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Local Wisdom as a Pillar of Sustainable Environmental Policy: An Environmental Governance Perspective

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ABSTRACT

***Purpose**: This study examines the influence of local wisdom on environmental governance effectiveness within community contexts.*

***Subjects and Methods:** A quantitative approach was employed using survey data from 375 respondents selected through purposive sampling. Data were collected using structured questionnaires and analyzed using multiple linear regression, supported by validity, reliability, and classical assumption tests.*

***Results:** The findings indicate that ritual practices, knowledge transmission, and customary sanctions have positive and significant effects on environmental governance effectiveness, both individually and simultaneously. Correlation and regression analyses reveal that these dimensions operate as an integrated system, reinforcing environmental awareness, compliance, and collective responsibility. The results also show that local wisdom enhances governance legitimacy and strengthens sustainable environmental behavior through cultural, cognitive, and social mechanisms.*

***Conclusions:** The study concludes that local wisdom plays a crucial role in improving environmental governance effectiveness. Integrating cultural values into environmental policies provides a contextually relevant and sustainable approach to achieving long-term environmental management outcomes.*

INTRODUCTION

Making the environment sustainable is one of the most topical problems of the twenty-first century. In spite of the demand of ambitious climate-action and resource-conservation plans under international agreements and countries-level frameworks, a number of the initiatives do not create lasting, community-scale change (Farnault & Sarr, 2024). Against this policy deficit, the importance of cultural and locally tailored practices, especially indigenous and traditional-based ones, have been gaining widespread attention within the research and practitioner communities in the context of foundations of sustainable environmental governance.

Local wisdom, as a specific aspect to accumulated, cross-generational knowledge, practice, and beliefs that has become part of the cultural identity of the community, offers itself as a unique, untapped avenue to the development of an environmentally responsible approach to behavior. In the Indonesian context, local wisdom cannot be separated with the ecological and cultural diversity in the archipelago (Asrawijaya, 2024; Touwe, 2020). Traditional communities, cross island, ethnic groupings have in the past been organized under environmental-management systems such as the Sasi in Maluku, the Subak in Bali, the Awig-Awig in Lombok, which govern

the use of the natural-resources, perform sustainability regulations, and promote environmental ethics held in common among members of the group (Barus, 2021).

As a rule, these systems are regulated based on traditional law, which focuses on harmony with nature, reciprocity, and the long-range management. However, regardless of the proven sustainability of the two above mentioned practices, mainstream environmental policy in Indonesia has on many occasions sidelined or ignored their roles in preference of technocratic, top-down approaches which are less able to capture the nature of socio-ecological contexts found in immediate environments (Scott et al., 2022).

Recent studies have shown that a large percentage of environmental policies are not having sustainable results and this observation can be partly blamed on relegation of community expertise and involvement (Touwe, 2020; Latulippe & Klenk, 2020). The scholars argue that policies that are not contextualized at the local levels face increased chances of opposition, suffer low compliance and are organizational inefficient. However, on the contrary, governance mechanisms become flexible and resilient when communities are involved based on their knowledge systems, and when local norms and practices are incorporated into the formal policy (Alberio & Soubirou, 2022).

Local wisdom thus exists not as a cultural artifact but rather as an active form of environmental management that helps to achieve ecological literacy and lead to the development of pro-environmental behavior, as well as, participatory decision making (Wardhani et al., 2024). The latest research efforts also show that environmental policies with the integration of local wisdom bear more effective results especially in forest management, marine conservation and sustainable agriculture (Aldyan et al., 2024). As another example, the Dayak people of Kalimantan use the traditional method of rotation to guarantee a recovery of the forest, and local customs often contain a ban of the exploitation of sacred ecosystems beyond reasonable limits.

Such examples point to the fact that the traditional practices are not counter to contemporary science but form supplementary systems towards the ecological objectives. Nevertheless, these synergies are often underestimated due to the policies of institutional pollution of vernacular knowledge in comparison with formalized and formalized sciences. In the literature of environmental governance, the use of local wisdom requires that the rejection of command and control is replaced by a decentralized, polycentric system that recognizes the rights of the communities, their cultural integrity, and the informal means of regulation (Zhang, 2024).

