

# Collaborative Governance in Complex Policy Environments: Examining Multi-Stakeholder Responses to Sustainability Challenges

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## ABSTRACT

Sustainability challenges in Indonesia require governance approaches that foster cooperation among diverse stakeholders. This study examines the influence of stakeholder participation, trust among stakeholders, communication effectiveness, and shared decision-making on stakeholder responses to sustainability initiatives through a collaborative governance perspective. A quantitative survey was conducted with 150 community members involved in sustainability-related activities. Data were collected using a five-point Likert scale questionnaire and analyzed with SPSS version 25. The results show that all collaborative governance dimensions have a significant positive effect on stakeholder responses. Communication effectiveness was the strongest predictor, followed by trust among stakeholders, stakeholder participation, and shared decision-making. The model explained 69.2% of the variance in stakeholder responses ( $R^2 = 0.692$ ). These findings highlight the importance of effective communication, mutual trust, inclusive participation, and collaborative decision-making in strengthening stakeholder engagement in sustainability initiatives. The study enriches the collaborative governance literature and provides practical insights for policymakers seeking to enhance stakeholder involvement in addressing sustainability challenges in Indonesia.

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## **A. INTRODUCTION**

Sustainability challenges in the twenty-first century have become increasingly complex, requiring governments, communities, businesses, and civil society organizations to work collaboratively in addressing interconnected social, economic, and environmental issues (Anthony, 2024; Raihan, 2023). Problems such as climate change, environmental degradation, resource scarcity, social inequality, and urbanization can no longer be effectively addressed through traditional hierarchical governance alone (Fernández et al., 2018; Kaygusuz, 2007; Makridou et al., 2023). These challenges involve multiple actors with diverse interests, responsibilities, and levels of influence, making collaborative governance an increasingly important approach for fostering collective action and shared responsibility in sustainability initiatives.

Collaborative governance refers to a process in which public institutions engage non-governmental stakeholders in collective decision-making, policy implementation, and problem-solving activities. Unlike conventional governance systems that rely primarily on governmental authority, collaborative governance emphasizes participation, dialogue, trust-building, consensus-oriented decision-making, and resource sharing among stakeholders (Akter et al., 2023; Hartlieb & Eierle, 2022). Through collaboration, stakeholders can combine their knowledge, expertise, and resources to develop more effective and sustainable solutions to complex public issues. Consequently, collaborative governance has become a widely adopted framework for addressing sustainability challenges across various policy contexts.

Indonesia provides an important setting for examining collaborative governance due to its diverse social, cultural, economic, and environmental conditions. As one of the largest developing countries in the world, Indonesia faces numerous sustainability challenges, including environmental conservation, waste management, climate adaptation, natural resource governance, urban development, and community welfare improvement (Basuki et al., 2022; Halik et al., 2022). Addressing these issues requires coordination among actors operating across different levels of government, private organizations, community groups, and non-governmental institutions. Therefore, the success of sustainability initiatives often depends on the ability of these stakeholders to cooperate effectively and maintain long-term commitment toward shared objectives.

Previous studies have demonstrated that collaborative governance can enhance policy effectiveness by increasing stakeholder participation, strengthening trust among actors, improving communication, and facilitating shared decision-making. Stakeholder engagement contributes to more inclusive policy processes and greater policy legitimacy, while trust encourages cooperation and long-term commitment among participants (Andini et al., 2018; Basuki et al., 2022; Halik et al., 2022; Rahmawati et al., 2024). Effective communication helps reduce misunderstandings and conflicts, whereas shared decision-making fosters a sense of collective ownership over policy outcomes. Despite these findings, empirical evidence concerning stakeholder responses to collaborative governance in sustainability contexts remains relatively limited, particularly in developing countries where institutional capacities, governance structures, and stakeholder dynamics differ considerably from those in developed nations.

The limited attention given to stakeholder responses represents an important research gap. Most existing studies have focused on governance structures, institutional arrangements, or policy outcomes, while comparatively fewer studies have examined how stakeholders perceive and respond to collaborative sustainability initiatives. Understanding stakeholder responses is critical because the effectiveness of collaborative governance ultimately depends on the willingness of individuals and communities to participate, cooperate, and support collective action. Positive responses can strengthen policy implementation and sustainability outcomes, whereas negative perceptions may hinder collaboration and reduce policy effectiveness.

