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Regulatory Enforcement and Restoration: Natural Resource Maintenance for Indonesia's Sustainable Economy

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Abstract

Regulation and restoration of natural resources are important components in supporting the sustainability of the Indonesian economy. This paper discusses environmental policies and restoration efforts implemented by the government, and their impacts on ecosystem maintenance and long-term economic growth. Using a multidisciplinary approach, this paper aims to review studies of forest restoration policies and water resource management that have been implemented in Indonesia, as well as comparisons with other countries. Strong regulation and community-based restoration can increase economic productivity and conserve natural resources (Silvestri, S., & C. F., 2016).). This paper concludes that integrated management of natural resources is needed to achieve a sustainable economy and social welfare of the nation.

Keywords: regulation, restoration, natural resources, sustainable economy

1. Introduction

Natural resources are an essential component for the economic development of a country, including Indonesia. Indonesia's wealth of natural resources, including tropical forests, agricultural land, mining, and marine waters, make a major contribution to the economy. However, unwise utilization can cause environmental degradation that has a negative impact on the long-term economy. Therefore, efforts to regulate and restore natural resources are important to ensure economic sustainability.

In recent decades, the world has witnessed that the balance between economic growth and environmental preservation is a major challenge for developing countries (Salafsky, N., & Wollenberg, E., 2000). In Indonesia, natural resource management policies have developed, but still face various challenges. Around 80% of Indonesia's territory consists of forest land, and 10% of it has been degraded due to deforestation, land conversion, and illegal mining activities (Barbier, E. B., 2007). This condition demands stricter policies to protect and restore damaged ecosystems.

Strong environmental regulatory policies and community-based restoration programs are among the efforts that have been taken by the government to address this issue (Kleden, A. A., 2019). In addition, ecosystem restoration, especially forest rehabilitation, is a top priority. Indonesia, with its significant forest area, has been involved in global initiatives such as the Bonn Challenge, which aims to restore 150 million hectares of degraded land by 2020 and 350 million hectares by 2030 (World Resources Institute, 2019). Land restoration is not only important from an ecological perspective but also provides economic and social benefits, such as increased food security, employment, and reduced risk of natural disasters.

Successful environmental regulatory policies must consider the involvement of various stakeholders. A collaborative approach between the government, local communities, and the private sector is essential in ensuring the success of restoration programs (Leventon et al., 2017). Community-based restoration has shown better results because local communities have a direct stake in the sustainability of natural resources. This is in line with the

concept of co-management, which emphasizes the division of responsibilities between the government and the community in managing natural resources (Kleden, A. A., 2019).

The importance of good regulation has also been recognized in various international forums. The United Nations Climate Change Conference (COP21) in Paris in 2015 agreed that reducing greenhouse gas emissions and preserving the environment must be carried out through firm policies and effective implementation. In Indonesia, one of the regulations that plays a major role in reducing emissions and preserving the environment is the Law on Environmental Protection and Management (Law No. 32 of 2009), which introduces economic instruments in environmental management (Ministry of Environment and Forestry, 2020). However, the main challenge in implementing environmental regulations in Indonesia is weak law enforcement. Corruption and lack of transparency in natural resource management have hampered the effectiveness of environmental policies (Transparency International, 2020).

In addition, conflicts of interest between the government, companies, and local communities often exacerbate this problem, so a more transparent and accountable mechanism is needed. Ecosystem restoration is not only important from an ecological perspective, but also has economic benefits. Investments in ecosystem restoration can generate high economic returns through increased ecosystem services, such as clean water provision, climate regulation, and biodiversity (Margules, C. R., & Pressey, R. L., 2000). In Indonesia, these benefits are particularly relevant due to the heavy reliance on the agriculture and fisheries sectors, which are highly affected by environmental conditions.

