

Research Article

The Role of Freedom of Expression and Collaborative Governance in Enhancing Community Participation for Water Resource Management in Africa

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Abstract

Water resource management remains a critical issue for sustainable development in Africa, as communities face challenges related to water scarcity, poor governance structures, and inadequate infrastructure. This article examines the interplay between freedom of expression, collaborative governance, and community participation in addressing these challenges. Drawing on theoretical and empirical insights, the study highlights how freedom of expression fosters transparency, accountability, and stakeholder engagement, which are essential for effective water governance. The research underscores the importance of collaborative governance frameworks that integrate diverse stakeholders, including governments, local communities, and private entities, to develop inclusive and sustainable water management strategies. Findings reveal that empowering communities through participatory decision-making and institutional reforms enhances their capacity to address water resource challenges effectively. The study concludes by recommending policy initiatives that prioritize institutional capacity building, promote freedom of expression, and foster collaborative governance mechanisms to ensure equitable and sustainable water resource management in Africa.

Keywords

Freedom of Expression, Collaborative Governance, Community Participation, Water Resource Management, Africa

1. Introduction

The study highlights the interplay between collaborative governance, community participation, and freedom of expression in addressing water resource challenges in Africa. By integrating theoretical frameworks, such as collaborative governance theory and freedom of expression theory, the research emphasizes the significance of inclusive decision-making processes for effective water resource management.

According to the United Nations, water resource manage-

ment encompasses a broad spectrum of conditions and needs, including economic activities, access to drinking water, ecosystem preservation, resilience to hazards, political stability, international cooperation, and financing. Effective water resource management is not solely about the natural availability of water but also about how resources are managed. The UN defines water resource management as;

"the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for

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sustaining livelihoods, human well-being, and socio-economic development; for ensuring protection against water-borne pollution and water-related disasters; and for preserving ecosystems in a climate of peace and political stability [1].”

Achieving the water, sanitation, and hygiene targets outlined in Africa's Sustainable Development Goals (SDGs) requires a significant acceleration of progress (UNICEF, 2022). The report highlights the urgency of addressing water scarcity and inadequate hygiene facilities, which hinder both development and peace. Between 2000 and 2020, Africa's population grew from 800 million to 1.3 billion. During this period, 500 million people gained access to basic drinking water and 290 million to sanitation services. However, significant gaps remain, with 418 million people still lacking basic drinking water access. According to [2], Africa's average basic drinking water service is 71%, leaving behind 29% of the total population, or more than 353 million people. Despite global commitments made in 2015 under the SDGs, progress in water security remains uneven across Africa, with only 29 countries showing improvement in the past three to five years, while 25 have made no notable progress.

Two of the 17 SDGs directly address water: Goal 6 aims to ensure the availability and sustainable management of water and sanitation for all, while Goal 14 focuses on conserving and sustainably using oceans, seas, and marine resources. Goal 6 specifically calls for improving water quality, protecting water-related ecosystems, and restoring water sources, while Goal 14 seeks to reduce marine pollution caused by land-based activities [3]. Managing natural resources has become increasingly complex due to various factors. Water and related ecosystems are characterized by intricate spatial and temporal features that intersect with dynamic human activities in socio-ecological systems. Additionally, environmental issues often involve conflicting economic, social, and cultural interests. As public interest in environmental matters grows, diverse groups and individuals have become crucial players in planning and decision-making, adding further complexity [4].

The dynamic and uncertain nature of environmental problems requires decision-making that is adaptable, transparent, and inclusive of diverse values and knowledge. Community participation in water resource management has increasingly been recognized as essential in both national and international policies. However, while community participation offers numerous benefits, stakeholders often become disillusioned when their contributions are neglected. Failing to incorporate community input in water management strategies diminishes the likelihood of achieving effective outcomes and sustainable development goals.

Policymakers must adopt approaches that fully integrate the public sector while recognizing the importance of community participation. Collaborative governance, which involves various stakeholders—including local communities—in decision-making, is vital to addressing these challenges. Since

local communities are often the primary users and managers of water resources, their involvement enhances the quality of decisions by incorporating a broader range of information inputs. Despite growing interest in collaborative governance, further research is needed to address the factors that hinder effective community participation. This study explores barriers such as freedom of expression and GDP per capita, using regression analysis to examine their impact. Evidence suggests that community participation improves the quality of environmental decisions by considering a broader range of inputs and perspectives.

