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Research Article

Prospects and Challenges of Sustainable Economic Development in East Nusa Tenggara: Between Natural Resource Exploitation and Emerging Opportunities

Marthen Lona *

Dosen Universitas Nusa Lontar Rote, Indonesia; e-mail : marthenlona30@gmail.com

* Corresponding Author: marthenlona30@gmail.com

Abstract: East Nusa Tenggara (ENT) possesses substantial natural resource potential across the agricultural, fisheries, renewable energy, and tourism sectors. However, their utilization remains largely unsustainable and continues to face challenges such as excessive resource exploitation, environmental degradation, limited infrastructure, and low human resource quality. This study aims to analyze the prospects and challenges of sustainable economic development in ENT by highlighting natural resource management and opportunities for developing new economic sectors based on innovation and local wisdom. The findings indicate that ENT has strategic opportunities in renewable energy development, sustainable tourism, and agricultural diversification, although these are constrained by weak governance, socio-economic inequality, and vulnerability to climate change. Therefore, the economic transformation of ENT requires strengthened regulations, multi-stakeholder collaboration, and sustainability-oriented investment. The findings underscore the necessity of fostering a sustainable economic transformation in ENT that aligns with global environmental goals while respecting local traditions and resources. This research provides valuable insights for policymakers, businesses, and community stakeholders aiming to promote sustainable growth in the region.

Keywords: East Nusa Tenggara, Innovation, Natural Resources, Regional Development, Sustainable Economy.

1. Introduction

East Nusa Tenggara (ENT) is a province with a strategic position in eastern Indonesia, covering an area of approximately 47,931 km² and consisting of more than 500 large and small islands. This archipelagic geographical characteristic endows ENT with abundant natural resources while simultaneously presenting complex development challenges. To date, ENT remains among the provinces with relatively high poverty rates, limited basic infrastructure, and significant vulnerability to the impacts of climate change. Data from Statistics Indonesia (BPS, 2023) indicate that the poverty rate in ENT reached 19.96%, far exceeding the national average of approximately 9.36%.

On the one hand, ENT has considerable economic potential across various strategic sectors, including agriculture and livestock, marine fisheries, renewable energy, and nature- and culture-based tourism. On the other hand, the predominantly exploitative use of natural resources, weak regulatory frameworks and oversight, and unequal distribution of

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development outcomes have created a serious dilemma in achieving sustainable and inclusive economic development.

The urgency of this study has intensified alongside growing global attention to sustainability issues. The Sustainable Development Goals (SDGs), globalization dynamics, and increasing public awareness of environmental protection require regional governments to formulate development strategies that go beyond short-term economic growth and prioritize long-term sustainability. Accordingly, this study seeks to address fundamental questions regarding the prospects for sustainable economic development in ENT, the challenges hindering its realization, and the strategies that can be pursued to achieve sustainable economic transformation.

2. LITERATURE REVIEW

The concept of a sustainable economy originates from the idea of sustainable development introduced in the Brundtland Report by the World Commission on Environment and Development (WCED, 1987). This concept emphasizes that development should meet the needs of the present generation without compromising the ability of future generations to meet their own needs. From an economic perspective, sustainable development is understood as an integrative process linking economic growth, social equity, and environmental protection.

Previous studies indicate that archipelagic regions such as ENT face serious structural limitations, particularly in transportation connectivity, energy infrastructure availability, and human resource quality (Amiruddin, 2021). Nevertheless, several studies also emphasize that island regions possess significant opportunities if they can effectively leverage their comparative advantages, especially in renewable energy development and ecotourism-based industries (Suryanto & Lestari, 2022).

From a policy perspective, the designation of ENT as a national tourism priority area through the development of Labuan Bajo as a super-priority destination has opened substantial investment opportunities. However, several studies caution that such policies may also trigger socio-economic inequality and environmental degradation if not accompanied by careful planning and sustainable governance (Yuliana, 2022).

3. METHOD

This study employs a qualitative descriptive approach using a literature review method. The analyzed data are derived from various relevant secondary sources, including official statistical data published by Statistics Indonesia (BPS), the Ministry of National Development Planning (Bappenas), and Bank Indonesia; regional policy documents such as the ENT Provincial Medium-Term Development Plan (RPJMD) 2018–2023; as well as sustainable development reports and strategic plans for the energy sector. In addition, this study utilizes scientific articles and academic journals addressing sustainable development issues, natural

resource management, and regional economic dynamics, along with reports from international institutions such as the United Nations Development Programme (UNDP), the World Bank, and the Asian Development Bank (ADB).

