Rethinking The Environment-Economy Nexus in Developing Country: Climate Finance Strategies for a Sustainable Mandalika SEZ

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Abstract. This study investigates the challenges faced by developing countries amid the current climate and energy crises, balanced against the imperative for economic growth. Utilizing qualitative methods, the research analyzes secondary literature from scholarly articles and policy documents, and conducts content analysis of various reports concerning the Mandalika Special Economic Zone (SEZ. Findings indicate that Mandalika SEZ meets the criteria for climate financing; however, significant issues such as funding shortages and trust deficits were identified. This study proposes a novel climate finance scheme promoting collaboration among stakeholders, including BPDLH, PLN, ITDC, SMI, DJP, philanthropic organizations, and international institutions. The scheme aims to collect and manage climate finance through green bonds, CSR funds, taxes, and grants. The study concludes that a robust climate finance scheme, supported by the smart application, can significantly enhance the project success and promote sustainable development, providing solution to the dilemma faced by developing countries.

Keywords: climate finance, smart technology, sustainable development, Mandalika SEZ

1. Introduction

The Global North has experienced rapid economic growth due to subsequent technological advancements initiated by the Industrial Revolution since the 18th century (Mohajan, 2019). However, these advancements have led to unprecedented increases in production and consumption, contributing to rising greenhouse gas emissions and environmental pollution. As the global community becomes increasingly aware of the detrimental impacts of climate change, there is a pressing need to reconcile economic aspirations with environmental sustainability.

Developing countries face a dilemma as they aspire to become developed nations, as economic growth is directly correlated with increased per capita carbon emissions. (Lawal, 2019). Sri Mulyani, in the Press Conference of the Regular Meeting of the Financial System Stability

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Committee 2023, highlighted a World Bank report indicating that per capita carbon emissions double for every nearly fourfold increase in per capita income (Rachman, 2023).

This challenge is exacerbated by global energy and climate crises, with Indonesia's fossil energy reserves expected to last only until the 2030s (Pahlevi, 2022). Additionally, global temperatures in 2023 reached the Paris Agreement threshold of 2 degrees Celsius above pre-industrial levels for the first time. (Arif, 2023; United Nations Framework Convention on Climate Change, 2015).

The impacts of this warming are severe and multifaceted. Climate change poses a substantial threat to both the environment and human societies, with impacts ranging from extreme weather events to biodiversity loss and sea-level rise. Extreme weather events are becoming more frequent and intense, causing widespread damage to ecosystems and human communities. Biodiversity is under significant threat, as species struggle to adapt to rapidly changing environments, leading to increased extinction rates. The loss of biodiversity undermines essential ecosystem services, such as pollination and water purification, which are crucial for human well-being. Furthermore, human health is directly impacted by climate change through increased heat stress, the spread of vector-borne diseases, and respiratory issues linked to air pollution. Vulnerable populations are disproportionately affected, exacerbating existing social inequalities.

Developing countries strive to uplift their populations from poverty by enhancing infrastructure and services, tasks that often necessitate energy-intensive processes. Balancing these priorities becomes critical for sustainable growth, ensuring that economic advancement is inclusive and environmentally sustainable.

Climate action is indispensable for sustainable development, as it safeguards the environmental resources that economies and societies depend on. By integrating climate considerations into development plans, developing countries can create resilient economies better equipped to withstand the adverse effects of climate change. Moreover, sustainable practices can drive innovation, create jobs, and open new economic opportunities, furthering the development agenda while preserving the environment. Indonesia, as a developing country, has attempted to implement a capable strategy to accommodate increased economic growth with an environmental perspective. Indonesia's commitment is proven through the existence of concrete targets for Low Carbon Development and climate resilience as outlined in the Long-term Development Plan National 2025–2045. (Bappenas, 2023). An integrated approach taken by Indonesia is manifested in various sustainable economic policies, one of which is the concept of ecotourism in Special Economic Zones (SEZs). Mandalika SEZs is a special economic zone in the tourism sector located in Mandalika, Central Lombok, West Nusa Tenggara (NTB). The Mandalika SEZ project was scheduled for completion in May 2024, but currently, it remains significantly incomplete.

The funding gap in the development of the Mandalika Special Economic Zone (SEZ) arises from ineffective funding schemes and a lack of transparency and accountability systems. The current blended finance approach, combining public and private funding, has not sufficiently addressed this gap (Maulana, 2023). Limited resources and inadequate transparency and accountability systems hinder optimal financing. Badiul Hadi from the Indonesian Forum for Budget Transparency highlights the need for improvement in these areas (as cited in Maulana,

2023). To bridge the funding gap, innovative funding schemes and systems that support transparency and accountability are essential. The climate finance scheme and smart application are promising solutions to these challenges.