Using African countries as a case study, this research aims to address the knowledge gap by analyzing participatory mechanisms in water resource management. The study employs relevant citizen participation typologies to define its theoretical scope, utilizing data from the SDG dataset (2019) and the World Bank's Quality of Governance dataset (2019). Through Logit probability and linear regression analysis, the study seeks to provide actionable insights and recommendations for improving community participation in water resource management through collaborative governance across African nations.

2. Literature Review

Water resource management is not a new concept in either practice or literature. Over the years, it has been increasingly recognized as crucial for sustainable development and poverty reduction, particularly in developing countries. Principles such as accountability, transparency, decentralization, and participation have consistently underpinned water governance. Community participation has emerged as a particularly significant principle in enhancing access to water resources and institutional frameworks, especially in light of global population growth [5, 6]. Consequently, various participatory approaches to water management have been proposed and implemented [7, 8]. Despite these advancements, questions remain regarding when water project beneficiaries can be considered active participants in decision-making processes and how government structures, including freedom of expression, facilitate or hinder such participation.

Water governance has increasingly focused on involving stakeholders in decision-making and implementation processes. As noted [9, 10], stakeholder participation has become a standard practice for water authorities. The concept of collaborative governance encompasses various dimensions, ranging from consultation and involvement in decision-making to the empowerment of stakeholders in addressing public issues. Stakeholder involvement is seen as essential for successful policy implementation, particularly in developing countries with relatively weak administrative structures.

Recent years have also seen a growing focus on defining water governance in academic literature. According to [11], water governance is the process of making decisions that

affect water delivery, the stakeholders involved, and how power is distributed in service delivery. Also, [12], makes a distinction between water governance and water management, arguing that while water governance relates to the decision-making processes and stakeholder roles, water management pertains to the operational principles, information, and models used to implement those decisions.

There is increasing recognition of the importance of integrated approaches to water resource management [13]. To improve water quality and quantity, research emphasizes the need for cooperation and coordination among various stakeholders and organizations [14, 15]. However, most existing studies focus on challenges related to water supply in rural and urban areas, primarily examining infrastructure and coverage disparities [16]. Limited attention has been given to citizen participation in decision-making processes, particularly concerning institutional structures and freedom of expression in the African context [17]. Collaborative governance is defined as:

“processes and structures of public policy decision-making and management that engage people constructively across the boundaries of public agencies to carry out a public purpose that could not otherwise be accomplished [18] (p. 2).”

This strategy facilitates stakeholder participation and improves the effectiveness of water governance. Collaborative governance relies on honest communication among stakeholders, which is only possible in an environment where freedom of expression is protected. The authors [19], highlight that creating a conducive environment for dialogue is critical for the success of collaborative governance initiatives. They argue that freedom of expression is a fundamental human right essential for effective collaborative governance. The World Bank reinforces this point, asserting that the quality of a country’s governance system significantly influences its ability to achieve sustainable economic and social well-being [20].

African countries exhibit varying degrees of freedom of expression. For example, Eritrea maintains a highly restrictive media environment, where the government controls all media outlets and imprisons journalists for reporting on sensitive issues. In contrast, countries such as Ghana, South Africa, and Nigeria have relatively open media environments, allowing journalists to report freely on a wide range of issues without fear of persecution [21].

The approach to addressing environmental challenges has shifted from analyzing obstacles faced by government organizations to understanding collaborative efforts in solving complex problems. However, there is mixed evidence regarding the effectiveness of collaborative governance in addressing environmental issues such as climate change, land degradation, and water resource challenges. While some studies report improvements in environmental conditions through collaborative management, others highlight declining collaboration over time due to a lack of resources, key

stakeholders, and achievable goals [22, 23]. For example, [22] demonstrated that collaborative governance improved water and habitat quality in 357 watersheds in the United States. In contrast, [23] found that a one-year collaborative governance initiative for climate change adaptation in Canada declined over time due to insufficient resources and the absence of short-term successes.

To develop effective frameworks for water resource management, emphasizes the need for a combination of purposeful actions, institutional frameworks, and policy mechanisms. Other scholars have highlighted the importance of including formal and informal institutional arrangements in multi-scale approaches to water governance [24-26]. Incorporating community perspectives and promoting mutual learning and coordination are critical for sustainable decision-making [27]. Globally, there is widespread recognition of the importance of citizen participation in development initiatives, particularly in water resource management in developing countries [28].