Based on these considerations, this study aims to examine stakeholder responses to sustainability challenges within a complex policy environment through the lens of collaborative governance. Specifically, the study investigates the influence of stakeholder participation, trust among stakeholders, communication

effectiveness, and shared decision-making on stakeholder responses toward sustainability initiatives in Indonesia. The findings are expected to enrich the collaborative governance literature by providing empirical evidence from a developing-country context and to offer practical insights for policymakers seeking to strengthen stakeholder engagement and improve the effectiveness of sustainability policies through collaborative governance approaches.

## **B. LITERATURE REVIEW**

### **Collaborative Governance**

Collaborative governance has emerged as an important approach for addressing complex public issues that cannot be effectively managed by government institutions alone. The concept emphasizes the involvement of public agencies, private organizations, community groups, and civil society actors in collective decision-making and policy implementation. According to collaborative governance theory, challenges characterized by high complexity, uncertainty, and interdependence require cooperation among multiple stakeholders to produce effective and sustainable solutions. (Agbodzakey, 2024; Hersey & Gordon, 2021; Saleh et al., 2024) identify key elements of collaborative governance, including stakeholder participation, dialogue, trust building, commitment, shared understanding, and collaborative outcomes, while (Ansell & Gash, 2008; Peters et al., 2022) emphasize principled engagement, shared motivation, and joint capacity for action. In the context of sustainability governance, collaborative governance is particularly relevant because environmental, social, and economic challenges often transcend institutional boundaries and require the integration of diverse knowledge, resources, and capabilities. Consequently, collaborative governance serves as a mechanism for strengthening stakeholder coordination, enhancing policy legitimacy, and improving the effectiveness of sustainability initiatives.

### **Sustainability Challenges in a Complex Policy Environment**

Sustainability challenges are multidimensional issues encompassing environmental protection, social equity, and economic development, often characterized by uncertainty, interconnectedness, and competing stakeholder interests. Issues such as climate change, environmental degradation, resource depletion, waste management, and social inequality require coordinated action across multiple sectors and institutions, particularly within complex policy environments where diverse actors operate under different objectives, regulations, and responsibilities (Anthony, 2024; Hong, 2023). Indonesia provides a relevant context for examining these challenges due to its geographic diversity, decentralized governance system, and significant environmental and social issues. The implementation of sustainability policies frequently depends on collaboration among government agencies, private organizations, community groups, non-governmental organizations, and citizens. Previous studies indicate that collaborative governance can enhance the management of sustainability challenges through knowledge sharing, stakeholder commitment, and collective action; however, its effectiveness ultimately depends on how stakeholders perceive and respond to collaborative processes (Dhewanto et al., 2023; Harmanto & Jatningsih, 2019; Kamyabi & Alipour, 2022).

### **Stakeholder Participation**

Stakeholder participation refers to the active involvement of individuals, groups, or organizations in decision-making, policy formulation, implementation, and evaluation processes. As a core principle of collaborative governance, participation enhances policy legitimacy, transparency, accountability, and responsiveness by ensuring that diverse perspectives and local knowledge are incorporated into governance processes (Li et al., 2016; Reed, 2008). In the context of sustainability governance, stakeholder participation fosters shared ownership of initiatives and encourages collective action. Previous studies consistently show that meaningful participation positively influences stakeholder attitudes, trust, policy support, and

engagement, indicating its important role in shaping stakeholder responses to sustainability challenges (Ameen et al., 2018; Mook et al., 2015; Streimikiene & Korneeva, 2020).