Data analysis was conducted through the stages of data reduction, data display, and conclusion drawing, as proposed by Miles and Huberman (1994). The primary analytical focus was on identifying potentials, risks, opportunities, and challenges in achieving sustainable economic development in ENT.

4. RESULT AND DISCUSSION

Natural Resource Potential in East Nusa Tenggara

ENT possesses significant natural resource potential across multiple economic sectors. In agriculture and livestock, the province is recognized as one of Indonesia's national livestock centers, particularly for cattle, goats, and buffalo. Statistics Indonesia (BPS ENT, 2022) reported that the population of beef cattle reached approximately 1.15 million head, making ENT a major contributor to the national beef supply.

In addition to livestock, the extensive dryland areas in ENT are relatively suitable for the cultivation of food crops such as maize, cassava, and legumes. Maize production in 2022 reached 1.13 million tons, reflecting a substantial increase compared to previous years. In the fisheries sector, ENT's waters, covering approximately 200,000 km², contain an estimated sustainable fishery potential of 1.14 million tons per year, although utilization remains at around 52% (ENT Fisheries and Marine Affairs Office, 2022).

Renewable energy potential represents another major strength of ENT. High solar radiation intensity, ranging from 4.8 to 5.1 kWh/m² per day, makes solar energy highly promising. In addition, wind energy potential in Sumba and Timor Islands has attracted international investor interest (ADB, 2021). In the tourism sector, natural and cultural assets such as Kelimutu Lake, Komodo National Park, and the cultural traditions of Sumba provide unique attractions with strong global competitiveness.

Risks of Exploitation and Environmental Degradation

Despite its vast potential, ENT also faces serious risks arising from uncontrolled natural resource exploitation. Manganese mining activities in South Central Timor Regency, for instance, have caused environmental damage in the form of deforestation and water source contamination, directly threatening the sustainability of local livelihoods dependent on subsistence agriculture.

In the fisheries sector, overfishing practices and the continued use of environmentally harmful fishing gear persist in several areas. These conditions pose risks to fish stock sustainability and marine ecosystem integrity. Climate change further exacerbates these challenges, as evidenced by the increasing frequency of droughts and extreme weather events. Reports from the National Disaster Management Agency (BNPB, 2021) classify ENT as one of the provinces with the highest levels of climate vulnerability in Indonesia.

Opportunities for Sustainable Economic Development

Amid these challenges, opportunities for sustainable economic development in ENT remain substantial. Renewable energy development has the potential to become a new engine of regional economic growth. The "Iconic Island Sumba" program, initiated through

collaboration between the government and international partners, demonstrates that a transition toward clean energy based on solar, wind, and micro-hydro power is feasible.

Furthermore, strengthening sustainable dryland agriculture can be achieved through the application of soil and water conservation techniques, commodity diversification, and the use of drought-resistant crop varieties. This approach not only enhances agricultural productivity but also maintains ecosystem balance.

Community-based tourism development also represents a strategic opportunity to reduce regional development disparities. The development of Labuan Bajo as a super-priority destination must be complemented by the strengthening of alternative destinations in Flores, Sumba, and Alor to ensure a more equitable distribution of economic benefits. Meanwhile, advances in information technology open opportunities for the growth of the digital economy and creative industries, enabling ENT's younger generation to engage in e-commerce and digital service-based economic activities.

Implementation Challenges

Despite significant opportunities, the implementation of sustainable economic development in ENT faces numerous obstacles. Limited basic infrastructure—such as roads, electricity, and clean water remains a major issue, particularly in small island areas. In addition, the quality of human resources remains relatively low, as reflected in the average years of schooling, which stood at only 8.4 years in 2022 (BPS, 2022).

Another major challenge lies in weak development governance, characterized by limited oversight in project and policy implementation. Socio-cultural factors also play a role, particularly in the form of resistance to innovation related to land and resource management. Socio-economic disparities between regions especially between Labuan Bajo and other areas of ENT remain an unresolved issue.

5. CONCLUSION

East Nusa Tenggara possesses substantial prospects for sustainable economic development, supported by its abundant natural resource endowment. However, excessive exploitation, environmental degradation, and various structural challenges may hinder the achievement of these goals. Therefore, a paradigm shift in development is required—one that not only emphasizes economic growth but also prioritizes social equity and environmental sustainability.

RECOMMENDATIONS

To achieve sustainable economic development in ENT, the government must strengthen regulations governing natural resource management to prevent overexploitation. In addition, increasing green investment particularly in renewable energy and environmentally friendly tourism represents a strategic step forward. Strengthening human resource capacity through vocational education, training, and technology transfer should also be a top priority. Finally, multi-stakeholder collaboration among government, the private sector, academia, and local communities must be continuously reinforced to promote inclusive and sustainable development.

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