In the context of economic sustainability, comprehensive restoration programs can contribute to long-term economic productivity improvements, such as forest restoration processes, for example, can reduce the risk of floods and landslides, which often cause major economic losses in Indonesia. In addition, forest restoration can also increase carbon sequestration, which contributes to climate change mitigation and fulfills Indonesia's commitments in the Paris Agreement (Reddy, S., & Choe, J., 2019). Regulation and restoration are two key elements in maintaining the sustainability of Indonesia's natural resources, with the right policies and effective implementation, Indonesia can utilize the great potential of its natural resources to support economic growth while preserving the environment. Thus, a holistic and collaboration-based approach needs to be applied to ensure long-term success in maintaining natural resources and economic sustainability.

2. Literature Review

Regulation
Environmental regulation is a policy instrument designed to regulate human interactions with nature, avoid overexploitation, and ensure sustainable use of natural resources. In various countries, including Indonesia, this regulation is very important considering the increasing threats to ecosystem sustainability. In a global context, environmental regulation often focuses on controlling carbon emissions, conserving biodiversity, and protecting forests and land (Grumbine, R. E., 2016). Regulation also includes economic instruments, such as environmental taxes and licensing systems that ensure that economic activities do not uncontrollably damage nature (Fisher, B., Turner, R. K., & Morling, P., 2009).

Indonesia has developed various environmental policies, one of which is Law No. 32 of 2009 concerning Environmental Protection and Management (UU PPLH), which emphasizes the importance of environmental protection through sustainable management. This law includes instruments for controlling, preventing, and being responsible for environmental damage caused by human activities (Ministry of Environment and Forestry, 2020). This policy is in line with the market-based approach adopted by developed countries, where economic incentives are used to promote environmentally friendly practices (Moser, S. C., & Ekstrom, J. A., 2010). Environmental regulation in Indonesia also includes the management of natural resources such as forests, water, and energy.

For example, regulations on sustainable forest management are regulated in Forestry Law No. 41 of 1999, which emphasizes the need to maintain the ecological, social, and economic functions of forests. This regulation is important to prevent widespread deforestation and protect Indonesia's biodiversity, which is one of the richest in the world (Kleden, A. A., 2019). However, the effectiveness of this regulation is often questioned due to weak law enforcement and conflicts of interest involving the mining and plantation industries. At the international level, various organizations have provided guidelines for improving environmental regulations.

Effective environmental policies must involve various stakeholders, including government, industry, and civil society (United Nations Environment Programme, 2020). Inclusive and transparent environmental regulations tend to be more successful in addressing environmental degradation than approaches that rely solely on government control (United Nations Environment Programme, 2020). In addition to local and national regulations, global regulations such as the Kyoto Protocol (1997) and the Paris Agreement (2015) also play a role in regulating greenhouse gas emissions that affect climate change. Indonesia, as one of the countries that signed the Paris Agreement, is committed to reducing its carbon emissions by 29% by 2030.

This has prompted the Indonesian government to implement stricter regulations on industries that contribute to carbon emissions, such as the energy and transportation sectors (Barbier, E. B., 2007). This commitment shows that the regulations implemented are not only related to protecting domestic ecosystems, but also contribute to global efforts to mitigate climate change. The effectiveness of environmental regulations depends on several factors, such as policy firmness, law enforcement capacity, and support from the private sector (Sachs, J. D., 2015). In Indonesia, the biggest challenges in implementing environmental regulations are corruption and the weak capacity of institutions responsible for law enforcement (Transparency International, 2020).

Without effective enforcement, environmental regulations often become nothing more than formalities on paper. Effective environmental regulations must include a system of ongoing monitoring and evaluation. Independent monitoring mechanisms can ensure that environmental policies are implemented as intended (Leventon et al., 2017). In Indonesia, several non-governmental organizations have played an important role in overseeing the implementation of environmental regulations.
For example, the Indonesian Forum for the Environment (WALHI) has been active in monitoring environmental damage caused by natural resource exploitation, as well as providing critical input on existing regulations. Strong and effective regulations are an important foundation for sustainable natural resource management in Indonesia. Regulations that include economic instruments, stakeholder participation, and strong enforcement mechanisms will be more effective in addressing environmental problems. However, implementation challenges such as corruption, weak law enforcement, and conflicts of interest still need to be overcome so that these regulations can have a real impact on maintaining natural resources for the nation's sustainable economy.