### Trust Among Stakeholders

Trust refers to the willingness of individuals or organizations to accept vulnerability based on positive expectations regarding the intentions and behavior of others. In collaborative governance, trust is a fundamental factor that facilitates cooperation, reduces uncertainty, and strengthens long-term relationships among stakeholders with diverse interests and levels of authority (Attfield et al., 2023; Ruichen Liu, 2023). High levels of trust encourage information sharing, mutual respect, constructive dialogue, and commitment to collective goals, whereas low trust can hinder collaboration through skepticism and resistance. Previous studies consistently identify trust as a key predictor of successful collaborative governance and stakeholder engagement, particularly in sustainability initiatives that require sustained cooperation among multiple actors (Bellaubi et al., 2021; Deepak & Perwez, 2023; Razak, 2023). Therefore, trust is expected to positively influence stakeholder responses toward sustainability governance initiatives.

### Communication Effectiveness

Communication effectiveness refers to the extent to which information is accurately conveyed, understood, and utilized among stakeholders. In collaborative governance, effective communication is essential for facilitating coordination, reducing misunderstandings, and developing shared understanding among participants with diverse backgrounds and interests (Bellaubi et al., 2021; Hao & Wang, 2022). Clear and transparent communication supports relationship building, encourages participation, resolves conflicts, and strengthens cooperation. Previous studies have shown that effective communication increases stakeholder satisfaction, engagement, and commitment to collaborative processes (Fernández et al., 2018; Hao & Wang, 2022). In the context of sustainability governance, communication is particularly important for disseminating information regarding goals, policies, and responsibilities, making it a key factor influencing stakeholder responses toward sustainability initiatives.

### Conceptual Framework and Hypotheses Development

Collaborative governance theory suggests that stakeholder participation, trust, communication effectiveness, and shared decision-making are critical factors that contribute to successful governance outcomes. Active stakeholder involvement, mutual trust, effective communication, and inclusive decision-making processes foster cooperation, strengthen commitment, and enhance support for collective actions. In the context of sustainability governance, these factors are expected to encourage more positive stakeholder responses toward sustainability initiatives. Based on the literature reviewed, the following hypotheses are proposed:

H1: Stakeholder participation positively influences stakeholder responses toward sustainability initiatives.

H2: Trust among stakeholders positively influences stakeholder responses toward sustainability initiatives.

H3: Communication effectiveness positively influences stakeholder responses toward sustainability initiatives.

H4: Shared decision-making positively influences stakeholder responses toward sustainability initiatives.

## C. RESEARCH METHOD

### Research Design

This study employs a quantitative cross-sectional survey design to examine the influence of collaborative governance dimensions on stakeholder responses to sustainability challenges in Indonesia. The quantitative approach was chosen to enable systematic measurement of variables and statistical analysis of relationships among constructs. The research framework includes four independent variables—

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Stakeholder Participation, Trust Among Stakeholders, Communication Effectiveness, and Shared Decision-Making—and one dependent variable, Stakeholder Responses Toward Sustainability Initiatives. Statistical analyses were conducted to assess the extent to which these collaborative governance dimensions influence stakeholder responses.

### **Population and Sample**

The population of this study consists of community members involved in sustainability-related activities, public programs, environmental initiatives, or community development projects in Indonesia. A total of 150 respondents were selected using purposive sampling to ensure participants possessed relevant knowledge and experience regarding sustainability initiatives and governance practices. The selection criteria included being at least 18 years old, having participated in or been exposed to sustainability-related programs, possessing sufficient understanding of local governance or sustainability issues, and being willing to participate voluntarily in the survey. This sampling approach was intended to obtain meaningful assessments of collaborative governance practices and stakeholder responses to sustainability challenges.

### **Data Collection Procedure**

Primary data were collected through a structured questionnaire distributed directly and electronically to selected respondents to capture their perceptions of collaborative governance practices and sustainability initiatives. Prior to the full survey, the questionnaire was reviewed to ensure clarity, relevance, and consistency with the research objectives. Participation was voluntary, and respondents were informed about the purpose of the study, while confidentiality and anonymity were maintained to encourage honest responses. Data collection was conducted within a predetermined period, and all completed questionnaires were screened for completeness before being processed for statistical analysis.