2. Literature Review

Climate Action and Sustainable Development

Climate action refers to steps taken to combat climate change and its impacts Bhattacharya et al. (2022). This involves mitigation, reducing or preventing greenhouse gas emissions, and adaptation which is making adjustments in natural or human systems in response to real or expected climate change (Tosun, 2022). Nowadays, climate action is known to be driven by various stakeholders and structured in a framework whose components are commonly used by countries committed to the Paris Agreement, including Policy and Regulation, Public Engagement and Education, Funding and Financing, and Technological Innovation (Sattar, 2022).

Climate action is an important component of sustainable development which is closely linked to the Sustainable Development Goals (SDGs). The SDGs, initiated by the United Nations in 2015, consist of 17 interrelated global goals designed to achieve a better, more sustainable future for all by 2030 (United Nations, 2023). Climate action is explicitly addressed in the SDGs 13: "Take urgent action to combat climate change and its impacts." However, climate action is intrinsically linked to many other SDGs.

For instance, SDG 1: No Poverty is intrinsically linked to climate action, as reducing poverty requires preventing climate-related disasters that disproportionately affect low-income communities and promoting sustainable economic growth. The World Bank has projected that without significant climate action, climate change could push an additional 132 million people into poverty by 2030 (Jafino et al., 2020). Furthermore, SDG 3: Good Health and Well-being highlights the health benefits of climate mitigation, as reducing greenhouse gas emissions also lowers the risk of health issues from air pollution, extreme weather events, and infectious diseases. The World Health Organization (as cited in Toteja et al., 2023) estimates that climate change will cause approximately 250,000 additional deaths per year between 2030 and 2050 due to malnutrition, malaria, diarrhea, and heat stress. Transitioning to renewable energy, as highlighted in SDG 7: Affordable and Clean Energy, renewable energy and electrification can contribute to a 75% reduction in CO2 emissions (IRENA, 2019). Lastly, SDG 15: Life on Land highlights the crucial role of protecting, restoring, and promoting sustainable use of terrestrial ecosystems, forests, and biodiversity in climate mitigation and adaptation efforts. The Intergovernmental Panel on Climate Change (as cited in Masson-Delmotte et al., 2019) reports that 23% of total anthropogenic greenhouse gas emissions (2007–2016) derive from agriculture, forestry and other land use.

Introduction to Special Economic Zone (SEZ) and The Role in Economic and Environmental Policy/SDGs.

Special Economic Zones (SEZs) are designated areas within countries that offer unique regulatory, fiscal, and infrastructural incentives to attract investment and stimulate industrial growth. These zones have shown remarkable success in attracting foreign direct investment (FDI), thereby transforming local economies and fostering industrialization. For example, China's Shenzhen SEZ evolved from a modest fishing village into a global manufacturing

powerhouse, drawing billions in FDI and showcasing the transformative potential of SEZs (World Bank, 2019). This model underscores the significance of SEZs in driving economic development by creating favorable conditions for business operations and investment.

Special Economic Zones (SEZs) play a crucial role in advancing multiple Sustainable Development Goals (SDGs) by fostering economic growth, innovation, and environmental sustainability. They directly contribute to SDG 8 by promoting inclusive and sustainable economic growth through job creation and industrial diversification, thus enhancing economic resilience and reducing poverty (UNDP, 2019; Zeng, 2015). Additionally, SEZs are essential for achieving SDG 9 by driving industrial development and innovation, with technological advancements and infrastructure improvements boosting economic competitiveness and sustainable development (World Bank, 2019).

Moreover, SEZs address SDG 10 by promoting industrial growth in underdeveloped areas, thereby reducing regional inequalities and supporting inclusive growth (Zeng, 2015). By adopting sustainable practices, SEZs contribute to SDG 12, encouraging responsible consumption and production through initiatives like waste recycling, energy efficiency, and sustainable resource management (UNCTAD, 2019). They also support climate action and SDG 13 by incorporating eco-friendly technologies and practices, serving as models for low-carbon industrial development, reducing greenhouse gas emissions, and mitigating climate change (Farole & Akinci, 2011). Through these multifaceted roles, SEZs demonstrate their potential as effective instruments for achieving comprehensive sustainable development.

Ecotourism in Mandalika SEZ

Ecotourism aims to ensure the sustainable growth of the tourism industry while maintaining environmental integrity (Estriani, 2019). It challenges the perception that tourism solely drives economic growth at the cost of environmental damage. Key features of ecotourism include nature-based activities, local community involvement, economic benefits for residents, addressing environmental issues, and educating tourists about local culture (Hill & Gale, 2009).

The Mandalika Special Economic Zone (SEZ) in Central Lombok, West Nusa Tenggara, is designed as a world-class tourist destination that embraces ecotourism principles. Managed by the Indonesian Tourism Development Corporation (ITDC), a state-owned enterprise, the Mandalika SEZ prioritizes environmental sustainability and local community empowerment. The development plan maintains 51% of the area as green space, demonstrating a commitment to preserving natural beauty while promoting economic growth (Estriani, 2019). Meanwhile, the Mandalika SEZ development master plan can be seen in **Figure 1**.

