dr. Gugus Kris Wahyudi, M.Si. as Secretary, and Andriato, S.H as Treasurer, the group runs various activities that focus on oil palm plantation management, capacity building for farmers, and strengthening the local economy. One of their leading practices is utilizing palm oil waste from PT Menggala Sawitindo's mill to be processed into organic fertilizer, which helps reduce production costs and increase yields without harming the environment. This collaboration with industry partners also strengthens the harmonious relationship between farmers and the private sector.

In its operations, Mekar Indah Jaya upholds the principle of fairness by ensuring every member benefits equally. The principle of independence is applied by utilizing local resources and reducing dependence on imported chemicals. The principle of social responsibility is realized through job creation for the surrounding community and community economic empowerment. Through close cooperation among members, the Mekar Indah Jaya Farmer Group creates an atmosphere of solidarity and gotong royong that strengthens mutual success. With a strong vision and mission, the Mekar Indah Jaya Farmer Group plays an important role in creating a balance between farmer welfare and environmental preservation in Tulang Bawang.

The results show that oil palm plantation management in the Tulang Bawang region is managed by the Mekar Indah Jaya Farmer Group by effectively utilizing local resources. One of the leading practices found is the use of palm oil mill waste, known as "solid," as organic fertilizer. This waste is generated by a local palm oil mill, PT Menggala Sawitindo, which acts as a community partner for the farmers.

This solid has a physical shape resembling cow dung or traditional oil residue (blundu), with an oily texture to the touch. The nutritional content makes this waste very useful as an organic fertilizer that can improve soil fertility and productivity of oil palm plants. In addition, the use of this solid helps reduce farmers' dependence on chemical fertilizers, thereby reducing production costs and supporting more environmentally friendly plantation management.

The method of use is quite simple, namely if the soil is empty, solid fertilizer is sprinkled evenly at a dose of about 1 rit for every 2500 m² (a quarter of a hectare). This means that if the area of the oil palm plantation is 1 hectare, about 4 rites of solid fertilizer are needed. However, if the land is already planted with palm trees, fertilization is done by sprinkling solid on the right or left side of the trees alternately every six months. This fertilization dose has become a standard applied by the Mekar Indah Jaya Farmer Group,

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where the use of solid fertilizer should not be excessive. This is important, because if too much solid is applied, although the palm trees will grow more fertile, the yield of palm kernels produced will actually decrease.

Since more than 10 years ago, the Mekar Indah Jaya Farmer Group in Tulang Bawang has been regularly using this solid fertilizer, which is not only cheap but also has a positive impact on their palm oil yield. The only cost incurred is to pay for the transportation of solid fertilizer, which is taken from the factory to the plantation. The successful use of solid fertilizer has proven to increase palm oil yields every year, while providing significant profits for farmers. This is in line with sharia principles that utilize natural resources in a sustainable way.

More than just economic benefits, the existence of the Mekar Indah Jaya Tulang Bawang Farmer Group also has a broad social impact on the surrounding community. With the increase in palm oil yields, the Mekar Indah Jaya Farmer Group has helped alleviate poverty and reduce unemployment in the area. They create jobs, especially for laborers who work part-time to manage the oil palm plantation, including in the process of transporting and solid fertilizing. Thus, the Mekar Indah Jaya Farmer Group not only plays a role in increasing agricultural production, but also contributes to the economic and social empowerment of the surrounding community.

From a social and economic perspective, the use of solid as organic fertilizer provides many benefits. With the availability of solid at no cost from the factory, the Mekar Indah Jaya Farmer Group can reduce expenditure on the purchase of chemical fertilizers, which in turn increases farmers' net income and their welfare. PT Sawit Indo's policy of giving farmers the freedom to take as much solid as needed also facilitates access to this organic fertilizer, allowing farmers to utilize it according to the needs of their land. In addition, this policy strengthens the harmonious relationship between the mill and the surrounding community, making PT Sawit Indo not only an economic entity, but also a partner in community empowerment.

From an environmental perspective, solid waste management brings significant benefits. The use of solids as organic fertilizer reduces the amount of industrial waste that must be managed, thereby reducing the negative impact on the environment. In addition, solids help improve soil quality in oil palm plantations, making them more fertile and supporting sustainable plant growth. This practice also contributes to environmental conservation by reducing reliance on chemical fertilizers, which can lower pollution from synthetic chemicals.