Target 6b of the Sustainable Development Goals explicitly supports local community participation in water governance. The UN General Assembly’s International Decade for Action (2005–2015), known as “Water for Life,” underscores the importance of stakeholder participation in water management and supply. However, in many developing countries, including those in Africa, water resource management remains overly centralized, with governments playing a dominant role in service provision, production, and financing.

There is a pressing need to examine the components of collaborative governance further, particularly the role of community participation and factors such as freedom of expression. This study investigates the structures, institutional frameworks, and stakeholder dynamics influencing water resource management decisions, aiming to uncover factors that enhance or hinder the effectiveness of collaborative governance over time. By addressing these issues, the research seeks to contribute to the development of more inclusive and sustainable water management strategies.

3. Theoretical Framework

This paper addresses the research question: to what extent does the level of freedom of expression influence local communities’ participation in water resource management? The research is supported by the following theoretical frameworks:

Collaborative governance theory highlights the importance of partnerships and collaboration between public, private, and civil society actors to achieve common goals [29]. In the context of water resource management, this theory ensures that community members, government agencies, and other stakeholders work together to manage water resources effectively while considering the diverse needs and perspectives of all involved.

Freedom of expression theory emphasizes the importance

of open communication in democratic societies [30]. This theory argues that the ability to express one's opinions and ideas is essential for promoting civic engagement, encouraging participation, and holding public officials accountable. Within water resource management, freedom of expression theory suggests that communities with greater freedom to express themselves are more likely to participate in decision-making processes and hold officials accountable for their actions.

Democratic governance theory underscores the significance of citizen participation and public voice in decision-making processes [31]. According to this theory, citizen participation ensures that decisions reflect the needs and preferences of the community while promoting transparent and accountable public policies. In the context of water resource management, democratic governance theory suggests that active community involvement is vital for equitable and sustainable decision-making.

Collectively, these theoretical perspectives underpin the research hypothesis by arguing that greater freedom of expression can lead to increased community participation and enhanced collaboration in managing water resources effectively. This theoretical framework further explores how these concepts can be operationalized and measured empirically through indicators such as the level of trust among community members due to freedom of expression, the extent of citizen participation in decision-making processes, and the effectiveness of collaborative governance structures [32].

By integrating these theories, the research provides a comprehensive framework for examining the interplay between freedom of expression, community participation, and collaborative governance in water resource management.

3.1. Research Design and Data

The research design employs a quantitative approach, focusing on the relationships between freedom of expression, collaborative governance, and community participation in water resource management across African contexts. Using regression analysis, the study examines how these factors interact while controlling for socioeconomic, institutional, and geographic variables. The design relies on secondary data sources, including governance indices, socioeconomic data, and records of community engagement, complemented by statistical methods to explore patterns and relationships. The use of linear regression in the study is justified as it offers a robust method for analyzing the relationship between continuous and categorical variables while accounting for multiple predictors. In the context of the article, linear regression is particularly suitable for investigating how factors such as freedom of expression, collaborative governance, and socioeconomic status influence community participation in water

resource management. The choice of linear regression is further supported by the nature of the dependent variable, which is measured continuously (e.g., the frequency of community participation initiatives or engagement levels). Linear regression provides an appropriate framework for modeling such data, allowing the study to estimate the effects of predictors in a straightforward and interpretable manner. This makes it easier to understand the practical implications of the findings, such as how changes in freedom of expression impact community participation.

3.2. Hypothesis Testing

Is there a relationship between freedom of expression and the level of local community participation?

$$H_0: \beta = 0$$

$$H_a: \beta \neq 0$$

$$Y = \beta_0 + \beta^1 * 1 + \beta^2 * 2 + \beta^3 * 3 + \beta^4 * 4 + \beta^5 * 5 + \epsilon$$

Where:

Y = the dependent variable, representing the community participation level in water resource management.

β_0 = the intercept, which represents the expected value of y when both *1 (freedom of expression) and *2 (GDP per capita), (population), (Environmental Policy), and (Sustainability Action) are equal to zero.

β^1 to β^5 = the regression coefficient, representing the expected change in y for a one-unit increase in *1, *2, *3, *4, and *5, respectively.

ϵ = the error term, which represents the unexplained variance in y that is not accounted for by *1, *2, *3, *4, and *5.

The goal of the linear logit Probability regression model is to estimate the values β_0 , β^1 , β^2 , β^3 , β^4 and β^5 that minimize the sum of squared residuals, which are the differences between observed values of y and the predicted values based on *1, *2, *3, *4, and *5.