Figure 1. Mandalika SEZ Masterplan
Source: Department of Transportation of West Nusa Tenggara Province, n.d.

The ITDC has undertaken significant infrastructure projects to prepare Mandalika SEZ as a premier tourist hub, including the development of Kuta beach, an 11 km road network, the Nurul Bilad Mosque, an 8.5 km fence, and an MSME center. However, the development has experienced significant delays, with progress falling behind initial projections (AIIB, 2018). Several factors have contributed to this sluggish progress, with a primary issue being inadequate funding as well as a lack of transparency and accountability in financial management and conflict with the local people (Jong, 2023).

Climate Finance and the Lack of Transparency and Accountability

Climate finance refers to the local, national, or transnational financing—drawn from public, private, and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change (Warren et al., 2023). It is critical for enabling the transition to low-carbon and climate-resilient development pathways, particularly in developing countries that are most vulnerable to the impacts of climate change yet least equipped to deal with them. The mobilization of climate finance involves a variety of instruments, including grants, concessional loans, and equity investments, and targets a range of sectors such as

renewable energy, energy efficiency, sustainable forestry, and climate-resilient infrastructure.

The complexity of climate finance, involving multiple actors and funding sources, further necessitates comprehensive and coordinated efforts to enhance transparency and accountability. Transparent reporting and verification processes are crucial for building trust among stakeholders and ensuring that funds are used as intended (Jobst & Pazarbasioglu, 2019). These efforts are essential in maintaining the credibility and effectiveness of climate finance initiatives.

3. Methodology

This research employs a qualitative approach by utilizing secondary data which draws on a comprehensive review of scholarly articles, policy documents, and other relevant publications. The choice of Mandalika SEZ as the case study is predicated on its strategic orientation towards ecotourism, which aligns with sustainable development goals.

The research methodology involves detailed content analysis of relevant documents such as initial document of the Indonesian Government's contract project with AIIB (2018), official websites of related institutions, and various relevant regulations. This method allows for an in-depth examination of existing climate finance frameworks and their effectiveness in the context of the Mandalika SEZ. Key stakeholders are analyzed to understand their roles and contributions to potential climate finance schemes. Furthermore, the study incorporates a critical evaluation of funding shortages, trust deficits, and the overall feasibility of proposed climate finance models, offering a comprehensive overview of the current landscape and potential innovations in the field.

Through this method, the research identifies best practices and proposes a novel climate finance scheme designed to facilitate stakeholder collaboration. This research will propose a smart application to support the monitoring and control of the scheme because of its ability to provide real-time data and transparency.

4. Results And Discussion

The funding gap in the development of the Mandalika Special Economic Zone (SEZ) arises from ineffective funding schemes and a lack of transparency and accountability systems. The current blended finance approach, combining public and private funding, has not sufficiently addressed this gap (Maulana, 2023). Badiul Hadi (as cited in Maulana, 2023) from the Indonesian Forum for Budget Transparency highlights the need for improvement in these areas. To bridge the funding gap, innovative funding schemes and systems that support transparency and accountability are essential. The climate finance scheme and smart application are promising solutions to these challenges.

4.1. Status Quo Model and Funding for the Mandalika SEZ Development

Law Number 39 of 2009 on Special Economic Zones stipulates that the establishment of SEZs can be proposed by business entities or regional governments and is ultimately approved by the president based on recommendations from the National Council. The Mandalika SEZ was proposed by the ITDC, a state-owned tourism developer, with the consent of Central Lombok Regency and West Nusa Tenggara Province, and designated as a Tourism SEZ under

Government Regulation Number 52 of 2014.

In 2015, ITDC initiated the project with internal assets and additional state capital participation (PMN) amounting to IDR 250 billion. In 2019, ITDC partnered with the Asian Infrastructure Investment Bank (AIIB) to fund sustainable infrastructure development in Mandalika, Lombok. This partnership involved a contract valued at USD 316.5 million, with AIIB providing a loan of USD 248.4 million for a 35-year term starting from December 2018. The project, set from March 2019 to March 2024, aimed to deliver essential infrastructure and services, including roads, water supply, waste management, electricity distribution, and community facilities.

By July 2023, ITDC reported that the development progress of Mandalika SEZ had reached 55%, yet the core infrastructure, technical assistance, and capacity-building components remained incomplete. When this article was written, the construction period according to the contract had expired but the construction had not yet been completed. This delay raises concerns about ITDC's capability to fulfill its contractual obligations with AIIB and advance the Mandalika SEZ.