This approach reflects the integration of sustainability and community-based management principles that allow local communities to maximize the potential of existing resources, while preserving the environment. It is also a clear example of how industrial waste management practices can provide direct benefits to surrounding communities.

4.2 Sharia Economic Principles in Oil Palm Farm Management

The management of oil palm plantations in the Mekar Indah Jaya Tulang Bawang Farmer Group shows a strong application of sharia economic principles in every aspect of their agricultural activities. The Mekar Indah Jaya Farmer Group not only focuses on increasing production yields, but also maintains the principles of ethics and sustainability in accordance with Islamic teachings. These principles are reflected in the way they manage natural resources, relationships among members of the Mekar Indah Jaya Farmer Group, and interactions with external parties such as the palm oil processing plant PT Menggala Sawit Indo.

a. Application of the Principle of Justice (*Al-'Adalah*).
   One of the Islamic economic principles applied in the management of oil palm plantations is justice. The Mekar Indah JayaTulang Bawang Farmer Group ensures that all members benefit equitably from their farm produce. The use of solid fertilizer obtained from PT Menggala Sawit Indo at a low cost, even just for transportation costs, allows the Mekar Indah Jaya Farmer Group to reduce their expenses. This creates equity, where farmers are not burdened with the high cost of buying chemical fertilizers, which is often financially burdensome for them. With the policy in place, all members of the Mekar Indah Jaya Farmer Group can benefit equally, with no one at a disadvantage.
b. Principle of Benefit (*Al-Manfa'ah*)
   The Mekar Indah Jaya Tulang Bawang Farmer Group also practices the principle of expediency, which ensures that every action or decision taken provides great benefits, both for individuals and society. One

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example is the use of solid fertilizer derived from palm oil processing industry waste. The waste not only reduces the amount of waste that must be managed by the mill, but also provides direct benefits to the soil and yield of the oil palm plantation. These organic fertilizers help improve soil fertility and support better growth of oil palm plants, resulting in higher production each year.

c. Sustainability Principle (*Al-Istiqamah*).
The principle of sustainability is also highly emphasized in the management of oil palm plantations by the Mekar Indah Jaya Farmer Group. They apply environmentally friendly farming methods by utilizing organic fertilizers and reducing dependence on synthetic chemical fertilizers. This practice is in line with the principles of sharia economics, which encourages the wise use of natural resources and does not damage the environment. By prioritizing sustainability, the Mekar Indah Jaya Tulang Bawang Farmer Group not only ensures agricultural success in the short term, but also protects the ecosystem for future generations.
d. Principle of Independence (*Al-Istighna'*).
The principle of independence is also reflected in the management of oil palm plantations by the Mekar Indah Jaya Farmer Group. They do not rely solely on outsiders, but strive to create independent and sustainable solutions. One proof of the application of this principle is the use of solid fertilizers that can be taken directly from the factory, without relying on imported chemical fertilizers whose prices can change at any time. In this way, Mekar Indah Jaya Farmer Group can reduce dependence on outsiders and have more control over their production costs.
e. Principle of Cooperation (*At-Takāful*).
The Mekar Indah Jaya Farmer Group in Tulang Bawang also applies the principle of cooperation in managing oil palm plantations. In practice, farmers work together in managing the plantation, including in the process of fertilizing and maintaining oil palm plants. They help each other to ensure that every step in plantation management is done well. This principle of cooperation is also reflected in their relationship with PT Menggala Sawit Indo, which not only serves as a solid fertilizer provider, but also as an economically and socially supportive partner. This creates a mutually beneficial and sustainable relationship between the farmers and the mill.

The management of oil palm plantations in the Mekar Indah Jaya Tulang Bawang Farmer Group is an example of the application of sharia economic principles in successful agricultural practices. By prioritizing justice, benefit, sustainability, independence, and cooperation, the Mekar Indah Jaya Farmer Group is not only able to increase their palm oil production, but also create a positive impact on the environment and surrounding communities. This practice can be used as a model for other Mekar Indah Jaya Farmer Groups who want to manage natural resources sustainably with sharia economic principles that maintain a balance between economic, social and environmental aspects.

