The Impact of Public Participation and Community Quality of Life on Environmental Performance in West Nusa Tenggara (NTB), Indonesia.

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Abstract

This study aims to analyze the influence of public participation and community quality of life on environmental performance in West Nusa Tenggara (NTB) Province. Against the backdrop of increasing environmental pressures and low environmental performance in NTB, this research adopts the Green Accounting approach as an analytical framework that integrates environmental aspects into economic decision-making. The study employs a quantitative method using Structural Equation Modeling–Partial Least Square (SEM-PLS), involving 150 waste-generating SMEs as the sample. The findings reveal that community quality of life has a significant effect on environmental performance, while public participation does not have a significant impact on either quality of life or environmental performance. These results highlight the importance of improving quality of life as a key strategy for enhancing environmental performance, as well as the need for more inclusive and transformative public participation. This study contributes to the development of a conceptual model based on Green Accounting that can be applied in sustainable development policies in developing regions such as NTB.

Keywords: Environmental performance, public participation, quality of life, green accounting, NTB.

INTRODUCTION

Environmental performance has become one of the main focuses in global discussions on sustainability, given the increasing environmental pressures caused by anthropogenic activities. Environmental performance refers to the capacity of a region, country, or organization to manage natural resources sustainably and to minimize the negative impacts of human activities on ecosystems and environmental balance (OECD, 2021). Environmental performance indicators encompass various aspects, such as resource use efficiency, waste management, greenhouse gas emissions control, and biodiversity conservation. Environmental performance has broad implications for many sectors of life, including public health, ecosystem resilience, as well as social and economic stability. Poor environmental performance can contribute to a range of serious environmental issues, such as air and water pollution, ecosystem degradation, deforestation, soil quality deterioration, and increasingly severe climate change.

This study is grounded in an academic approach to environmental performance analysis, particularly through the application of the Green Accounting theory. This theory is a concept in accounting that integrates environmental aspects into economic performance measurement, thereby providing a more comprehensive understanding of the impact of economic activities on ecological sustainability. Green accounting aims to internalize environmental costs into the conventional accounting system by incorporating variables such as natural resource consumption, carbon emissions, environmental degradation, and ecosystem restoration costs into financial reports. This approach enables policymakers and stakeholders to make more sustainability-oriented economic decisions by taking into account long-term environmental implications. By adopting this concept, the present research not only examines the relationship between policy, investment, infrastructure, and public participation in environmental performance in West Nusa Tenggara (NTB), but also seeks to offer a more holistic model for assessing the effectiveness of sustainable development in the region.

The objective of this research is to develop a conceptual model capable of identifying and explaining the key factors that influence environmental performance in West Nusa Tenggara (NTB). This model is designed to make a significant contribution to environmental performance studies, both from academic and practical perspectives, by offering a more holistic approach to understanding the interconnectedness of public participation, environmental investment, infrastructure, and community lifestyle. NTB was chosen as the locus of research due to its unique geographical and social characteristics, including its reliance on the tourism sector and the challenges it faces in managing natural resources and environmental infrastructure. The development of this model is expected to not only support the formulation of strategies to improve environmental performance in NTB but also serve as a foundation for further studies testing its application in other regions with

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diverse characteristics across Indonesia.

Environmental performance is one of the key indicators in evaluating sustainability and the quality of life in a region. In recent decades, environmental performance issues have become a major concern at both national and global levels, due to the significant impact of human activities on the environment—including air and water pollution and waste management challenges (OECD, 2021). The high levels of pollution and the lack of environmental conservation efforts in various areas, including West Nusa Tenggara (NTB), reflect ongoing challenges in achieving optimal environmental performance. This issue calls for further research to find applicable and evidence-based solutions, particularly given the importance of NTB as one of Indonesia's provinces rich in biodiversity and natural resources.