Restoration

Ecosystem restoration is a critical approach in efforts to restore ecosystems damaged by human activities, such as deforestation, land conversion, and pollution. Restoration not only aims to restore ecological functions, but also provides economic and social benefits to communities that depend on natural resources. Ecosystem restoration is a global effort to restore degraded ecosystems to improve human well-being and environmental sustainability, with a target of restoring 350 million hectares of degraded land by 2030 (Sachs, J. D., 2015). Tropical forest restoration, as carried out in Indonesia, is an important part of this initiative.

Forest restoration in Indonesia has a long history and has been one of the government's priorities in addressing environmental degradation. Indonesia has extensive tropical rainforests, which provide a variety of important ecosystem services, including carbon sequestration, clean water provision, and biodiversity conservation (Salafsky, N., & Wollenberg, E., 2000). However, deforestation due to mining activities, oil palm plantations, and forest fires have caused significant damage to Indonesia's forest ecosystems. To address this, forest restoration programs such as the National Forest and Land Rehabilitation Movement (GN-RHL) have been launched by the government to restore damaged forests (Ministry of Environment and Forestry, 2020).

An effective restoration approach often involves the concept of ecological restoration, which emphasizes the importance of returning the original ecosystem function to its pre-damage condition (Chazdon, R. L., 2014). This restoration includes replanting local plant species, water management, and involving local communities in the rehabilitation process. This is in line with evidence, which emphasizes that community-based restoration can produce more sustainable benefits because local communities have a better understanding of local ecological and social conditions (Angelsen, A., McNeill, D., & Nasi, R., 2018). In addition to ecological benefits, ecosystem restoration also contributes to the local economy.

According to The Economics of Ecosystems and Biodiversity report, investments in ecosystem restoration provide significant economic returns through improved ecosystem services, such as clean water provision, flood prevention, and increased agricultural productivity (Chazdon, R. L., 2014). In Indonesia, restored forest areas

have shown increased productivity of non-timber forest products, such as rattan and honey, which provide additional income for surrounding communities (Ministry of Environment and Forestry, 2020). Restoration also plays an important role in climate change mitigation. Restored forests are able to absorb large amounts of carbon, thereby reducing the concentration of greenhouse gases in the atmosphere.

Restoration programs such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) implemented in Indonesia focus on restoring forest ecosystems to reduce carbon emissions (Angelsen et al., 2018). Forest ecosystem restoration can contribute up to one-third of the mitigation solutions needed to achieve global climate targets (Griscom et al., 2017). However, successful ecosystem restoration is not always easy to achieve. The main challenges in implementing restoration programs in Indonesia are land conflicts, weak institutional capacity, and limited funding.

Forest restoration programs in Indonesia are often hampered by unclear land tenure rights, leading to conflicts between local communities, government, and companies (World Resources Institute, 2019). These conflicts hinder the restoration process and sometimes lead to further degradation. The importance of community involvement in the restoration process has been widely recognized in the literature. Restoration that involves local communities in planning and implementation is more likely to be successful (Leventon et al., 2017).

Because they have important local knowledge about the ecosystem and how best to restore it. In Indonesia, community-based restoration approaches have shown positive results, especially in mangrove restoration programs, where coastal communities play an active role in rehabilitating ecosystems damaged by fishing activities and land conversion. Ecosystem restoration is an important component of Indonesia's natural resource sustainability strategy. With strong regulatory support and community participation, restoration programs can provide long-term benefits both ecologically and economically.

Natural Resources

Natural resources are a vital component of a nation's economic development and sustainability. In general, natural resources include biotic components (such as forests, flora, fauna) and abiotic components (such as minerals, water, and energy) that have economic and ecological value. Natural resources play an important role in providing raw materials for industry, absorbing waste, and supporting the socio-economic life of the community (Angelsen, A., McNeill, D., & Nasi, R., 2018). In developing countries like Indonesia, dependence on the exploitation of natural resources for economic growth is very high.