Based on the research results obtained from the management of oil palm plantations in the Mekar Indah Jaya Tulang Bawang Farmer Group, the principles of Islamic economics are proven to be applied in practice. The following is an analysis of the application of relevant Islamic economic principles, namely *social responsibility* and *balance*, in the management of the oil palm plantation:

a. The Mekar Indah Jaya Tulang Bawang Farmer Group demonstrates a commitment to the principle of social responsibility by engaging in activities that lead to the economic empowerment of the surrounding community. Although there is no explicit data showing zakat spending by the Mekar Indah Jaya Farmer Group, their efforts in providing employment opportunities for the local community and providing additional income for local farming families can be considered a form of social responsibility. By providing employment opportunities to the surrounding community, the Mekar Indah Jaya Farmer Group is contributing to wider social welfare, in line with the principle of zakat in Islamic economics, which prioritizes equal distribution of welfare for all members of society (Al-Qaradawi, 2018).
b. The Mekar Indah Jaya Tulang Bawang Farmer Group also pays attention to the welfare of workers. In practice, they provide fair wages for workers involved in managing the oil palm plantation, such as collection and maintenance of the plantation. The wages received by workers reflect justice and equality in sharia economics, where workers are rewarded equally for their contributions (Hasan, 2020). Good treatment of workers creates harmonious relationships within the farming community, supporting the principle of social justice that is the very essence of sharia.

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c. In the management of oil palm plantations, the Mekar Indah Jaya Farmer Group shows concern for the environment by choosing to use solid fertilizers derived from palm oil industry waste. The use of this environmentally friendly material reduces the negative impact on ecosystems and soil. This is in line with the principle of social responsibility in Islamic economics which emphasizes the protection of the earth and its sustainability as a mandate from Allah SWT (Ekins, 2002). This policy of promoting sustainability also reduces environmental damage, ensuring that long-term profits can be achieved without damaging existing natural resources.
d. The Mekar Indah Jaya Tulang Bawang Farmer Group implements a balance between economic and social aspects by creating economic opportunities that can improve the welfare of group members and the surrounding community. The management of oil palm plantations that involves all members of the Mekar Indah Jaya Farmer Group, both in terms of income and job distribution, reduces social inequality. The success of the Mekar Indah Jaya Farmer Group in increasing their income through palm oil production not only improves the welfare of individual farmers but also has a positive impact on the wider community. Thus, the Mekar Indah Jaya Farmer Group has carried out the principle of balance between economic profit and social welfare which is an important value in Islamic economics (Hasan, 2020).
e. In terms of economic and environmental balance, the Mekar Indah Jaya Farmer Group also shows positive efforts by choosing environmentally friendly farming practices, such as using organic fertilizers from palm oil industry waste. This reduces dependence on chemical fertilizers that can damage the environment. The principle of balance in Islamic economics encourages the wise utilization of natural resources and avoids over-exploitation that can threaten the balance of the ecosystem (Ekins, 2002). With this practice, the Mekar Indah Jaya Tulang Bawang Farmer Group can maintain the sustainability of their farm, providing sustainable economic benefits while preserving the environment.
f. The Mekar Indah Jaya Tulang Bawang Farmer Group demonstrates a balance between individual needs and public interests in the management of their oil palm plantations. Increased oil palm yields and individual farmer welfare are obtained by taking into account the social impacts of their activities. The use of solid fertilizers derived from palm oil industry waste not only provides economic benefits to farmers, but also helps reduce waste that can pollute the environment. This practice reflects an awareness of the balance between private and public interests in Islamic economics, which prioritizes the welfare of society at large, not just individual profits (Al-Qaradawi, 2018).

The Mekar Indah Jaya Tulang Bawang Farmer Group as a whole has integrated the principles of Islamic economics, namely justice, social responsibility, and balance, in the management of their oil palm plantations. In this case, the principle of social responsibility is manifested in the empowerment of local communities, fair treatment of workers, and concern for the environment. Meanwhile, the principle of balance is reflected in the wise management of natural resources, maintained social welfare, and sustainable economic benefits.

The application of these principles in the field proves that by adopting Islamic economics, the Mekar Indah Jaya Farmer Group can achieve optimal results in both economic and social terms. The sustainable management of the oil palm plantation, using organic fertilizers and involving the surrounding community, shows that economic and social sustainability can be achieved without neglecting the importance of protecting the environment.

Thus, the Mekar Indah Jaya Tulang Bawang Farmer Group has become an example of the application of Islamic economic principles in the agricultural sector, which can be applied in a broader context to improve community welfare and maintain environmental sustainability in the future.