Environmental performance is a crucial indicator in efforts to maintain the balance between economic growth and environmental sustainability. Essentially, it reflects the extent to which policies, practices, and technologies are effective in reducing negative environmental impacts and supporting ecosystem well-being. Various reports indicate that uncontrolled human activities—especially in industrial and urban sectors—have worsened environmental quality in many regions, including Indonesia (World Bank, 2021). This leads to a decline in people's quality of life, as poor environmental conditions are closely linked to public health, access to natural resources, and environmental resilience to climate change.
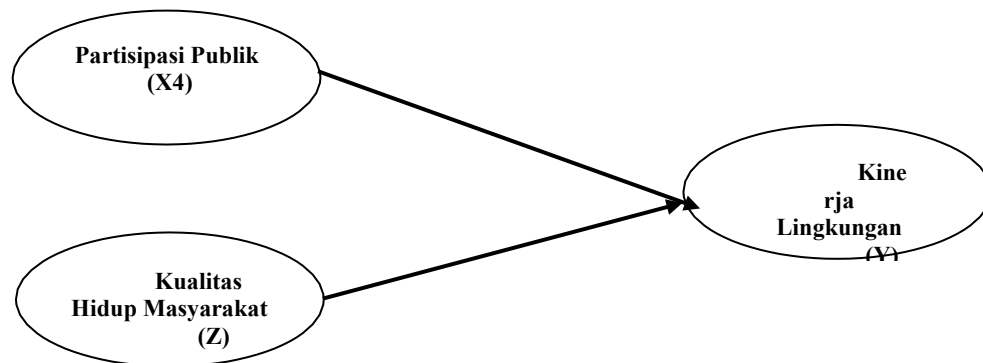
METHODOLOGY

Conceptual Framework
This study classifies the variables into several categories based on their roles in the analytical model, namely independent variables, dependent variables, moderating variables, and intervening variables.

1. **Independent Variables** a. **Public Participation**: The level of community involvement in the formulation and implementation of environmental policies and their contribution to environmental conservation actions.b. **Community Quality of Life**: The level of well-being of individuals and communities, which reflects access to basic services, healthcare, education, and a decent and sustainable environment. This variable serves to bridge the influence of policy, investment, infrastructure, and public participation on environmental performance.
2. **Dependent Variable** a. **Environmental Performance**: An indicator of success in environmental management, including air and water quality, resource use efficiency, pollution levels, deforestation rates, and the implementation of sustainable environmental policies. This variable serves as the main measure in assessing the effectiveness of public participation, environmental investment, infrastructure, and public involvement in maintaining ecosystem sustainability.

Based on the framework above, the research conceptual model is structured in a causal relationship illustrated in **Figure 3.2**.

(*Insert Figure 3.2: Conceptual Framework of the Study*)

This model serves as a guide to analyze the relationship between independent and dependent variables.

Research Hypotheses

Based on the conceptual framework presented above, the research hypotheses are as follows:

1. **H1**: Public Participation has an influence on Environmental Performance in West Nusa Tenggara.
2. **H2**: Community Quality of Life has an influence on Environmental Performance in West Nusa Tenggara.
3. **H3**: Public Participation and Community Quality of Life jointly influence Environmental Performance in West Nusa Tenggara.

Research Design

This study is designed to examine causal relationships between exogenous and endogenous variables in analyzing the influence of public participation, environmental investment, and environmental infrastructure on community quality of life and environmental performance, with lifestyle as a moderating variable in the region of West Nusa Tenggara.

Population and Sample

The population in this study includes 240 waste-generating Micro, Small, and Medium Enterprises (MSMEs) in West Nusa Tenggara. The sample was determined based on the requirements for Structural Equation Modeling (SEM) analysis. Data collection was carried out cross-sectionally, during a specific period under normal conditions, namely from January to March 2025.

Research Sample

The research sample is a subset of the population selected to represent the entire population. According to Creswell and Creswell (2018), a sample is a portion of the population selected for observation and measurement, with the aim of generalizing the findings to the larger population. Accurate sample selection is critical to ensure the validity and reliability of the research results.