However, without proper regulation and management, this utilization often causes significant environmental damage. Indonesia has one of the largest natural resource riches in the world, including tropical forests, vast oceans, and abundant mineral reserves. Indonesia ranks third in the world in terms of tropical forest area, which functions as the world's lungs, absorbing carbon emissions and maintaining global climate balance (World Resources Institute, 2019). In addition, Indonesia's oceans, which are part of the world's coral triangle, contain very rich marine biodiversity.

However, these natural resources are threatened by deforestation, marine pollution, and over-exploitation which have an impact on environmental degradation and loss of long-term economic value. Natural resource degradation in Indonesia is a crucial issue in efforts to achieve a sustainable economy. Deforestation for palm oil plantations, mining, and illegal logging are the main causes of forest cover loss in Indonesia. This results in decreased biodiversity, high carbon emissions, and natural disasters such as floods and landslides (World Resources Institute, 2019).

In addition, the fisheries and marine sectors are also experiencing degradation due to overfishing and pollution, which threaten food security and the livelihoods of coastal communities (Béné et al., 2016). Thus, natural resource management and restoration are key to achieving a balance between economic growth and environmental sustainability. Natural resource restoration aims to restore damaged ecosystem functions and maximize long-term economic benefits. Ecosystem restoration can increase natural resource productivity and prevent the loss of important ecosystem services such as clean water provision, erosion control, and climate regulation (Chazdon, 2014).

In Indonesia, forest restoration programs, peatland rehabilitation, and sustainable fisheries management efforts have been carried out to restore damaged natural resources. However, the success of these programs depends heavily on strong regulations and active community participation. Natural resources also function as natural capital that supports the long-term economy. The Economics of Ecosystems and Biodiversity (TEEB) emphasizes that investment in natural resource management and conservation can provide significant economic returns (Angelsen, A., McNeill, D., & Nasi, R., 2018).

For example, sustainably managed forests can provide ecosystem services such as regulating the water cycle, storing carbon, and providing raw materials for industry. In the marine sector, sustainable fisheries management can increase catches and prevent overfishing, which in the long term have a positive impact on the economic welfare of coastal communities. To manage natural resources sustainably, comprehensive and effective regulations are needed. Co-management between the government and local communities can be an effective approach to protecting and restoring natural resources (Ostrom, 1990).

In Indonesia, several co-management initiatives have been implemented, especially in the management of village forests and marine conservation areas, which involve local communities in decision-making and management of local natural resources (Ministry of Environment and Forestry, 2020). This approach provides incentives for communities to maintain the sustainability of natural resources that are part of their livelihoods. Despite efforts to protect and restore natural resources, major challenges remain, including corruption, weak law enforcement, and conflicts of interest between government, industry, and local communities. Corrupt practices in natural resource management in Indonesia often hamper the implementation of effective regulations (Transparency International, 2020).
In addition, land conflicts between industry and local communities often trigger tensions and hamper restoration programs (World Resources Institute, 2019). Therefore, there needs to be an improvement in natural resource governance that includes transparency, accountability, and increased institutional capacity. Natural resources have a strategic role in economic development and community welfare in Indonesia. However, unwise management can threaten the sustainability of the ecosystem and reduce long-term economic potential.

Sustainability Economics

Sustainability economics is a concept that emphasizes the importance of a balance between economic growth, environmental sustainability, and social welfare. Sustainable economics is a development model that meets the needs of the present generation without sacrificing the ability of future generations to meet their own needs (Pearce & Turner, 1990). In the context of natural resources, sustainability economics focuses on wise use and proper management so that negative impacts on the environment can be minimized, while economic potential is maximized. In Indonesia, this concept is increasingly relevant given the major challenges related to natural resource degradation and economic inequality.

The basic principles of sustainable economics include three main pillars, namely economic, social, and environmental. This concept is often referred to as the "triple bottom line" which requires decision-making in economic development to consider social and environmental impacts (Elkington, 1997). One of the biggest challenges in implementing sustainable economics is creating a system that can balance economic needs and ecosystem preservation. Countries like Indonesia, which have abundant natural resource wealth, are at the crossroads between exploitation for short-term profit and preservation for long-term profit.