4.2. Mandalika SEZ as a National Strategic Project

To enhance growth and equitable development, Presidential Regulation Number 3 of 2015 on National Strategic Projects (PSN) was established. Mandalika, included in the SEZ framework, was designated as a PSN, thereby securing government support for public infrastructure projects, including financial backing (Presidential Regulation Number 3 of 2015 on National Strategic Projects, 2016). In 2020, the government injected an additional IDR 500 billion in state capital participation (PMN) to ITDC to expedite PSN infrastructure development. The government has also provided various facilities related to PSN to support the development of Mandalika SEZ. PT Sarana Multi Infrastruktur (SMI), a special mission vehicle under the Ministry of Finance, was tasked with prioritizing PSN project financing. PT SMI has demonstrated effective leverage, achieving a 26.87 times financing leverage from its total paid-up capital in 2022.

The PSN regulation mandates the acceleration of infrastructure provision, including transportation, electricity, and clean water, to support 10 national strategic tourism areas, including Mandalika SEZ. This is regulated by Presidential Regulation Number 4 of 2016, updated by Presidential Regulation Number 14 of 2017, which assigned the state-owned electricity company, PLN, to implement these projects. The government's commitment is further demonstrated by policies promoting the transition to new and renewable energy (NRE) through Presidential Regulation Number 112 of 2022, initiating the transformation of electricity supply using NRE power plants.

For this energy transition, the state has established the Environmental Fund Management Agency (BPDLH), a public service agency under the Ministry of Finance. BPDLH is responsible for collecting funds from grants, donations, and other sources to be allocated for environmental protection and management activities, including energy transformation efforts aimed at preventing the climate crisis (Ministry of Finance Regulation Number 124/PMK.05/2020 on Procedures for Managing Environmental Funds, 2019).

4.3. Climate Finance Scheme as a Funding Source for Mandalika SEZ

Climate finance, a subset of green finance, pertains to funding aimed at climate change

mitigation and adaptation activities (Long et al., 2023). The Ecotourism SEZ Mandalika represents a concrete step for developing countries towards a dual approach of economic enhancement and climate action. Ecotourism integrates income generate, environmental education, and local community involvement, promoting conservation and development in a sustainable manner (Ross & Wall, 1999). Therefore, climate finance emerges as a fitting funding scheme for Mandalika SEZ. Its goal is to finance environmentally friendly tourism, including the development of infrastructure and applications of renewable energy technologies within the area.

Figure 2. Climate Finance Scheme for Mandalika SEZ
Source: Author, 2024

The climate finance scheme involves innovative and diverse funding sources. Collectively, these sources—government contributions, private sector engagement, and international cooperation—establish a robust financial foundation for implementing climate finance schemes at Mandalika SEZ. Thus, Mandalika SEZ has the potential to exemplify synergy among stakeholders in fostering economic development and environmental sustainability.

The first funding source is the issuance of green bonds by PT SMI. Green bonds, dedicated debt instruments for environmentally friendly projects, offer investors the opportunity to directly participate in sustainability initiatives. PT SMI's green bonds, focusing on projects with positive environmental impacts, not only yield financial returns but also contribute significantly to sustainable development in Mandalika.

Secondly, government allocations through the State Budget (APBN include components such as environmental taxes and Corporate Social Responsibility (CSR) funds from companies listed on the Indonesia Stock Exchange. Environmental taxes serve as fiscal tools to incentivize sustainable practices and generate revenue for environmentally friendly projects. CSR funds provide additional financial resources from the private sector, demonstrating corporate involvement in national sustainability efforts and diversifying funding sources.

Additionally, multilateral funding is a potential component in this financing scheme. Developed countries have agreed to redistribute capital to developing nations in the form of climate finance to support sustainable economic growth (Xie et al., 2023). Collaboration with multinational organizations like the Global Green Growth Institute (GGGI) facilitates access to the Green Climate Fund (GCF) and grants from global north countries. Such funding not only provides financial resources but also strengthens international cooperation and knowledge transfer in sustainable development contexts.

Thirdly, BPDLH manages donations from philanthropists. Philanthropic donations, often from individuals, foundations, or corporations committed to sustainability and climate action, provide additional financial resources to accelerate the implementation of renewable energy projects and ecotourism initiatives in Mandalika.

BPDLH is tasked with managing green funds through various financing windows such as forestry efforts, pooling funds, and developing EBT electricity infrastructure (Haryanto, 2023). Therefore, the climate finance scheme for Mandalika SEZ is recommended as depicted in **Figure 2**.

PT SMI accelerates national development by supporting infrastructure projects and has received approval from the Financial Services Authority (OJK) for issuing Green Bonds, adhering to the Green Bond Principles 2017 and ASEAN Green Bond Standards (Sarana Multi Infrastruktur, 2023b). The green bond management process involves selecting eligible projects under the Green Bond Framework, issuing the bonds, and leveraging the proceeds through PT SMI's business processes. The returns from these bonds are then allocated to BPDLH for management.