### **Measurement of Variables**

All variables were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The measurement indicators were adapted from the collaborative governance and sustainability governance literature. Stakeholder Participation was assessed through respondents' involvement in sustainability discussions, planning, and implementation activities; Trust Among Stakeholders through mutual respect, reliability, and confidence in collaborative processes; Communication Effectiveness through the clarity, accessibility, timeliness, and transparency of information exchange; Shared Decision-Making through stakeholder involvement and influence in collective decision processes; and Stakeholder Responses Toward Sustainability Initiatives through attitudes, support, commitment, and willingness to engage in sustainability-related programs.

### **Data Analysis Techniques**

Data were analyzed using SPSS version 25 through several stages, including descriptive statistics, validity and reliability testing, classical assumption testing, and multiple linear regression analysis. Descriptive statistics were used to summarize respondent characteristics and variable distributions through frequencies, percentages, means, and standard deviations. Instrument validity was assessed using Pearson Product-Moment Correlation, while reliability was evaluated using Cronbach's Alpha with a minimum acceptable value of 0.70. Prior to regression analysis, classical assumption tests consisting of normality, multicollinearity, and heteroscedasticity tests were conducted to ensure model suitability. Multiple linear regression was employed to examine the influence of Stakeholder Participation, Trust Among Stakeholders, Communication Effectiveness, and Shared Decision-Making on Stakeholder Responses Toward Sustainability Initiatives. Hypothesis testing was performed using the t-test for partial effects and the F-test for simultaneous effects at a significance level of 0.05, while the coefficient of determination ( $R^2$ ) was used to evaluate the explanatory power of the regression model.

## D. RESULTS AND DISCUSSION

### Respondent Profile

A total of 150 questionnaires were distributed and successfully collected, resulting in a response rate of 100%. The respondents consisted of community members who had participated in or were familiar with sustainability-related initiatives within their local communities.

Table 1. Demographic Characteristics of Respondents

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	82	54.7
	Female	68	45.3
Age	18–25 Years	31	20.7
	26–35 Years	56	37.3
	36–45 Years	38	25.3
	Above 45 Years	25	16.7
Education	High School	42	28.0
	Diploma	26	17.3
	Bachelor's Degree	63	42.0
	Postgraduate Degree	19	12.7
Sustainability Involvement	Less than 2 Years	48	32.0
	2–5 Years	67	44.7
	More than 5 Years	35	23.3

Table 1 presents the demographic characteristics of the 150 respondents. The majority were male (54.7%), while females accounted for 45.3%. Most respondents were aged 26–35 years (37.3%), followed by 36–45 years (25.3%), 18–25 years (20.7%), and above 45 years (16.7%). In terms of education, the largest proportion held a bachelor's degree (42.0%), followed by high school qualifications (28.0%), diplomas (17.3%), and postgraduate degrees (12.7%). Regarding sustainability involvement, most respondents had participated in sustainability-related activities for 2–5 years (44.7%), while 32.0% had less than 2 years of experience and 23.3% had more than 5 years of involvement.

### Descriptive Statistics

Table 2. Descriptive Statistics of Research Variables

Variable	Minimum	Maximum	Mean	Std. Deviation
Stakeholder Participation (SP)	2.20	5.00	4.12	0.548
Trust Among Stakeholders (TR)	2.40	5.00	4.08	0.573
Communication Effectiveness (CE)	2.60	5.00	4.15	0.521
Shared Decision-Making (SDM)	2.20	5.00	4.10	0.562
Stakeholder Responses (SR)	2.80	5.00	4.21	0.514

Table 2 shows that all research variables have relatively high mean scores, indicating positive respondent perceptions toward collaborative governance practices and sustainability initiatives. Stakeholder Responses (SR) recorded the highest mean value (4.21), followed by Communication Effectiveness (CE) (4.15), Stakeholder Participation (SP) (4.12), Shared Decision-Making (SDM) (4.10), and Trust Among Stakeholders (TR) (4.08). The relatively low standard deviation values (0.514–0.573) indicate that respondents' answers were fairly consistent across all variables.

**Validity Test**

The validity test was conducted using Pearson Product Moment Correlation. All questionnaire items demonstrated correlation coefficients exceeding the minimum threshold of 0.30 and significance values below 0.05.