4.3 Ecological Economic Approach to Oil Palm Farm Management

Research on the application of the ecological economic approach in the management of oil palm plantations in the Mekar Indah Jaya Tulang Bawang Farmer Group shows that the principles of ecological economics can make a significant contribution to sustainability and environmental sustainability in the oil palm plantation industry. This approach emphasizes the importance of a balance between economic growth and ecosystem sustainability. Some of the main findings that can be concluded from this research are as follows:

a. Use of Organic Fertilizer The Mekar Indah Jaya Tulang Bawang Farmer Group uses organic fertilizer based on environmentally friendly principles, known as solid. This fertilizer not only improves soil quality and palm oil yields, but also preserves the soil, and avoids damage that can be caused by excessive use of chemical fertilizers. This is in line with the concept of ecological economics that prioritizes sustainability and protection of the ecosystem.
b. Efficient Fertilization The fertilization system applied in this oil palm plantation is carried out at a predetermined dose, which is 1 rit for 2500 m². This non-excessive fertilization aims to maintain a balance between the utilization of natural resources and the results obtained. In ecological economics, this principle is very important, because excessive fertilizer use can lead to ecosystem imbalances and suboptimal yields.
c. Social Sustainability The Mekar Indah Jaya Tulang Bawang Farmer Group also pays attention to the welfare of the surrounding community by creating jobs. Work in the oil palm plantation, such as fetching and spreading fertilizer, provides opportunities for local people to improve their economy, thereby reducing social inequality.
d. Use of Local Resources The use of organic fertilizers derived from local resources also reflects efforts to support the local economy and maintain ecosystem balance. This is part of the conservation principle in ecological economics that emphasizes the wise use of natural resources without damaging the environment.

The ecological economic approach applied in the Mekar Indah Jaya Tulang Bawang Farmer Group has successfully integrated economic, environmental and social aspects, which are the main pillars of sustainable development. Some of the basic principles of ecological economics that are reflected in the management of this oil palm plantation include:

a. Linkages between Economic and Ecological Systems Ecological economics emphasizes that economic activity is dependent on environmental sustainability. In the context of oil palm plantation management, this means that policies that support the use of organic fertilizers and efficient fertilization will have a positive impact on soil sustainability and the ecosystem as a whole. Economic sustainability can only be achieved if we preserve the natural resources that sustain it.
b. Ecological Capital and Natural Capital The management of oil palm plantations with attention to soil sustainability and the use of environmentally friendly fertilizers reflects the importance of protecting ecological capital. Ecological capital includes various ecosystem services that are often not accounted for in the market, such as the provision of fertile soil and water management. By using organic fertilizers and maintaining soil balance, the Mekar Indah Jaya Tulang Bawang Farmer Group contributes to the preservation of ecological capital that supports the sustainability of agricultural production.
c. Environmental Supportability The management of oil palm plantations that considers the right dosage of fertilizers shows awareness of the carrying capacity of the environment. The carrying capacity of the ecosystem refers to the limit of nature's ability to support economic activities without damaging its capacity. By avoiding excessive fertilizer use, the Mekar Indah Jaya Tulang Bawang Farmer Group ensures that their oil palm plantation does not exceed the carrying capacity of the soil and ecosystem.
d. Sustainable Development The application of ecological economic principles in the management of oil palm plantations also reflects a commitment to sustainable development. Sustainable development focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. By prioritizing the wise use of resources and providing jobs that support community welfare, the Mekar Indah Jaya Tulang Bawang Farmer Group strives for inclusive and sustainable development.

However, there are several challenges in the application of ecological economics that need to be overcome. One of them is the difficulty in accurately measuring the value of ecosystem services. Ecosystem services, such as clean water provision and climate control, are often not reflected in markets, making it difficult to account for their contribution in economic analysis. In addition, political and economic barriers associated with large industrial interests also pose challenges in integrating ecological economic principles into public policy.

The application of the ecological economy approach in the management of oil palm plantations of the Mekar Indah Jaya Tulang Bawang Farmer Group provides an example of how sustainability principles can be implemented in agricultural practices. The use of organic fertilizers, efficient fertilization, and attention

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to the social welfare of surrounding communities reflect the application of ecological economic principles that are in line with the concept of sustainable development. Although challenges remain, ecological economics remains an effective tool in creating a balance that benefits both humans and the environment.