The Decentralization law adopted by Indonesia to maximize local control has hap-hazard generated the actual community development in environmental management paradigm. This gap has revealed the need to have empirical studies that not only propagates the theoretical estimates within local knowledge but also quantifies its real-life impact on policy performance using tangible measures (Gopal et al., 2024). Such an inclusive participatory governance is emphasized in the discourse on sustainable development, presented by the United Nations Sustainable Development Goals (SDGs) as Goal 13 (climate action) and Goal 15 (life on land).

International agreements clearly support the role of the indigenous knowledge and local communities in the environmental conservation like Convention on Biological Diversity (CBD) and Paris Agreement (Padilla, 2023). However, international norms have not translated into local policy practices evenly and still require local evidence in order to integrate the system. The given piece of work thus deals empirically with local wisdom as a quantifiable element of sustaining a long-term environmental policy, followed by specific consideration of multiple ecological cultures in Indonesia. In analyzing a relationship between the level of following by communities the traditional ecological knowledge and environmental performance and the efficacy of the policy, the study aims to make a statistically proved and grounded addition to the piece on environmental governance (Newig & Fritsch, 2009; Yu, 2015; Hezri & Dovers, 2006).

It is hoped that the findings would serve national policy formulation and international discourses on how the traditional knowledge system can become the basis of sustainable development. The economic uncertainty and fragmentation in ecological terms of the present epoch make local wisdom a realistic, culturally contextualized and historically tried path to sustainability. Introducing such wisdom into the environmental governance is not only a strategy but also a

moral imperative to embrace the custodianship of the indigenous and local communities about the natural environments within which they live (Padilla, 2023). As environmental issues are becoming more sophisticated, knowledge gained through local experience will probably become irreplaceable in coming up with comprehensive and long-term policies.

METHODOLOGY

Research Design

This study employs a quantitative research design to examine the influence of local wisdom on environmental governance effectiveness. A quantitative approach is appropriate as it enables the measurement of relationships among variables through statistical analysis. The study focuses on assessing how ritual practices, knowledge transmission, and customary sanctions contribute to environmental governance within the community context.

Population and Sample

The population of this study consists of community members who are actively involved in environmental practices influenced by local wisdom. A total of 375 respondents participated in this study, ensuring sufficient data for statistical analysis. The sample was selected using a purposive sampling technique, meaning that respondents were chosen based on specific criteria, particularly their knowledge and involvement in local wisdom practices related to environmental management.

Data Collection Technique

Data were collected using a structured questionnaire developed based on relevant theoretical constructs. The questionnaire was designed to measure four main variables: ritual practices, knowledge transmission, customary sanctions, and environmental governance effectiveness. Each variable was represented by several indicators, with ritual practices, knowledge transmission, and customary sanctions consisting of four indicators each, while environmental governance effectiveness consisted of five indicators. Responses were measured using a Likert scale ranging from strongly disagree to strongly agree, allowing for the quantification of respondents' perceptions.

Instrument Testing

To ensure the quality of the measurement instrument, validity and reliability tests were conducted. Construct validity was assessed using Exploratory Factor Analysis (EFA), where factor loadings above 0.60 indicate that the indicators adequately represent their respective constructs. Reliability testing was carried out using Cronbach's Alpha, with values exceeding 0.70 confirming good internal consistency and reliability of the instrument.

Classical Assumption Testing

Prior to conducting regression analysis, classical assumption tests were performed to ensure that the data met the required statistical assumptions. The normality test was conducted using the Kolmogorov–Smirnov method to verify that the data were normally distributed. Multicollinearity was assessed using Variance Inflation Factor (VIF) and tolerance values to ensure that there were no strong correlations among independent variables. Heteroskedasticity was examined using the Glejser test to confirm that the variance of residuals remained constant across observations.

Data Analysis Technique

Data analysis was carried out using multiple linear regression to examine both partial and simultaneous effects of independent variables on environmental governance effectiveness. Descriptive statistics were used to provide an overview of respondents' perceptions, while correlation analysis employed the Pearson Correlation Coefficient to identify relationships among variables. Hypothesis testing was conducted using regression coefficients and Analysis of Variance to evaluate the significance of the model and the influence of each independent variable.