Table 3. Validity Test Results

Variable	Number of Items	Correlation Range	Sig. Value	Result
SP	5	0.654 – 0.829	0.000	Valid
TR	5	0.671 – 0.845	0.000	Valid
CE	5	0.688 – 0.861	0.000	Valid
SDM	5	0.645 – 0.838	0.000	Valid
SR	5	0.691 – 0.854	0.000	Valid

Table 3 indicates that all measurement items are valid, with correlation coefficients ranging from 0.645 to 0.861 and significance values below 0.05 ( $p = 0.000$ ). These results confirm that all indicators adequately measure their respective constructs and are suitable for further analysis.

**4.4 Reliability Test**

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Interpretation
Stakeholder Participation	0.881	Good
Trust Among Stakeholders	0.894	Good
Communication Effectiveness	0.907	Excellent
Shared Decision-Making	0.887	Good
Stakeholder Responses	0.912	Excellent

Table 4 shows that all variables demonstrate strong reliability, with Cronbach's Alpha values ranging from 0.881 to 0.912. Communication Effectiveness (0.907) and Stakeholder Responses (0.912) achieved excellent reliability, while Stakeholder Participation (0.881), Trust Among Stakeholders (0.894), and Shared Decision-Making (0.887) showed good reliability. These results indicate that all measurement instruments possess satisfactory internal consistency and are reliable for further analysis.

**4.5 Classical Assumption Tests**

**Normality Test**

The results of the Kolmogorov–Smirnov normality test show a significance value of 0.200, which is greater than 0.05. This indicates that the residual data are normally distributed, thereby satisfying the normality assumption required for multiple linear regression analysis.

**Multicollinearity Test**

Table 5. Multicollinearity Test Results

Variable	Tolerance	VIF
SP	0.612	1.634
TR	0.598	1.672
CE	0.571	1.751
SDM	0.605	1.653

Table 5 shows that all independent variables have tolerance values greater than 0.10 (0.571–0.612) and VIF values below 10 (1.634–1.751). These results indicate that there is no multicollinearity problem among the independent variables, confirming that the regression model meets the multicollinearity assumption.

Heteroscedasticity Test

Table 6. Glejser Test Results

Variable	Sig.
SP	0.431
TR	0.276
CE	0.517
SDM	0.389

Table 6 presents the results of the Glejser test, showing that all independent variables have significance values greater than 0.05, ranging from 0.276 to 0.517. These findings indicate that the regression model does not suffer from heteroscedasticity, confirming that the variance of the residuals is constant and the heteroscedasticity assumption has been satisfied.

**Multiple Regression Analysis**

Table 7. Multiple Regression Results

Variable	B	Std. Error	Beta	t-value	Sig.
Constant	0.521	0.284	-	1.835	0.068
SP	0.241	0.063	0.258	3.825	0.000
TR	0.287	0.071	0.279	4.042	0.000
CE	0.311	0.069	0.314	4.507	0.000
SDM	0.224	0.065	0.236	3.446	0.001

Table 7 presents the results of the multiple regression analysis, showing that all collaborative governance dimensions have a positive and significant effect on stakeholder responses toward sustainability initiatives. Communication Effectiveness ( $\beta = 0.314$ ;  $p = 0.000$ ) emerged as the strongest predictor, followed by Trust Among Stakeholders ( $\beta = 0.279$ ;  $p = 0.000$ ), Stakeholder Participation ( $\beta = 0.258$ ;  $p = 0.000$ ), and Shared Decision-Making ( $\beta = 0.236$ ;  $p = 0.001$ ). The regression equation obtained is  $SR = 0.521 + 0.241SP + 0.287TR + 0.311CE + 0.224SDM$ , indicating that improvements in each collaborative governance dimension contribute to more positive stakeholder responses toward sustainability initiatives.

**Coefficient of Determination**

The model summary indicates a strong relationship between the independent and dependent variables, with an R value of 0.832 and an R<sup>2</sup> value of 0.692. This finding shows that 69.2% of the variation in stakeholder responses toward sustainability initiatives can be explained by Stakeholder Participation, Trust Among Stakeholders, Communication Effectiveness, and Shared Decision-Making, while the remaining 30.8% is influenced by other factors not included in the model. The Adjusted R<sup>2</sup> value of 0.683 further confirms the strong explanatory power of the regression model.