4.4 Integration of Sharia Economic Principles and Ecological Economics Approach

The integration of Islamic economic principles with an ecological economic approach in the Mekar Indah Jaya Bawang Farmer Group Tulangprovides an overview of holistic and sustainable natural resource management. The Mekar Indah Jaya Farmer Group has adopted the use of solid fertilizer produced from palm oil by PT Menggala Sawitindo. This move reflects the balancing principles of sharia economics, which emphasizes harmony between economic needs and environmental sustainability, as well as the principles of ecological economics, which emphasizes the wise and sustainable use of resources. By processing waste into organic fertilizer, the Mekar Indah Jaya Farmer Group has reduced dependence on chemical fertilizers, maintained soil fertility, and reduced negative impacts on the ecosystem.waste

Principles of social justice in Islamic economics, such as responsibility for the welfare of the community, are also implemented through equitable distribution of benefits among members of the Mekar Indah Jaya Farmer Group. This approach not only improves welfare economic but also provides training and empowerment to the surrounding community. The principle of ecological capital in ecological economics, which focuses on the sustainability of natural resources, is realized through agricultural practices that maintain long-term soil productivity, while reducing environmental pollution by utilizing palm oil waste.

Through this integration, Mekar Indah Jaya Tulang Bawang Farmer Group has created a sustainable business model by prioritizing ethical, social and ecological values. The strategic cooperation with PT Menggala Sawitindo is a clear example of how companies can support environmentally friendly agricultural practices while strengthening the local economy. However, the implementation of this integration still faces challenges, such as the need for long-term impact evaluation methods, public policy support, and increased community awareness of the importance of this approach. Nonetheless, the success of the Mekar Indah Jaya Tulang Bawang Farmer Group demonstrates the great potential of integrating sharia economics and ecology to create more equitable and sustainable resource management.

The successful integration of sharia economic principles and ecological economic approaches at the Mekar Indah Jaya Tulang Bawang Farmer Group provides an important lesson on how collaboration between farming communities and companies can generate sustainable benefits. By using solid fertilizer from palm oil waste, the Mekar Indah Jaya Tulang Bawang Farmer Group has not only adopted an innovative solution to increase productivity, but also contributed to the reduction of industrial waste that could potentially pollute the environment. This reflects the principle of *maslahah* (benefit) in Islamic economics, where economic activities should bring widespread benefits to society and the environment.

In addition to the environmental aspect, this integration also strengthens the social aspect through farmer empowerment. The training on the use of organic fertilizers provided to members of the Mekar Indah Jaya Farmer Group improved their knowledge on sustainable agricultural practices. Thus, they are not only beneficiaries but also active actors in the wise management of natural resources. In Islamic economics, this is in accordance with the principle of *ta'awun* (cooperation) which emphasizes the importance of synergy in achieving collective welfare.

From an ecological economy perspective, the success of the Mekar Indah Jaya Tulang Bawang Farmer Group shows how the utilization of industrial waste can strengthen the carrying capacity of the environment. The use of solid fertilizer from palm oil waste not only reduces pollution but also returns nutrients to the soil, directly supporting long-term productivity. This approach underscores the principle*circular economy* , which maximizes the life cycle of resources so that no waste is wasted.

However, the sustainability of this model requires greater support from both the government and the private sector. Regulations that support incentives for environmentally friendly farming practices need to be strengthened, including subsidy policies or technical support for farmers who adopt these methods. In addition, it is important to improve farmers' access to markets that value environmentally friendly products, thus providing an economic incentive for them to continue adopting sustainable practices.

In the long term, the Mekar Indah Jaya Tulang Bawang Farmer Group can develop more complex business models, such as producing and selling organic fertilizer commercially, which not only strengthens the local economy but also expands its positive impact on the environment. By making the Mekar Indah

Jaya Farmer Group a pioneer in the integration of sharia economy and ecology, it is hoped that this model can be replicated in other areas, creating a more equitable, sustainable and welfare-oriented agricultural system for the wider community.

With its strong integration of sharia economic principles and ecological economics, the Mekar Indah Jaya Tulang Bawang Farmer Group serves not only as a model of best practice but also as an agent of change that can drive broader transformation in natural resource management in Indonesia. This is clear evidence that an approach based on ethical values and sustainability can be a solution to the economic and environmental challenges faced today. This success, if strategically documented and promoted, can inspire other Mekar Indah Jaya Farmer Groups, both nationally and internationally, to build more inclusive and sustainable economic systems.