3.3. Data Collection and Summary Statistics

Dependent Variables: Level of Community Participation

The dependent variable is measured by the proportion of African countries that have incorporated procedures in their policies for the participation of communities in the implementation of water resource and sanitation management. The unit of measurement is implemented using the SDG framework, specifically the level of participation. Countries are categorized based on whether users or communities are involved in planning and managing water resources. This is measured by the level of participation, classified as "High" (1) or "Low" (0). The variable type is ordinal, using data from the 2019 dataset (SDG Goals Target 6b, 2019).

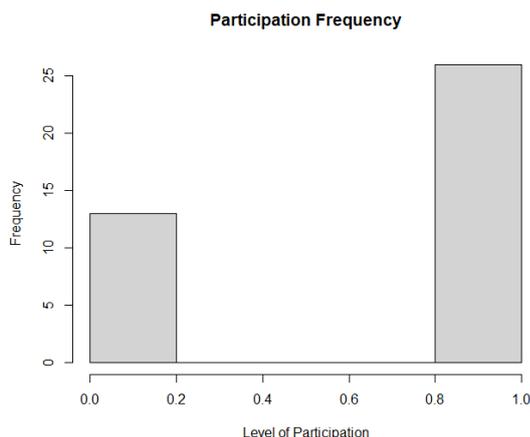


Figure 1. Participation Frequency.

The mean is 0.65, the median is 1.00, and standard deviation is 0.4830.

Independent Variables: Freedom of Expression and Belief

This variable measures the degree of freedom granted to religious and media groups to express themselves and practice their faith, as well as the ability of citizens to engage in private or political discussions without fear of being apprehended by the authorities. Countries are graded on a scale from 0 (worst) to 16 (best). (Data source: The QoG Standard Dataset 2023 Codebook, [33].

Univariate display: Figure 2.

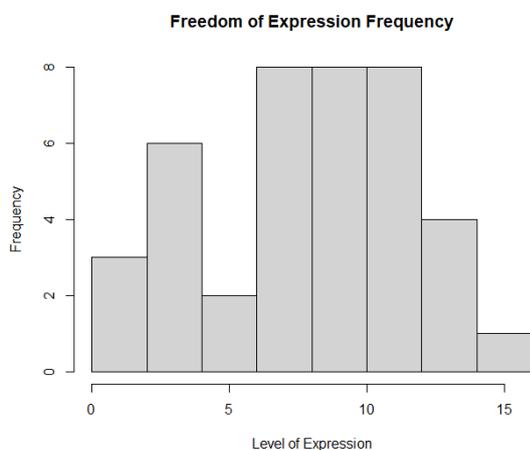


Figure 2. Freedom of Expression Frequency

Type of variable: Discrete

The mean is 30.398, median is 18.625, and standard deviation is 38.199. Summary statistics: Median: 959.9, Mean: 1621.9, and Standard deviation for GDP per capita: 1697.15.

Control Variables: GDP per Capita

The GDP per capita measurement scale provides a basic measure of the economic value per person. It reflects the wealth of countries based on their economic growth. The GDP per capita approach involves dividing the total income generated by the production of goods and services by the popu-

lation. This calculation provides an estimate of the average income per person, which serves as a proxy for GDP per capita. It is measured by taking the sum of the gross value added plus any taxes on goods, minus subsidies, produced by all resident producers, and dividing this figure by the population for the year. Type of variable: Ratio. Data source [34].

Univariate display: Figure 3.

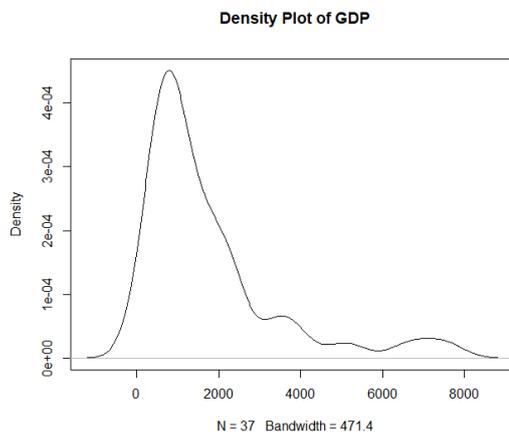


Figure 3. Density Plot of GDP.

Environmental Policy: “number of climate change-related policies or other executive provisions (e.g., presidential decrees, executive orders, regulations, government policies, strategies, or plans) which were published or decreed by the government, president, or equivalent executive authority, in the recorded year” (Data source is the Quality of Government Environmental Indicators Dataset 2021). Mean: 6.875, median is 6.00, and standard deviation is 5.145.