Good management of natural resources is a key factor in achieving a sustainable economy. The concept of a stationary economy argues that sustainable economic growth does not always depend on increasing the quantity of production, but rather on the quality of development that does not damage the ecosystem (Daly, 1996). This approach is relevant to Indonesia, where sectors such as forestry, fisheries, and mining often exploit natural resources in a destructive manner. The implementation of strong environmental regulations, as well as policies that support investment in green technology and environmentally friendly practices, are needed to encourage more sustainable economic growth.

Sustainable economics also includes the concept of low carbon development, which emphasizes reducing carbon emissions without sacrificing economic growth. The impact of climate change will be very detrimental to the global economy if preventive measures are not taken immediately (Stern, 2007). For Indonesia, which is one of the largest carbon emitters from deforestation and land conversion, emission management is an important part of

a sustainable economic strategy. The implementation of programs such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) in Indonesia has demonstrated a commitment to reducing emissions while maintaining economic sustainability through forest conservation (Angelsen et al., 2018).

In practice, sustainable economics encourages the development of environmentally friendly economic sectors, such as renewable energy, sustainable agriculture, and ecotourism. Investment in renewable energy, such as solar and wind power, has the potential to create new jobs while reducing dependence on environmentally damaging fossil fuels (World Bank, 2020). In Indonesia, efforts to increase the use of renewable energy have been growing, but there are still major challenges in terms of investment, infrastructure, and regulation. The transition to a sustainable low-carbon economy requires comprehensive policy reforms and support from the private sector and the wider community.

Sustainable economics is also closely related to the concept of social inclusiveness, where economic development must provide equitable benefits to all levels of society, including vulnerable groups. True economic sustainability cannot be achieved without addressing the problem of economic and social inequality (Stiglitz, 2012). In Indonesia, one of the main challenges is how to integrate rural communities and indigenous peoples, who often depend on natural resources, into sustainable economic models. Their participation in decision-making processes and restoration programs can strengthen the effectiveness of sustainable economic policies.

Sustainable economics must be driven by innovation in technology, policy, and governance (Sachs, 2015). Investment in green technology research and development, as well as the implementation of policies that support resource efficiency, are essential to achieving green growth. In Indonesia, technological advancements in sustainable agriculture, waste management, and renewable energy can play a significant role in increasing productivity without damaging ecosystems. In addition, governance reforms that promote transparency, accountability, and community participation are essential in ensuring that sustainable economics can be achieved.

Overall, sustainable economics is the path to a more stable and sustainable future for Indonesia. With a combination of appropriate regulations, investment in green technologies, and active community participation, Indonesia can maintain the sustainability of its natural resources while promoting inclusive and sustainable economic growth. The challenges faced, such as climate change, environmental degradation, and social inequality, can only be overcome through collaboration between the government, the private sector, and communities in realizing the vision of sustainable development.

3. Research Methodology

This research uses a qualitative approach with a case study method that focuses on the regulation and restoration of natural resources in Indonesia in relation to sustainable economics. Primary data were obtained through interviews with informants who were relevant to the research, related to natural resource management. Meanwhile, secondary data were collected from official reports, government policies, and international scientific articles related to regulation (Ostrom, 1990) and ecosystem restoration (Chazdon, 2014). Data analysis was conducted using thematic analysis techniques, which allow the identification of patterns and relationships between regulation, restoration practices, and their impacts on sustainable economics (Braun & Clarke, 2006).

4. Research Results

Regulation and Natural Resource Restoration in Indonesia

This study found that regulations related to natural resource management in Indonesia have undergone significant developments in recent decades, especially after the emergence of global awareness of the importance of ecosystem sustainability. Law No. 32 of 2009 concerning Environmental Protection and Management is one of the main policies governing natural resource governance in Indonesia. However, implementation in the field still faces various challenges, especially related to law enforcement and conflicts of interest between policy makers, communities, and the private sector (Meijaard et al., 2014). This regulation provides a framework for maintaining a balance between natural resource exploitation and the need to restore degraded ecosystems.