Corporate social responsibility significantly enhances a company's performance and reputation among investors (Alniacik et al., 2010). Implementing regulations requiring a certain percentage of CSR contributions from companies listed on the Indonesia Stock Exchange (BEI) would benefit all stakeholders. The mechanism is carried out as explained by Natalina (2022) and Tseng (2021) regarding the implementation of CSR in India and Taiwan. Companies must contribute at least 1% of their annual revenue to the state, which is then managed by BPDLH.

Government Regulation No. 46 of 2017 on Environmental Economic Instruments stipulates financial penalties for activities causing environmental harm. Several environmental taxes and fees, such as vehicle taxes, groundwater usage taxes, carbon taxes, and upcoming plastic excise taxes, are collected by central and local governments. However, these instruments are not always earmarked for specific uses (Atsani & Murwendah, 2019). In the climate finance scheme, earmarking environmental economic instruments and transferring funds to BPDLH for management is recommended. BPDLH collaborates with transnational organizations like GGGI and GCF, with GCF providing climate funds through the National Designated Authority (NDA) and GGGI connecting public and private institutions in developed and developing countries for sustainable development funding.

Funds managed by BPDLH are allocated to the State Electricity Company (PLN) for developing renewable energy infrastructure in KEK Mandalika, including solar, wind, and hydroelectric power projects, essential for reducing fossil fuel dependence and supporting green initiatives. Additionally, funds are allocated to the Indonesia Tourism Development Corporation (ITDC) for enhancing ecotourism infrastructure in Mandalika, such as sustainable lodging, eco-friendly tourist attractions, and local community training programs to support sustainable tourism.

The implementation of this climate finance scheme is expected to have long-term positive impacts, not only on environmental protection but also on promoting sustainable economic growth. However, transparency and accountability in fund management are essential to ensure that all stakeholders can monitor the development of KEK Mandalika effectively.

4.4. Rinonce EcoVenture: Application as Support for the Climate Finance Scheme by

Ensuring Transparency and Accountability

The Mandalika SEZ, as a national strategic project involving significant investment, certainly requires a high level of transparency in order to attract interest and build investor confidence. Transparency and accountability in the management of green funds are key to the success of how the scheme works (Blyth & Baron, 2003; Rodriguez, 2021). However, there are findings in the Policy Paper from the International NGO Forum on Indonesian Development (INFID) and Green Network Asia which show that the transparency and accountability of development governance of the Mandalika SEZ is not yet optimal, including financial governance (Media Indonesia, 2023). Based on this, the urgency of creating the Rinonce EcoVenture application is to provide openness and accountability regarding the management and allocation of funds in the project development process in the Mandalika SEZ. Openness in this context includes full transparency regarding the financial resources managed. On the other hand, accountability relates to how the funds collected will be allocated to each project. Therefore, the Rinonce EcoVenture application needs to be created to ensure that all related parties, both investors and government, have clear visibility into the source and management of project funds in the Mandalika SEZ.

The Rinonce EcoVenture application is an application specifically designed to support the climate finance funding scheme in the Mandalika SEZ. A key feature of this application is its ability to provide a comprehensive overview of the accumulated funds and their allocation across various projects. Additionally, Rinonce EcoVenture offers an investment feature through green bonds, enabling investors and the public to participate in environmentally sustainable projects in KEK Mandalika. Green bonds represent an attractive investment option, allowing investors and the public to contribute to eco-friendly projects in KEK Mandalika. Another advantage of the Rinonce EcoVenture application is its role as a sustainability reporting tool. It provides sustainability information through comprehensive reports covering economic, social, and environmental aspects. These sustainability reports enable stakeholders to evaluate projects not only financially but also in terms of social progress and environmental impact. The information provided through this application ensures accountability in fund usage and offers a holistic view of the projects' impact on the surrounding community and environment. Thus, Rinonce EcoVenture is not merely an administrative tool but a strategic instrument for building trust, attracting investors, and demonstrating that projects in KEK Mandalika will have a sustainable positive impact.

The name "Rinonce EcoVenture" comprises two words: "rinonce" and "ecoventure." "Rinonce," in the Sasak language, means "sustainable," emphasizing the sustainable aspect of KEK Mandalika's development. "Ecoventure" combines "eco" (environment) and "venture" (adventure), highlighting the eco-friendly adventure offered by KEK Mandalika. Overall, the name Rinonce EcoVenture is intended to encapsulate the climate finance scheme applied in KEK Mandalika's development.

The Rinonce EcoVenture application, supporting the proposed climate finance scheme, features four main functionalities: Project, Portfolio, Sustainability Report, and News.