Univariate display of policy.

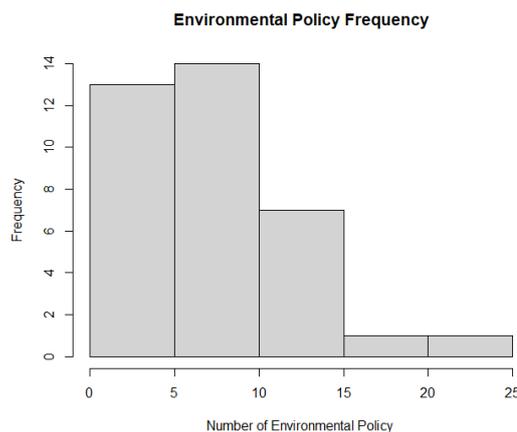


Figure 4. Environmental Policy Frequency.

Population: will the population of each African country impact communities participating in planning programs in water resources planning and management? It is measured as the total number of people living in a specific geographical area such as a country, state, or city. Type of variable: Ratio.

The mean is 30.398, median is 18.625, and standard deviation is 38.199.

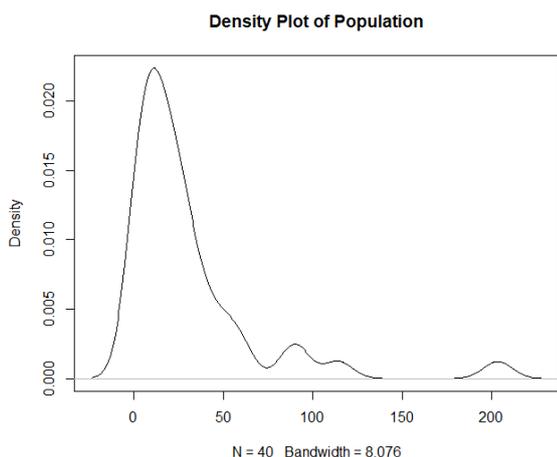


Figure 5. Density Plot of Population.

Sustainability Actions: It is measured by three indicators: environmental protection, economic viability, and social equity. “Policy and institutions for environmental sustainability measure the extent to which environmental policies foster the protection and sustainable use of natural resources and pollution management. The indicator ranges from 1 (low) to 6 (high)”. The type of variable is ratio. Mean: 3.631, median is 3.500, and standard deviation is 1.353. Univariate display of Sustainability (histogram).

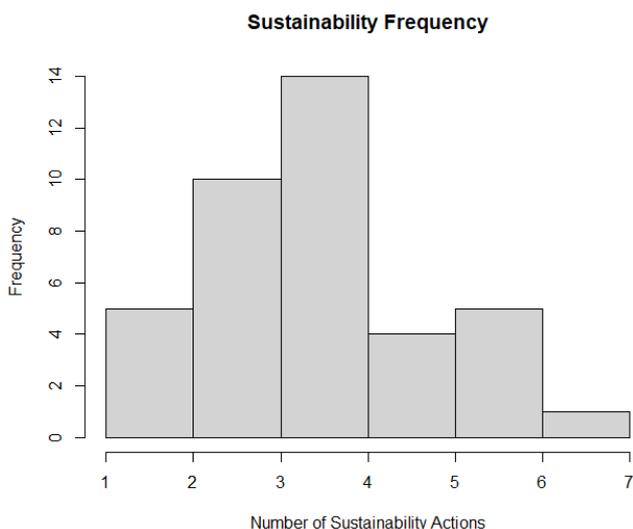


Figure 6. Sustainability Frequency.

4. Results and Analysis

Table 1. Results and Analysis.

Dependent variable:	
Participation	
Participation	-0.244 (0.195)

Dependent variable:	
Participation	
Expression	-0.682 (0.715)
loggdp	1.603 (2.244)
logSustainability	0.859* (0.483)
logPopulation	-0.061 (0.099)
Policy	5.179 (5.060)
Observations	40
Log Likelihood	-12.600
Akaike Inf. Crit.	37.199
Note:	* ** *** p<0.01

Holding other variables constant, a one-unit increase in freedom of expression will lead to a decrease of 0.682 in community participation. The results in the table indicate that, when GDP, population, sustainability action, and environmental policy are held constant, a one-unit increase in freedom of expression corresponds to a decrease in local community participation by 0.682 units.