4.5 Impact of Implementation on Community and Environment

The implementation of the integration of Islamic economic principles with an ecological economic approach in the Mekar Indah Jaya Bawang Farmer Group Tulanghas had a significant positive impact on society and the environment. This impact can be seen from various aspects, such as improving community welfare, environmental conservation, and changing mindsets in resource .management

a. Impact on Society

One of the tangible results of this implementation is the increased income of the Mekar Indah Jaya Farmer Group. By using palm waste-based solid fertilizers, agricultural production costs have been reduced, while yields remain optimal. The reduced reliance on chemical fertilizers also helps farmers save costs while increasing profits.

Improved skills of members of the Mekar Indah Jaya Farmer Group is another impact. Training in the use of organic fertilizers and sustainable agricultural practices not only improved farmers' knowledge, but also empowered them to adopt more environmentally friendly technologies. In addition, the equitable distribution of economic benefits among members of the Mekar Indah Jaya Farmer Group helps to create social harmony and strengthen community solidarity.

From a social perspective, this success also brought about a change in the mindset of the community, encouraging them to better appreciate the importance of ethical resource management. This implementation serves as a model for surrounding communities to practice Islamic economic principles such as social justice and cooperation (*ta'awun*).

b. Impact on the Environment

The positive impact on the environment can be seen in the reduction of industrial waste that is disposed of without treatment. The use of palm waste as organic fertilizer helps to reduce environmental pollution, especially soil and water pollution that is often caused by industrial waste.

The use of organic fertilizers also contributes to improving soil quality. The return of nutrients through organic fertilizers helps maintain soil fertility in the long term, so that agricultural land remains productive. This reflects the principle of sustainability in ecological economics, where natural cycles are utilized wisely without damaging the balance of the ecosystem.

In addition, this implementation supports the reduction of carbon footprint through the reduction of chemical fertilizer use that contributes to greenhouse gas emissions. This practice helps maintain air quality in the surrounding area, positively impacting the health of the local community.

c. Challenges and Room for Improvement

Despite its positive impact, this implementation still faces several challenges. One of them is that public awareness still needs to be raised regarding the importance of a values-based approach to sustainability. In addition, policy support from the government and wider access to green markets are important elements to strengthen the sustainability of this model.

Longer-term impacts, such as soil productivity and socio-economic stability, require periodic evaluation to ensure these implementations remain in line with sustainability goals. There is also a need to invest in technological infrastructure to support the sustainability of this practice, including the provision of more modern tools and facilities.

The results of this integrated implementation show that Islamic economics and ecological approaches can create significant positive impacts on communities and the environment. With the right support, this

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model has the potential to be replicated in other regions, creating broader impacts for economic, social and environmental sustainability.

5. Conclusion

This study affirms that integrating Islamic economic principles with ecological economics in agricultural practices such as those implemented by the Mekar Indah Jaya Farmer Group in Tulang Bawang offers a powerful foundation for developing natural resource management systems that are sustainable, just, and oriented toward collective well-being. The use of solid fertilizer derived from palm oil waste not only increases farming efficiency and yields but also reduces reliance on chemical fertilizers and mitigates environmental harm. This model demonstrates that the harmony between religious values and environmental sustainability is not an idealistic notion but a feasible and impactful approach.

However, to replicate and scale this model nationally, systematic support through progressive and participatory public policies is essential. Policymakers, for instance, could adopt the study's findings by crafting regulations that provide incentives for palm oil companies and farmer groups that convert agricultural waste into Islamic-compliant organic fertilizers. Concrete measures such as tax reliefs or capital support for composting equipment could be key steps forward.

Moreover, the palm oil industry can develop Islamic agro-ecological partnership models with local farmers. In this model, companies would provide waste-processing technology and initial capital, while farmers become partners in the organic fertilizer production process. A profit-sharing scheme based on *mudharabah* grounded in transparency and fairness could serve as a strong foundation for collaboration that empowers farmers without overburdening them with excessive risks.

In essence, this model of sustainable agriculture rooted in Islamic economics and ecological values is not merely a local solution but a potential national blueprint to transform the palm oil industry into one that is more ethical, equitable, and aligned with the goals of sustainable development. This research paves the way for policymakers, academics, and industry players to collectively build an agricultural ecosystem that is not only productive but also dignified and enduring.

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