Project feature

The Project feature is a transparency feature that accommodates all real time data regarding the funds collected and the targets for each project. The funds collected will be broken down based on the source, such as green bonds, international grants, earmarking tax on environmental taxes,

CSR funds and philanthropic donations. Apart from that, this Project feature will be accompanied by information or details about each project so that investor users can understand these projects before investing. The government and community can also use this feature as a medium to continue to monitor the progress of development projects in the Mandalika SEZ area. Meanwhile, the appearance of the Project feature of this application can be seen in **Figure 3.**

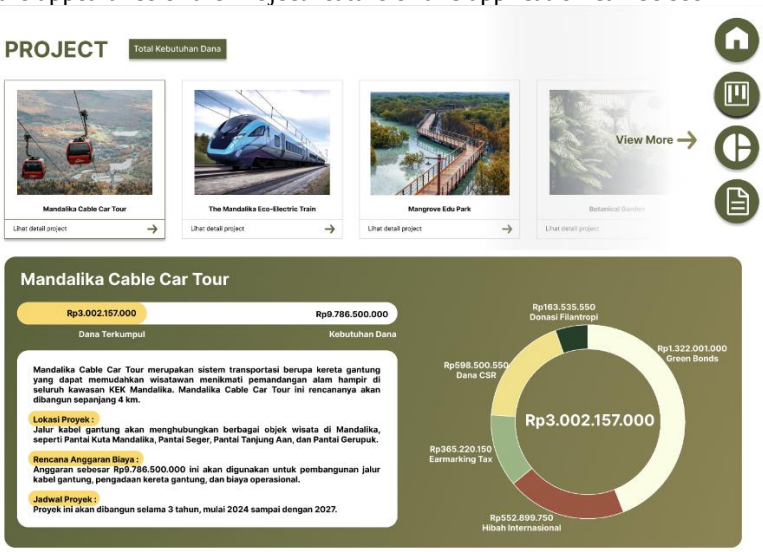

Figure 3. Website Design Project Feature
Source: Author, 2024

Apart from information regarding the funds for each project, the Project Feature also provides transparency regarding the funds needed and collected from all projects built in the Mandalika SEZ. This part of the Project Feature was created with the hope of increasing transparency and accountability in the use of funds in the development of the Mandalika SEZ as a whole. The appearance of this Project Feature can be seen in the Total Fund Requirements section as shown in **Figure 4.**

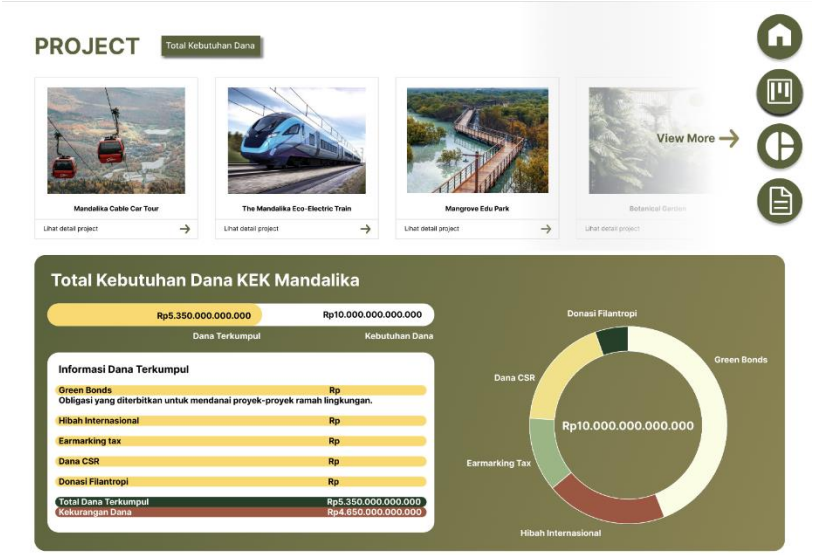

Figure 4. Website Design Project Feature
Source: Author, 2024

Portfolio Feature

The Portfolio feature in the Rinonce EcoVenture application provides detailed information about the total funds invested by investors in each project and facilitates green bond purchase transactions. This feature displays not only the total funds owned by investors but also the allocation of these funds across different projects. Thus, investors can easily see the proportion of their total portfolio invested in various projects.

The uniqueness of the Portfolio feature lies in its ability to display green bonds—environmentally friendly financial instruments—available for purchase by investors. These green bonds are specifically differentiated for each project, allowing investors to choose projects that align with their values and preferences. Detailed information, including the amount borrowed, loan term, interest rate, and maturity date, is clearly displayed for each green bond, providing investors with a solid basis for decision-making. Once an investor purchases a green bond, the transaction is automatically recorded and added to their portfolio. This ensures transparency and accuracy in investment management. The Portfolio feature section for **Purchasing Green Bonds** and **Investor Portfolio Information** is illustrated in **Figure 5**.