Regarding freedom of expression, the coefficient is not statistically significant. This suggests that freedom of expression does not significantly influence community participation in water resource management. Using the odds ratio $e^{-0.682} = 0.51e^{-0.682} = 0.51e^{-0.682} = 0.51$, the odds ratio indicates that communities with freedom of expression have 0.51 times the odds of engaging in community participation compared to those without freedom of expression. This corresponds to a 49% reduction in community participation associated with freedom of expression ($1 - 0.51 = 0.49$ or 49%). While this finding contradicts expectations that freedom of expression would increase community participation, it highlights the complexity of the relationship.

For log GDP, the coefficient is 1.603. Since the variable is already logged, the odds ratio is $1.603 - 1 = 0.603$, which corresponds to a 60.3% increase in community participation for every 1% increase in GDP. For log sustainability, the coefficient is 0.859. The odds ratio is $1 - 0.859 = 0.141$, meaning there is a 14.1% increase in community participation for every 1% increase in sustainability.

Regarding log population, the coefficient is -0.061. The

odds ratio, calculated as $1 - (-0.061) = 1.0611 - (-0.061) = 1.0611 - (-0.061) = 1.061$, indicates a 106% reduction in community participation for every 1% increase in population. This result is statistically significant, suggesting that larger populations negatively impact community participation.

For policy, the coefficient is 5.179, but it is not statistically significant. The odds ratio, $e^{5.179} = 177.51$, implies that the existence of policy increases the odds of community participation by 177.51 times compared to its absence. This corresponds to a 176.51%

increase in community participation ($177.51 - 1 = 176.51$) associated with the presence of relevant policy frameworks.

Overall, the results in Table 1 indicate that holding log GDP, log population, log sustainability, and environmental policy constant, a one-unit increase in freedom of expression results in a 0.682-unit decrease in local community participation. Therefore, the hypothesis that freedom of expression influences community participation is not rejected, although the result is not statistically significant.