Natural resource restoration in Indonesia has become a major focus of the government in efforts to restore damaged lands, especially due to deforestation and land conversion for oil palm plantations. Programs such as the

National Forest and Land Rehabilitation Movement (GN-RHL) aim to restore millions of hectares of degraded forests. The study revealed that although the program successfully restored most of the forest area, challenges such as lack of community participation and lack of funding hampered greater success (Ministry of Environment and Forestry, 2020). Forest restoration in critical areas, such as Kalimantan and Sumatra, faces obstacles in terms of regulatory enforcement and coordination between the central and regional governments.

The analysis also shows that regulations on peatland restoration, especially through the Peatland Restoration Agency (BRG), have had a positive impact on peat ecosystem restoration efforts. Peat ecosystems that were degraded by forest and land fires have been largely rehabilitated through programs focused on water management and fire prevention (Purnomo et al., 2017). However, the lack of synergy between BRG and the private sector in some cases, as well as weak enforcement of regulations on plantation companies, remain obstacles that need to be addressed to achieve more effective sustainability. Another finding is that although existing regulations are quite comprehensive, corruption and unclear land ownership rights are major problems that hinder the implementation of natural resource management policies.

Corruption in the forestry and mining sectors often leads to uncontrolled forest destruction (Transparency International, 2020). Weak law enforcement and bribery practices between companies and local government officials cause existing regulations not to run properly. This condition exacerbates environmental degradation and hinders restoration efforts. On the other hand, local community participation in restoration programs has a significant impact on the success of restoration.

This study revealed that community-based restoration, especially in village forest areas and marine conservation areas, has shown better results than programs that only involve the government or the private sector (Leventon et al., 2017). The involvement of local communities not only increases the effectiveness of restoration but also strengthens the relationship between environmental sustainability and local economic welfare, which in turn contributes to the goal of a sustainable economy. The results of the study also show that the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) policy implemented in Indonesia has had a positive impact on efforts to reduce carbon emissions and restore forests. This policy has succeeded in reducing the rate of deforestation in several areas that are the focus of the REDD+ program, such as Kalimantan and Papua (Angelsen et al., 2018).

However, the effectiveness of this policy is highly dependent on international financial support and domestic political will, without strong commitment from the government and industry players, the long-term potential of REDD+ in reducing emissions and increasing forest restoration may be hampered. In addition, this study found that regulations related to fisheries and marine ecosystem management in Indonesia still need improvement. Although there are various policies that support sustainable management, such as Law No. 45 of 2009 concerning Fisheries, the level of overfishing and marine pollution are still serious challenges (Béné et al., 2016). Lack of supervision and weak law enforcement against violations in the fishing industry have caused damage to marine ecosystems, which have implications for the sustainability of fisheries resources and the economy of coastal communities.

In terms of renewable energy regulations, Indonesia has taken several steps to reduce dependence on fossil fuels and develop more sustainable energy sources, such as solar and wind power. Indonesia's renewable energy policy has made progress, but its implementation is still far from the set targets (International Renewable Energy Agency, 2021). Barriers such as high investment costs, less supportive regulations, and resistance from the fossil fuel industry are major obstacles to accelerating the energy transition. Renewable energy development has also been identified as an important element in supporting a sustainable economy, which is in line with global commitments to reducing carbon emissions.

Another fact found is that the success of ecosystem restoration in Indonesia depends not only on policies and regulations, but also on the synergy between the government, the private sector, and the community. Community-based and collaborative natural resource management is more likely to result in long-term sustainability (Ostrom, 1990). In several regions in Indonesia, such as Papua and Sumatra, restoration programs involving the government, NGOs, and indigenous communities have shown better results in terms of ecosystem restoration and local economic empowerment. Through effective regulation, multi-stakeholder restoration practices, and international policy support, Indonesia can achieve a sustainable economy without sacrificing the sustainability of its natural resources.