RESULTS AND DISCUSSION

Descriptive Statistics of Research Variables

This analysis serves as a first step in identifying patterns of community perception regarding local wisdom practices and the effectiveness of environmental governance. By examining the average values and distribution of the data, researchers can understand the extent to which these variables are internalized in the respondents' daily lives. Presenting descriptive statistics also helps assess the consistency of respondents' responses and the level of homogeneity of the data. A relatively small standard deviation indicates that respondents' perceptions tend to be uniform, suggesting a high level of agreement among community members regarding the phenomenon under study. This is important as a basis for further, more complex analyses, such as testing the relationships or influences between variables.

Table 1. Descriptive Statistics

Variable	Mean	SD	Category
Ritual Practices	4.15	0.51	High
Knowledge Transmission	4.08	0.54	High
Customary Sanctions	4.13	0.50	High
Environmental Governance Effectiveness	4.05	0.49	High

After examining the results presented in the table, it can be generally concluded that local wisdom still plays a significant role in shaping community behavior toward the environment. Consistently high scores across all variables reflect that-cultural values are not only maintained but also effectively implemented in daily practice. This demonstrates a strong integration between cultural aspects and environmental management at the community level. These findings indicate that the effectiveness of environmental governance is inextricably linked to the contribution of local values embedded within the community. Local wisdom serves as a social mechanism that strengthens compliance, awareness, and collective responsibility for the environment. Therefore, a culture-based approach can be a relevant strategy for sustainably improving the quality of environmental governance.

Validity and Reliability Testing

Construct Validity (Exploratory Factor Analysis)

Construct validity testing aims to ensure that each indicator accurately reflects the theoretical construct it is intended to measure. In this study, Exploratory Factor Analysis (EFA) is employed to examine the underlying factor structure and to verify whether the observed variables correspond appropriately to their respective latent constructs. This step is essential in establishing a solid measurement foundation for the study. EFA enables the identification of how indicators group together based on their correlations, without enforcing a rigid prior structure. This approach provides empirical evidence regarding whether the conceptual dimensions proposed in the study are supported by the data. As a result, it strengthens the overall measurement model and ensures that each construct is represented by indicators that are both relevant and consistent.

Table 2. Factor Loadings (EFA Results)

Indicator	Loading
Ritual Practices (RP1–RP4)	0.71 – 0.84
Knowledge Transmission (KT1–KT4)	0.69 – 0.82
Customary Sanctions (CS1–CS4)	0.73 – 0.86
Governance Effectiveness (GE1–GE5)	0.70 – 0.85

The results presented indicate that the measurement model demonstrates strong construct validity. The factor loading values show that each indicator is closely associated with its respective construct, reflecting a clear alignment between theoretical concepts and empirical observations. The pattern of loadings across all variables appears consistent, suggesting that the indicators

function reliably in representing their intended dimensions. This consistency implies that respondents interpret the measurement items in a similar way, which reduces potential bias and enhances the stability of the data. The structure of the model also shows that each construct is distinct from the others. The absence of overlapping loadings indicates that the indicators are not measuring multiple constructs simultaneously, supporting the clarity of conceptual boundaries within the study. These findings provide a solid foundation for conducting further statistical analyses. When the validity of constructs is confirmed, subsequent tests such as reliability analysis and hypothesis testing can be carried out with greater confidence in the accuracy of the measurement model. The overall evidence suggests that the research instrument is well-designed and empirically supported. The alignment between indicators and constructs strengthens the credibility of the study and ensures that the conclusions drawn are based on valid and dependable measurements.

Reliability Test

Reliability testing is conducted to evaluate the consistency and stability of the measurement instrument used in this study. This test assesses whether the indicators within each variable produce consistent results and reliably measure the same underlying construct.