**Simultaneous Hypothesis Testing (F-Test)**

Table 8. ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.581	4	6.895	81.742	0.000
Residual	12.224	145	0.084		

Total	39.805	149			
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Table 8 presents the ANOVA results, showing that the regression model is statistically significant with an F-value of 81.742 and a significance level of 0.000 (< 0.05). These findings indicate that Stakeholder Participation, Trust Among Stakeholders, Communication Effectiveness, and Shared Decision-Making simultaneously have a significant effect on Stakeholder Responses Toward Sustainability Initiatives, confirming that the proposed regression model is suitable for explaining stakeholder responses in the context of sustainability governance.

### **Discussion**

The findings indicate that stakeholder participation has a significant positive effect on stakeholder responses toward sustainability initiatives. This result supports collaborative governance theory, which emphasizes the importance of involving stakeholders in policy processes to enhance commitment, policy acceptance, and collective responsibility. When community members are actively engaged in sustainability-related activities, they are more likely to develop a sense of ownership and responsibility toward program outcomes. Consequently, greater participation encourages stronger support for sustainability initiatives and increases stakeholder willingness to contribute to their successful implementation (Majid, 2020; Ruichen Liu, 2023).

The study also reveals that trust among stakeholders significantly influences stakeholder responses. Trust functions as a key mechanism for fostering cooperation, reducing uncertainty, and strengthening collaborative relationships among actors involved in sustainability governance. Stakeholders who perceive interactions as fair, transparent, and reliable are more likely to support collective initiatives and maintain long-term engagement. This finding is consistent with collaborative governance literature, which identifies trust as a fundamental prerequisite for effective collaboration and sustainable policy implementation (Agbodzakey, 2024; Hersey & Gordon, 2021; Saleh et al., 2024).

Communication effectiveness emerged as the most influential factor affecting stakeholder responses, as reflected by its highest standardized coefficient. Effective communication facilitates the exchange of information, enhances transparency, and promotes mutual understanding among stakeholders. Given that sustainability challenges often involve multiple actors with diverse interests and responsibilities, clear and timely communication is essential for minimizing misunderstandings and building confidence in collaborative processes (Agbodzakey, 2024; Ansell & Gash, 2008). The result suggests that strengthening communication mechanisms can substantially improve stakeholder engagement and support for sustainability initiatives.

In addition, shared decision-making was found to have a positive and significant effect on stakeholder responses, indicating that stakeholders are more supportive of sustainability programs when they are involved in policy decisions. Participation in decision-making enhances procedural legitimacy and ensures that stakeholder perspectives are considered throughout the governance process. Collectively, the findings confirm that collaborative governance is an effective approach for addressing sustainability challenges in complex policy environments (Agbodzakey, 2024; Hersey & Gordon, 2021; Voets et al., 2021). The model's explanatory power ( $R^2 = 69.2\%$ ) further demonstrates that stakeholder participation, trust, communication effectiveness, and shared decision-making are important determinants of stakeholder responses, with communication effectiveness emerging as the most critical factor in fostering stakeholder engagement and support for sustainability initiatives in Indonesia.

### **E. CONCLUSION**

This study examined the influence of collaborative governance on stakeholder responses to sustainability challenges in Indonesia. The findings reveal that stakeholder participation, trust among

stakeholders, communication effectiveness, and shared decision-making each have a positive and significant effect on stakeholder responses toward sustainability initiatives, confirming the importance of collaborative governance in strengthening stakeholder engagement and support for sustainable development. Among these factors, communication effectiveness emerged as the strongest determinant, followed by trust among stakeholders, stakeholder participation, and shared decision-making. The regression model demonstrated substantial explanatory power, with an  $R^2$  value of 69.2%, indicating that collaborative governance dimensions are important predictors of stakeholder responses. These findings suggest that policymakers and public administrators should prioritize inclusive participation, trust building, effective communication, and shared decision-making to enhance the effectiveness of sustainability initiatives and address increasingly complex environmental, social, and economic challenges in Indonesia.

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