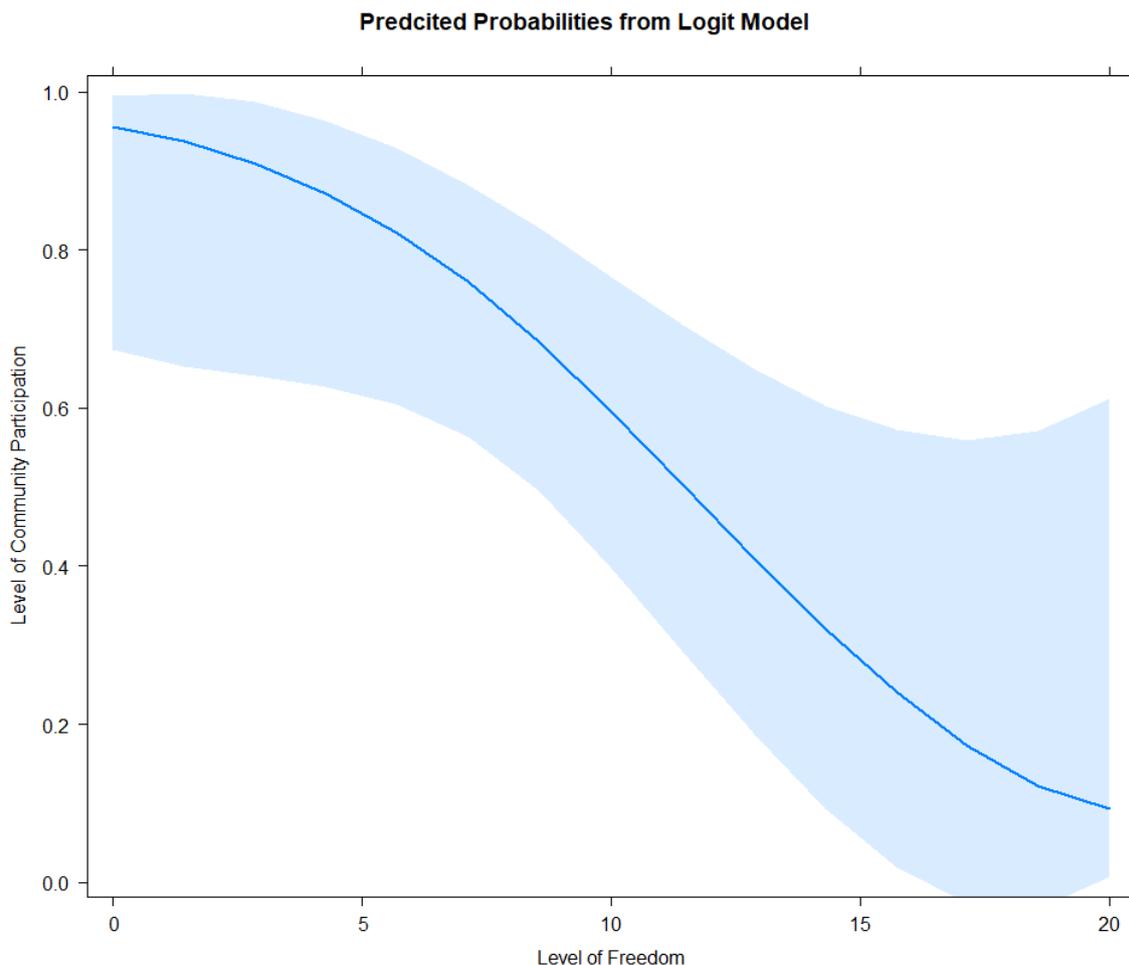


Figure 7. Predicted Probabilities from Logit Model.

The predicted probabilities from Logit model show an inverse relationship between freedom of expression and level of local community participation. The marginal effects measure the expected change in probability of dependent variable with respect to a unit change in an independent variable. Hence, the graph shows a negative relationship between freedom of expression and level of community participation. An increase in the level of freedom of expression will influence a decrease in the level of local community participation.

Therefore, we do not reject the null hypothesis and con-

clude that there is no statistical significance between freedom of expression and level of local community participation.

5. Limitation of Study

The observed inverse relationship between freedom of expression and community participation in the results may stem from multiple factors that require careful consideration. These factors could include data quality issues, model limitations, or genuine social dynamics that influence the relationship. One possible explanation is data quality issues. The dataset might

not adequately capture the nuances of freedom of expression or community participation due to limited or inaccurate indicators. For example, freedom of expression could be measured using broad indices that fail to reflect specific regional or local variations. Additionally, if community participation data is incomplete or aggregated at a high level, it might not accurately represent individual or community-level behavior, leading to misleading results.

To address this limitation, efforts should focus on increasing the sample size to improve the reliability and generalizability of the results. Expanding the sample size can be achieved by broadening the geographic scope of data collection to include more regions, countries, or communities that align with the study's objectives. Collaborating with international organizations, such as the African Development Bank, UNESCO, or the United Nations, can facilitate access to larger datasets and ensure a more diverse representation of participants. Additionally, leveraging multi-year data or conducting longitudinal studies can increase the sample size over time and provide insights into trends and changes. Sampling strategies, such as stratified random sampling, can also ensure that the increased sample size represents the diversity of the population in terms of socioeconomic, cultural, and geographic factors. In other words, where direct data is unavailable, the inclusion of proxy indicators can help bridge gaps and ensure comprehensive analysis. To move beyond correlations and establish causality, future research should incorporate advanced statistical methods such as instrumental variable regression, propensity score matching, and multilevel modeling. These approaches will allow for a deeper understanding of the interplay between individual and aggregate data, while reducing the risk of ecological fallacies.

Model limitations might also play a role. The regression model used in the study may not fully account for confounding variables or interaction effects that influence the relationship. For instance, the relationship between freedom of expression and participation might be moderated by factors such as institutional trust, political stability, or socioeconomic conditions. Failing to include these variables in the model could distort the observed relationship, making it appear inverse when it might not be. Incorporating additional variables such as education levels, civil society engagement, and foreign direct investment will provide a more holistic view of governance dynamics. Longitudinal studies are particularly important for tracking changes over time and assessing the effectiveness of governance reforms and community-based initiatives. Mixed-methods approaches, combining quantitative and qualitative techniques, will enrich the findings by adding contextual insights to statistical results.

The inverse relationship might reflect genuine social dynamics. In some contexts, greater freedom of expression could lead to heightened criticism of government institutions, reducing trust and discouraging participation. This dynamic

might be particularly pronounced in settings where freedom of expression reveals systemic governance failures or amplifies grievances, leading to disengagement rather than participation. Such dynamics highlight the complexity of the relationship and the need to consider cultural, political, and institutional contexts when interpreting the findings.

To address these concerns, future research should incorporate more granular and context-specific measures of freedom of expression and community participation. Robustness checks, interaction terms, and alternative models could help refine the analysis. Additionally, qualitative methods, such as interviews or focus groups, could provide deeper insights into the social and political dynamics underlying the observed relationship. This multi-faceted approach will help clarify whether the inverse relationship is a result of methodological limitations or a reflection of complex social realities.