Table 3. Reliability Results

Variable	Cronbach's Alpha
Ritual Practices	0.84
Knowledge Transmission	0.82
Customary Sanctions	0.85
Governance Effectiveness	0.87

All variables meet the acceptable criteria for internal consistency. The values obtained suggest that the measurement items within each construct are sufficiently correlated and function cohesively in representing the same concept. The consistency observed across variables reflects the reliability of the research instrument in capturing respondents' perceptions. Each set of indicators appears to work together in a stable manner, reducing the likelihood of random measurement error. The strength of these reliability values also suggests that the items are well-designed and clearly understood by respondents. When respondents interpret items consistently, it enhances the overall quality of the data collected and supports the dependability of the findings. Another important implication is that the constructs used in this study are measured with a high degree of precision. Reliable instruments ensure that variations in responses are more likely to reflect actual differences in perceptions rather than inconsistencies in the measurement tool. These results also provide assurance that the data are suitable for further statistical analysis. Reliable measurements are a prerequisite for conducting more advanced analyses, such as correlation or regression, as they ensure that the relationships identified are based on stable data. The alignment between indicators within each variable indicates that the conceptual framework of the study is supported by empirical evidence. This strengthens the overall methodological rigor and confirms that the constructs are operationalized effectively. The findings demonstrate that the research instrument possesses strong internal consistency. This supports the credibility of the study and provides confidence that the conclusions drawn are based on reliable and consistent measurements.

Classical Assumption Tests

Normality Test

Before interpreting the regression model, a normality test is conducted to ensure that the residuals follow a normal distribution. This assumption is essential because it affects the validity of statistical inference in parametric analysis. The test result is summarized in the table below.

Table 4. Normality Test (Kolmogorov–Smirnov)

Test Method	Significance Value	Threshold	Conclusion
Kolmogorov–Smirnov	0.200	> 0.05	Normally Distributed

The result indicates that the data distribution meets the normality assumption, as the significance value exceeds the required threshold. This suggests that the residuals are symmetrically distributed and free from serious deviation. A normal distribution of residuals implies that the regression estimates are reliable and not biased by skewed data patterns. This condition supports the use of parametric statistical methods, which rely on normally distributed data to produce accurate results. The absence of normality issues also indicates that extreme values or outliers do not significantly distort the dataset. As a result, the model can better represent the actual relationships between variables. Meeting this assumption strengthens the overall analytical framework, ensuring that hypothesis testing and confidence intervals derived from the model are valid and trustworthy.

Multicollinearity Test

The multicollinearity test is conducted to assess whether there are strong linear relationships among the independent variables included in the regression model. This test is essential because high correlations between predictors can lead to unstable coefficient estimates and make it difficult to determine the individual contribution of each variable. In this study, multicollinearity is evaluated using the Variance Inflation Factor (VIF) and tolerance values, which are commonly applied indicators in regression analysis to detect potential collinearity issues.

Table 5. Multicollinearity Test

Variable	VIF	Tolerance
Ritual Practices	1.82	0.55
Knowledge Transmission	1.76	0.57
Customary Sanctions	1.89	0.53

The regression model is free from multicollinearity issues. The obtained values demonstrate that the independent variables do not exhibit problematic intercorrelations, allowing each predictor to maintain its distinct role within the model. The VIF values, which measure the extent of variance inflation due to collinearity, remain far below the critical threshold. This suggests that the presence of one independent variable does not excessively influence or distort the estimation of another variable within the model. Tolerance values further support this finding by indicating that a substantial proportion of variance in each independent variable is not explained by other predictors. This reflects that the variables are sufficiently independent and not redundant in explaining the dependent variable. The absence of multicollinearity enhances the interpretability of the regression coefficients. Each coefficient can be understood as representing the unique contribution of its respective variable without significant overlap from other predictors. This condition also improves the statistical stability of the model, as collinearity often leads to large standard errors and unreliable estimates. With stable estimates, the model becomes more robust in explaining the relationships among variables. The findings suggest that the conceptual framework of the study is supported by empirical data, where each construct operates as a distinct dimension rather than overlapping with others. These results confirm that the independent variables are appropriate for inclusion in the regression analysis and that the model meets one of the key classical assumptions required for reliable statistical inference.

Heteroskedasticity Test

To evaluate whether the variance of residuals remains constant, a heteroskedasticity test is performed using the Glejser method. The summary of the test results is presented below.