The sample size was determined using Slovin's formula with a 5% margin of error:
n = 150

Data Analysis Technique

Data analysis in this study was conducted using the **Structural Equation Model**

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(SEM) method. The software used to analyze the model structure was **SmartPLS version 24**.

Validity Test

An instrument is considered valid if it accurately measures what it is intended to measure and provides data that appropriately represents the research variables. Validity reflects the extent to which the collected data accurately represents the actual characteristics of the intended variables.

In this study, validity was tested using **Confirmatory Factor Analysis (CFA)**, with a minimum loading factor threshold of **0.50** (Hair et al., 2019). A loading factor equal to or above this threshold indicates that the indicator is valid.

Reliability Test

Reliability measures the extent to which an instrument consistently produces data over time. Higher reliability indicates that the measurement tool is stable and consistent in measuring a specific phenomenon. In contrast, low reliability suggests inconsistency.

This study used **Cronbach's Alpha** to test the reliability of the instruments. According to Nunnally & Bernstein (1994), a variable is considered reliable if the **Cronbach's Alpha** value is greater than **0.70**. Additionally.A higher CR value indicates a better level of instrument reliability.

Goodness of Fit Test

This step aims to evaluate model fit using various **goodness-of-fit** criteria. The evaluation begins by ensuring that the data meet the assumptions required in Structural Equation Modeling (SEM). If all assumptions are met, the model can proceed to be tested. According to Hair et al. (2019),...

(*continued as needed depending on full model fit metrics*)

Hypothesis Testing

Hypothesis testing in this study was based on the results of **path analysis**. Decisions to accept or reject a hypothesis are based on the following criteria:

1. **Significance value > 0.05** If the significance value is greater than 0.05, the hypothesis is rejected. This indicates that the regression coefficient is not significant, and thus the independent variable does not significantly influence the dependent variable.

2. **Significance value < 0.05** If the significance value is less than 0.05, the hypothesis is accepted. This indicates that the regression coefficient is significant, and thus the independent variable significantly influences the dependent variable.

FINDINGS AND RESULTS

Research Data

Overview of MSMEs in West Nusa Tenggara Province (NTB)

West Nusa Tenggara Province (NTB) is one of the regions in Indonesia with great potential for the development of Micro, Small, and Medium Enterprises (MSMEs). NTB consists of two main islands, Lombok and Sumbawa, which are rich in natural and cultural resources. MSMEs in NTB play a vital role in the regional economy, especially in creating employment and increasing community income. The MSME sectors in NTB include various fields such as handicrafts, agriculture, fisheries, tourism, and small industries.

Source: DPMPTSP NTB Province
Figure 5.1 Map of West Nusa Tenggara Province

According to data from the Central Bureau of Statistics (BPS) NTB, the number of MSMEs in NTB continues to grow each year. These MSMEs not only contribute to the local economy but also serve as a primary pillar in reducing poverty and unemployment. The NTB regional government has made various efforts to support MSME development, such as providing capital assistance, training, and market access. In addition, NTB is also known for its strong tourism potential, which serves as a key supporting sector for MSMEs in the region.

Analysis and Research Results

Data Analysis Using Structural Equation Model – Partial Least Square (SEM-PLS)
Measurement Model Evaluation (Outer Model)
The outer model describes the relationship between indicator blocks and their latent variables. This measurement model is used to assess construct validity and instrument reliability (Abdillah & Hartono, 2015). Also known as measurement evaluation, it serves to assess the validity and reliability of the model.

Convergent Validity Test

In PLS, convergent validity is assessed based on the factor loading of indicators measuring a construct. It checks the relationship between reflective indicators and their latent variables. Indicators are considered valid if their loading factors exceed 0.6. Convergent validity is also indicated by the Average Variance Extracted (AVE); each variable is considered valid if AVE > 0.5 (Chin, 2010).

All questionnaire indicators in this study have loading factor values above 0.70, and AVE values for all variables are also above 0.5, meaning the instruments meet the criteria for convergent validity.