Regulation Enforcement and Natural Resource Restoration for a Sustainable Economy

Regulatory enforcement in natural resource management in Indonesia plays a crucial role in supporting a sustainable economy. Findings show that although Indonesia has a broad legal framework, its implementation on the ground is often hampered by various problems, including corruption and limited law enforcement resources (Meijaard et al., 2014). Effective regulatory enforcement is needed to ensure that natural resource management policies can achieve sustainability goals, namely maintaining a balance between resource exploitation and environmental protection. One of the main challenges in regulatory enforcement is the lack of capacity and resources available to law enforcement agencies.

Self-enrichment by certain individuals in the forestry and fisheries sectors often hinders the effectiveness of regulatory enforcement (Transparency International, 2020). Weak law enforcement leads to violations of environmental policies such as illegal deforestation and overfishing. This study shows that increasing capacity and transparency in law enforcement agencies is essential to address these issues and ensure that regulations are implemented consistently. In terms of natural resource restoration, this study finds that the success of restoration programs is greatly influenced by the quality of regulatory enforcement.

The case study of the National Forest and Land Rehabilitation Movement (GN-RHL) program shows that although the program has succeeded in restoring most of the degraded forest areas, major challenges remain in terms of regulatory enforcement and coordination between agencies (Ministry of Environment and Forestry, 2020). The success of restoration depends on consistent regulatory implementation and effective collaboration between the central government, local governments, and local communities. The study findings also show that effective regulatory enforcement in the renewable energy sector can support the achievement of a sustainable economy. Regulations that support the development of renewable energy in Indonesia have shown the potential to reduce dependence on fossil fuels and reduce carbon emissions (International Renewable Energy Agency, 2021).

However, the implementation of these policies is often hampered by a lack of political support and regulatory barriers. This study underscores the importance of strengthening regulations and creating incentives that encourage investment in green energy to accelerate the transition to a sustainable economy. Regulation enforcement in peatland management is also a major focus of this study. The Peatland Restoration Agency (BRG) has played an important role in the rehabilitation of degraded peatlands, but law enforcement challenges remain (Purnomo et al., 2017).

This study found that peatland restoration faces obstacles related to inconsistent regulatory implementation, especially in terms of preventing land fires. Greater support from the government in terms of supervision and law enforcement is essential to ensure that peatland restoration efforts can be sustainable. In addition, this study revealed that local community participation in natural resource restoration can improve the effectiveness of regulatory enforcement. Community-based restoration programs, such as village forest programs and social forestry, have shown better results in terms of sustainability (Leventon et al., 2017).

Community involvement not only strengthens regulatory enforcement but also increases local awareness and support for restoration efforts. This paper shows that regulations that strengthen local community rights and involve them in resource management can make a significant contribution to the success of restoration programs. The findings of this study also show that synergy between national regulations and international support plays an important role in supporting a sustainable economy. Programs such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) have helped Indonesia reduce deforestation and carbon emissions, but the success of these programs depends on financial and technical support from the international community (Angelsen et al., 2018).

5. Conclusion

This paper emphasizes the importance of engaging multiple stakeholders and integrating international support with domestic policies to achieve sustainable outcomes. The study also found that regulatory enforcement in the fisheries sector requires special attention. Although Law No. 45 of 2009 on Fisheries provides a legal framework for sustainable fisheries management, problems such as overfishing and marine pollution still occur frequently (Béné et al., 2016). Stricter law enforcement, along with increased oversight and transparency, are essential to

ensure that fisheries management policies can reduce negative impacts on marine ecosystems and support sustainable coastal economies.

Another point to note is the importance of investing in green technology and innovation to support a sustainable economy. The development of environmentally friendly technologies, such as sustainable agriculture and waste management, requires regulatory support and incentives from the government (Sachs, 2015). The authors also show that regulations that support investment in green technologies can accelerate the transition to a more sustainable economy and provide long-term economic benefits. The involvement of various stakeholders, including government, the private sector, and communities, is essential to ensure that regulations are applied consistently and restoration programs can achieve their intended outcomes.

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