Table 6. Heteroskedasticity Test (Glejser)

Variable	Significance Value	Threshold	Conclusion
Ritual Practices	> 0.05	> 0.05	No Heteroskedasticity
Knowledge Transmission	> 0.05	> 0.05	No Heteroskedasticity
Customary Sanctions	> 0.05	> 0.05	No Heteroskedasticity

The results indicate that all variables have significance values exceeding the threshold, meaning that the model does not suffer from heteroskedasticity. A homoscedastic condition ensures that the residuals have constant variance across all levels of independent variables. This improves the efficiency and accuracy of the regression estimates. The absence of heteroskedasticity also indicates that the model's predictive performance is stable and not influenced by unequal error variance. This enhances the credibility of the statistical results. These findings confirm that the regression model satisfies key classical assumptions, allowing further analysis to be conducted with confidence in the robustness of the model.

Correlation Analysis

The correlation analysis is conducted to examine the strength and direction of relationships among the research variables. This analysis uses the Pearson Correlation Coefficient to determine how closely the dimensions of local wisdom are associated with environmental governance effectiveness. Understanding these relationships is important as it provides initial evidence of how the variables interact with one another before proceeding to more advanced statistical analyses.

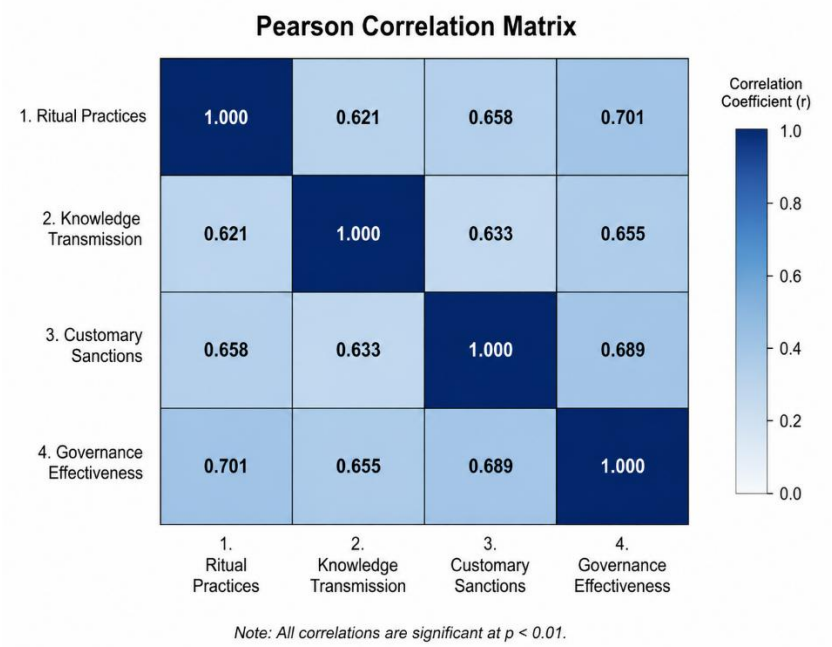

Figure 1. Pearson Correlation Matrix

The correlation matrix results indicate that all variables have positive relationships with one another, suggesting that the dimensions of local wisdom are interconnected and jointly contribute to environmental governance effectiveness. The strength of these relationships falls within the moderate to strong range, indicating meaningful associations without excessive overlap between constructs. The relationship between ritual practices and governance effectiveness appears to be the strongest among the observed correlations. This suggests that culturally embedded activities play a significant role in shaping how communities manage and respond to environmental issues. The stronger the integration of rituals in daily life, the more likely individuals are to engage in environmentally responsible behavior.

Knowledge transmission also shows a substantial correlation with governance effectiveness, highlighting the importance of intergenerational learning and the dissemination of environmental values. When knowledge is consistently shared within the community, it reinforces awareness and supports sustainable practices in environmental management. Customary sanctions demonstrate a strong positive relationship with governance effectiveness as well. This indicates that social control mechanisms rooted in local traditions contribute to

compliance and accountability. The presence of such sanctions encourages individuals to adhere to environmental norms and discourages harmful practices.

The correlations among the independent variables themselves remain moderate, which suggests that while they are related, they do not measure the same construct. This condition is important because it confirms that each variable represents a distinct dimension of local wisdom, supporting the validity of the conceptual framework. The matrix provides evidence that local wisdom operates as an integrated system in influencing environmental governance. Each dimension complements the others, creating a cohesive structure that enhances the effectiveness of environmental management at the community level.