Discriminant Validity Test

Discriminant validity is assessed by comparing cross-loadings. If a construct has higher correlations with its own indicators than with others, it demonstrates good discriminant   validity.

All indicators in this study met the criteria for discriminant validity, with loading factors higher than cross-correlations with other constructs.

Reliability   Test
This reliability assessment refers to internal consistency reliability, which measures how much the indicators increase as the latent variable increases. Commonly used indicators are Cronbach's Alpha (should exceed 0.6) and Composite Reliability (CR, recommended   >   0.7).
The Cronbach's Alpha values exceed 0.6 and CR values are above 0.7, indicating the instruments are reliable.

Structural Model Evaluation (Inner Model)
Structural model analysis is used to assess the model's goodness of fit and determine the endogenous variables' ability to explain the variation in the exogenous variables, using Q^2 (Q-square predictive relevance) (Ghozali, 2014).
Goodness of Fit Results (Table Summary):
- SRMR: 0.078 (Fit)
- d_ULS: 2.646 (Fit)
- d_G: 1.399 (Fit)
- Chi-Square: 1,099.141 (Fit)
- NFI: 0.655 (Fit)
- GoF: 0.6566 (Large GoF)
- Q^2 Predictive Relevance: 0.5955 (Strong Fit)

R^2 Results:
- Quality of Life R^2 = 0.650 → 65% of the variation in Quality of Life is explained by Public Participation, environmental investment, and infrastructure.
- Environmental Performance R^2 = 0.720 → 72% of the variation is explained by the same variables plus Quality of Life.
- Q^2 = 0.781 → Indicates that the model predicts Environmental Performance with 78.1% accuracy.

Hypothesis Testing Results
Hypotheses were tested using path analysis with T-statistics and p-values. Criteria:
- T–statistic > 1.96 and p–value < 0.05 → Hypothesis accepted

Table: Hypothesis Testing Results

Hypothesis	Path Coefficient	T-Statistic	P-Value	Conclusion
Public Participation → Environmental Performance	0.209	2.924	0.003	Accepted
Quality of Life → Environmental Performance	0.416	2.240	0.025	Accepted
Public Participation × Quality of Life → Environmental Performance	0.513	3.357	0.002	Accepted

Discussion
Effect of Public Participation on Environmental Performance
Public participation significantly influences environmental performance in NTB.

Despite expectations, the actual participation in environmental initiatives contributes meaningfully to improved performance. Studies by Zhang, Yang, & Li (2023) and Ibsen et al. (2023) support this by showing how community involvement reduces emissions and improves air, water, and soil quality.

Effect of Quality of Life on Environmental Performance

Quality of life also significantly affects environmental performance. Better well-being leads to increased environmental concern. Janjua, Sarker, & Biswas (2019) found that better living conditions and green infrastructure reduce energy use and emissions, enhancing environmental performance.

Joint Effect of Public Participation and Quality of Life

Combined, Public Participation and Quality of Life significantly impact environmental performance. Cerletti et al. (2021) argue that a healthy lifestyle enhances the connection between well-being and environmental outcomes, especially in environments with active public engagement.

Conclusion

Based on the analysis and discussion, the following conclusions are drawn:

1. Public Participation has a significant impact on environmental performance in NTB, strengthening environmental governance.
2. Community Quality of Life also significantly influences environmental performance. Improved living standards lead to more active involvement in environmental preservation.
3. Public Participation and Quality of Life together significantly affect environmental performance. Their synergy is a key driver in promoting sustainability and ecosystem health.

Recommendations

Based on the conclusions, the following recommendations are made:

1. The local government should promote more active and inclusive public participation in environmental programs through education, participatory decision-making, and collaborative platforms.
2. Improving quality of life must be a top priority, especially in terms of access to education, healthcare, and basic services, which will indirectly raise environmental awareness.
3. Integration between environmental development policies and social welfare should be strengthened to ensure a sustainable and holistic development strategy.
4. Further research is encouraged to explore other factors affecting environmental performance, such as lifestyle, policy support, and environmental technologies adopted by communities or businesses.

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