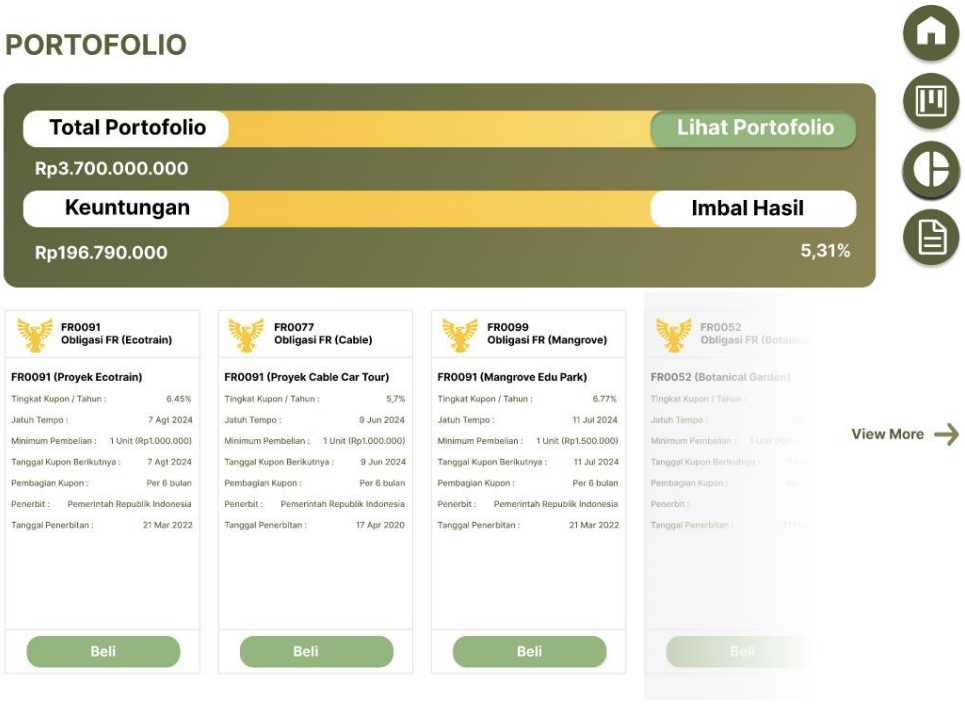

Figure 5. Website Design Portfolio features
Source: Author, 2024

Sustainability Report Feature

The Rinonce EcoVenture application is equipped with a Sustainable Reports feature. This feature functions to collect and process data related to sustainability performance in 3 priority sectors related to the development of the Mandalika SEZ, namely the economic, social and environmental sectors. This Sustainable Reports feature will display this data in diagram form that is easy for users to understand. Meanwhile, the appearance of the Sustainable Reports feature can be seen in **Figure 6.**

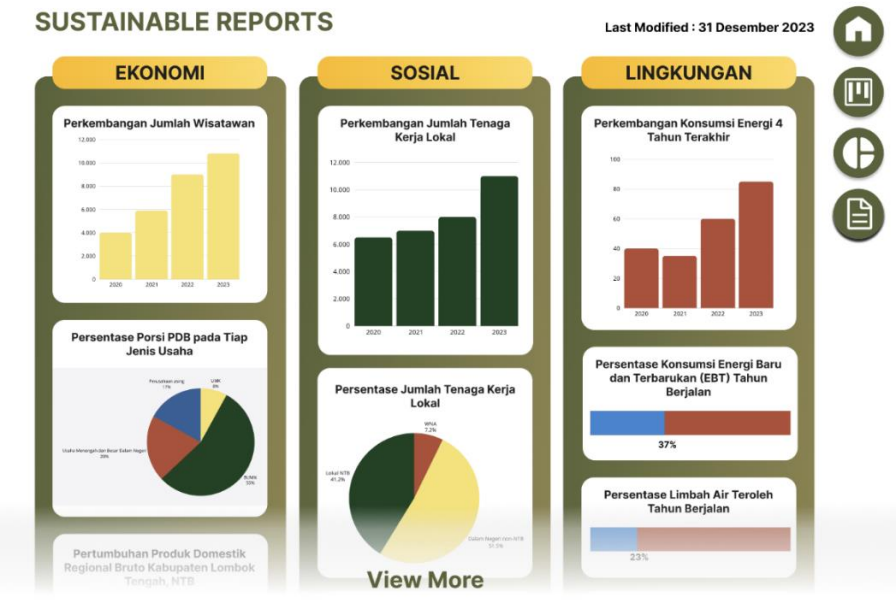

Figure 6. Sustainable Reports Feature Website Design
Source: Author, 2024

As stated in the website design in **Figure 3**, the sustainability report on the development of the Mandalika SEZ is classified into 3 Global Report Initiatives sectors, namely economic, social and environmental (Gautama et al., 2023). The type of data displayed for each sector can be seen in **Table 1**.