ANOVA Test

The ANOVA test is conducted to evaluate the overall significance of the regression model. This test examines whether the independent variables, when considered simultaneously, have a statistically significant effect on the dependent variable. In regression analysis, Analysis of Variance (ANOVA) is used to compare the explained variance by the model with the unexplained variance, thereby determining whether the model provides a better fit than a model with no predictors.

Table 7. ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	28.920	3	9.640	85.901	0.000
Residual	25.000	371	0.067		
Total	53.920	374			

The F-value obtained reflects the ratio between the variance explained by the model and the variance that remains unexplained, showing that the model performs well in capturing the relationship between variables. The significance value (Sig.) is far below the commonly accepted threshold, which means that the null hypothesis can be rejected. This implies that the independent variables, when considered together, have a meaningful and statistically significant influence on the dependent variable. The distribution of the sum of squares also shows that a substantial portion of the total variation is explained by the regression model. This suggests that the selected predictors contribute effectively in explaining changes in the dependent variable. The relatively small residual variance indicates that the difference between observed and predicted values is minimal. This condition reflects a good level of model accuracy in representing the data. The degrees of freedom associated with regression and residual components further confirm that the model is properly specified, with an adequate number of observations supporting the analysis. These findings demonstrate that the model is suitable for further interpretation, particularly in examining the individual effects of each independent variable through regression coefficients. The ANOVA results confirm that the regression model has strong explanatory power and is appropriate for testing the proposed relationships within the study.

Regression Coefficients

The regression coefficient analysis is conducted to examine the magnitude and direction of the relationship between each independent variable and the dependent variable. This analysis provides detailed information on how changes in each predictor contribute to variations in environmental governance effectiveness. The coefficients (B) indicate the degree of influence, while the standardized coefficients (Beta) allow comparison of the relative strength of each variable within the model. The t-statistic and significance values are used to determine whether each independent variable has a statistically significant effect. Through this analysis, it becomes possible to identify which aspects of local wisdom play the most influential role in shaping environmental governance outcomes, as well as to assess the overall consistency of the model findings.

Table 8. Regression Coefficients

Variable	B	Beta	t	Sig.
Ritual Practices	0.314	0.278	5.065	0.000
Knowledge Transmission	0.243	0.222	4.190	0.000
Customary Sanctions	0.288	0.267	4.500	0.000

The results in Table 9 demonstrate that all independent variables have a positive and statistically significant effect on environmental governance effectiveness. This indicates that improvements in each dimension of local wisdom are associated with increased effectiveness in environmental governance practices. Each variable contributes meaningfully to the model, as reflected in the significance values that fall well below the accepted threshold. The positive coefficients suggest that stronger implementation of ritual practices, knowledge transmission, and customary sanctions leads to better governance outcomes. These findings highlight the important role of cultural and social mechanisms in supporting environmental management at the community level.

Discussion

The Role of Local Wisdom Dimensions in Shaping Environmental Governance Effectiveness

The findings of this study demonstrate that the dimensions of local wisdom ritual practices, knowledge transmission, and customary sanctions each exert a positive and significant influence on environmental governance effectiveness (Pratama et al., 2024; Wang et al., 2022; Nugroho, 2021; Akhmar et al., 2023). This indicates that environmental governance within the community is not solely driven by formal institutional mechanisms but is strongly embedded in sociocultural practices. The statistical evidence confirms that these dimensions function as critical determinants in shaping environmentally responsible behavior. Ritual practices emerge as an essential component in reinforcing environmental values through repeated cultural expressions. These practices act as symbolic yet functional tools that internalize norms and collective commitments toward environmental sustainability. The regular enactment of rituals creates a shared understanding of environmental responsibility, which strengthens behavioral consistency among community members (Silva et al., 2025; Suriyankietkaew et al., 2022).

Knowledge transmission plays a complementary role by ensuring that environmental values and practices are continuously disseminated across generations. Šūmane et al. (2018), Zamiri & Esmaeili (2024), Kalla et al. (2022) said that, the process of transferring knowledge whether through formal education or informal cultural interactions enhances community awareness and fosters informed decision-making. This suggests that environmental governance is significantly influenced by cognitive factors, particularly the level of understanding possessed by individuals. Customary sanctions further reinforce environmental governance by functioning as a traditional regulatory mechanism. These sanctions operate through social norms and moral obligations, creating a system of accountability that is deeply rooted in cultural values. Their effectiveness lies in their ability to enforce compliance without relying solely on formal legal structures.