Table 1. Data Reported in Sustainable Reports

Sustainability Report	
Sector	**Data Reported**
Economy	1. Number of MSMEs, 2. Gross Regional Domestic Product (GRDP), 3. Development of the number of tourists, etc.
Social	1. Anti-discrimination policy, 2. Level of local community participation, 3. Employee guarantees, etc.
Environment	1. Energy consumption, 2. Water consumption, 3. Waste production, 4. Level of environmental pollution, 5. EBT energy mix, etc.

Source: Author, 2024

News Feature

The Latest News feature in the Rinonce EcoVenture application provides investors with the most recent information on market and economic conditions. This up-to-date news helps investors anticipate bond price movements and make informed investment decisions. In addition to market and economic updates, the Latest News feature also includes press releases on the development progress within the Mandalika SEZ. Investors can easily access news specific to development projects in the Mandalika SEZ through this feature. By doing so, they can stay informed about infrastructure developments, investment opportunities, and their potential impact on financial markets. This increased transparency allows investors to make more informed and strategic decisions regarding their investments in Mandalika SEZ projects. The Latest News feature is conveniently located on the dashboard of the Rinonce EcoVenture application, as illustrated in **Figure 7.**

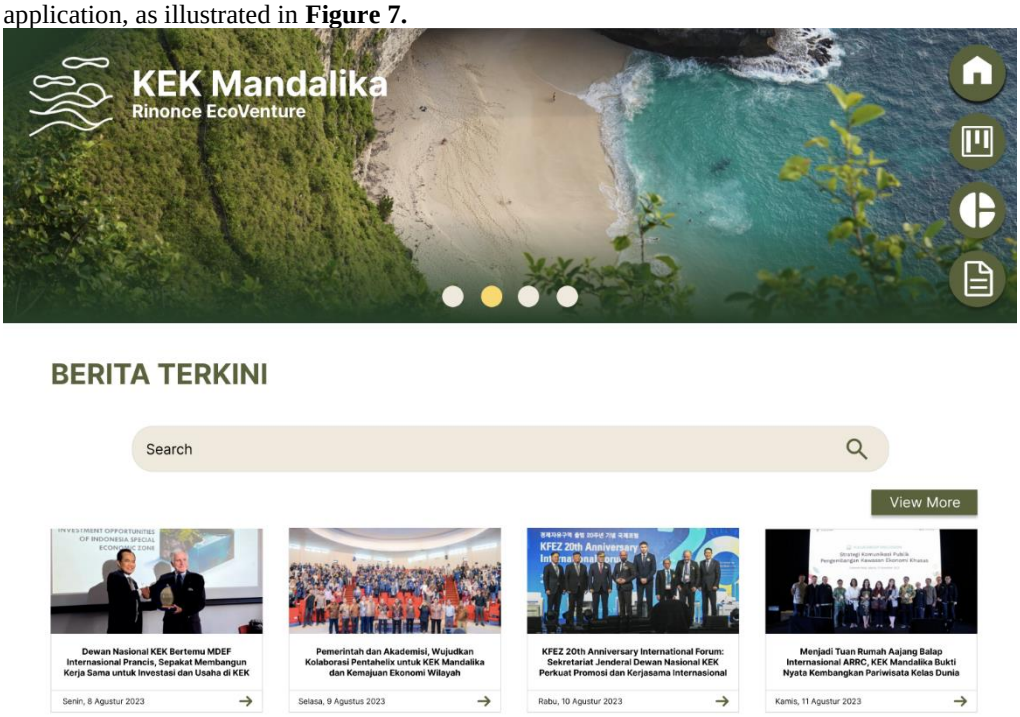

Figure 7. News Feature Website Design
Source: Author, 2024

5. Conclusion

Indonesia is a developing country that must fight for its economic growth. On the other hand, Indonesia must also take action regarding the climate and energy crisis. In facing this dilemma, Indonesia adopted the ecotourism concept of the Mandalika SEZ to realize sustainable development. However, the development and management of the Mandalika SEZ is faced with various challenges, one of which is related to funding. Climate finance schemes, as a solution, play a crucial role in overcoming this challenge. The scheme not only aims to finance projects but also paves the way for socially and ecologically responsible investments.

The Rinonce EcoVenture application has shown its potential as an effective supporting tool in

the climate finance scheme in Mandalika. This application not only functions as an information and transaction platform but also as a supporting tool in managing funds and resources related to climate finance. The integration of technology in this application helps ensure transparency, accountability, and efficiency in the use of climate finance funds.

In a broader context, Rinonce EcoVenture and the climate finance scheme implemented in Mandalika SEZ can be a model for other regions in Indonesia and even at the global level. This shows how smart technology and financial innovation can collaborate in driving sustainable and environmentally responsible development. For the future, it is important for stakeholders to continue to evaluate and optimize these schemes and applications so that they can provide wider and more sustainable benefits.

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