The integration of these dimensions highlights that local wisdom operates as a multidimensional system. Each component contributes uniquely while simultaneously interacting with others to produce a cohesive governance framework. This interconnectedness explains why environmental governance effectiveness is strongly associated with the presence of well-maintained cultural practices. Sakti et al. (2024) and Mahrinasari et al. (2024) said that, the empirical results also suggest that communities with strong local wisdom systems tend to exhibit higher levels of environmental awareness and responsibility. This reinforces the idea that cultural context plays a pivotal role in shaping governance outcomes, particularly in community-based environmental management.

Another important implication is that local wisdom provides a form of adaptive governance. Unlike rigid formal systems, it evolves through social interaction and cultural continuity, allowing communities to respond effectively to environmental challenges (Little et al., 2023; Nicoll & Zerboni, 2020; Obrenovic et al., 2020). These findings contribute to the broader discourse on sustainable governance by emphasizing the relevance of integrating cultural dimensions into environmental policy frameworks. Ignoring local wisdom may lead to ineffective governance strategies that fail to resonate with community values. The results affirm that local wisdom is not merely a cultural artifact but a functional system that significantly enhances environmental governance effectiveness through behavioral, cognitive, and normative mechanisms (Khaerunnisa & Alam, 2025; Aldyan et al., 2024; Pratama et al., 2025).

Integrated Influence of Local Wisdom on Environmental Governance: A Systemic Perspective

The simultaneous analysis of all independent variables reveals that local wisdom collectively exerts a strong and significant influence on environmental governance effectiveness. The ANOVA results confirm that the combined effect of ritual practices, knowledge transmission, and customary sanctions provides substantial explanatory power in the regression model (Kasoki et al., 2025). This finding suggests that environmental governance should be understood as a systemic phenomenon rather than a set of isolated relationships. Each dimension of local wisdom interacts dynamically, forming a comprehensive structure that supports sustainable environmental management.

The interaction between ritual practices and knowledge transmission illustrates how cultural activities serve not only as symbolic expressions but also as channels for knowledge dissemination. This dual function enhances the depth and continuity of environmental awareness within the community. The relationship between knowledge transmission and customary sanctions demonstrates how understanding and enforcement mechanisms work together (Yazew & Kassa, 2023; Early & Cilizoglu, 2020; Lim & Ferguson, 2022). Knowledge provides the foundation for awareness, while sanctions ensure adherence to established norms, creating a balanced governance system.

The absence of multicollinearity among variables further supports the notion that each dimension contributes distinct yet complementary effects. This indicates that environmental governance effectiveness is strengthened when multiple aspects of local wisdom are simultaneously activated. The strong model significance also implies that local wisdom has substantial predictive capability in explaining environmental governance outcomes. This reinforces its role as a key determinant in community-based environmental management.

Another critical insight is that local wisdom enhances governance legitimacy. Because it is rooted in shared cultural values, it fosters greater acceptance and participation among community members, leading to more sustainable governance outcomes. The findings also highlight the limitations of relying solely on formal governance structures. Without integrating local wisdom, environmental policies may lack contextual relevance and fail to achieve desired outcomes at the community level. The integrated influence of local wisdom underscores its importance as a holistic governance system. By combining cultural practices, knowledge systems, and social enforcement mechanisms, local wisdom provides a sustainable and contextually grounded approach to enhancing environmental governance effectiveness.

CONCLUSION

This study demonstrates that local wisdom plays a significant and integrated role in enhancing environmental governance effectiveness. The findings reveal that ritual practices, knowledge transmission, and customary sanctions each contribute positively and significantly, both individually and collectively, in shaping environmentally responsible behavior within the community. These dimensions operate as an interconnected system that combines cultural

values, cognitive awareness, and social control mechanisms to create a sustainable governance framework. The results also indicate that environmental governance is more effective when it is rooted in local cultural contexts, as such approaches foster greater community participation, compliance, and long-term commitment. Therefore, integrating local wisdom into environmental policy and management strategies is essential for achieving sustainable and contextually relevant governance outcomes.

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