To ensure the reliability of results, robustness checks and sensitivity analyses should be conducted. Designing studies that collect data at both individual and aggregate levels will help prevent misinterpretation and enable a more nuanced understanding of behavior and outcomes. Lastly, building research capacity through training programs on advanced statistical methods and securing funding for such initiatives will enhance the overall quality of research efforts.

By addressing these limitations and implementing the suggested improvements, future studies can provide more accurate, reliable, and actionable insights. This will ultimately support the development of sustainable and equitable solutions to water resource management challenges across diverse contexts.

6. Conclusion

The study highlights the interplay between collaborative governance, community participation, and freedom of expression in addressing water resource challenges in Africa. By integrating theoretical frameworks, such as collaborative governance theory and freedom of expression theory, the research provides valuable insights into how inclusive decision-making processes can improve water resource management. However, the findings reveal critical disparities in community participation due to systemic barriers, including administrative burdens, weak institutional capacity, and limited freedom of expression.

The results of the study offer several critical insights for policymakers aiming to improve community participation. These findings suggest that a multifaceted approach is essential to enhance public engagement in governance and resource management.

First, the inverse relationship between freedom of expression and community participation highlights the need to balance transparency and accountability with trust-building measures. Policymakers should create mechanisms that not

only allow for open communication but also foster trust in governmental institutions. This could include transparent decision-making processes and public feedback systems that demonstrate responsiveness to community concerns. Second, the findings indicate that addressing systemic barriers, such as inadequate institutional capacity and socioeconomic inequalities, is vital for encouraging participation. Policymakers should invest in strengthening local governance structures, particularly in underserved communities, to ensure that all groups have equal access to participatory opportunities. Programs that provide education, training, and resources for civic engagement can empower marginalized populations to contribute more actively. Third, the study underscores the importance of tailoring participatory strategies to the specific cultural, political, and economic contexts of each region. Policymakers should adopt a localized approach that considers the unique challenges and opportunities within communities. For example, integrating traditional leadership structures with modern governance systems can help bridge gaps and foster greater collaboration.

Lastly, the results suggest that enhancing collaboration between government, civil society, and private stakeholders is critical for sustainable community participation. Policymakers should prioritize inclusive governance frameworks that facilitate partnerships and shared decision-making. Such frameworks can encourage communities to take ownership of initiatives and increase their commitment to long-term goals. By addressing these insights, policymakers can design effective strategies to improve community participation, ensuring that governance becomes more inclusive, equitable, and responsive to the needs of all citizens. These efforts will ultimately contribute to more sustainable and effective resource management outcomes.

Despite these challenges, the findings suggest that fostering grassroots participation through policy reforms and capacity-building initiatives can strengthen governance structures. For example, incorporating community voices in decision-making and enhancing freedom of expression can improve the alignment between community needs and policy actions. However, more robust data collection and larger sample sizes are essential to draw stronger conclusions about the relationship between governance variables and community participation.

Future research should address the study's limitations by exploring mechanisms that facilitate or hinder community engagement. Mixed-methods approaches, longitudinal studies and comparative analyses across regions can provide a more comprehensive understanding of how governance frameworks operate in diverse African contexts. Additionally, examining the role of technology, education, and local leadership in shaping participatory governance can offer actionable insights for policymakers.

Achieving sustainable water resource management in Africa requires holistic strategies that prioritize equity, inclusion, and institutional accountability. By strengthening collabora-

tive governance and ensuring freedom of expression, policymakers can foster resilient and equitable systems capable of addressing the continent's pressing water challenges.

In conclusion, the article contributes valuable insights into the interplay between collaborative governance, freedom of expression, and community participation in water resource management. While it highlights significant challenges, it also provides actionable recommendations for improving governance and fostering public engagement. Addressing these challenges requires a multifaceted approach that includes institutional reforms, targeted interventions, and localized strategies. By prioritizing equity, inclusion, and trust-building, policymakers can create enabling environments for sustainable and effective governance. This, in turn, will ensure that water resources are managed in ways that benefit all members of society, particularly those who are most vulnerable.

Abbreviations

UN	United Nations
SDGs	Sustainable Development Goals
UNICEF	United Nations Children's Fund
GDP	Gross Domestic Product
UNESCO	United Nations Educational, Scientific and Cultural Organization

Author Contributions

Ifeanyi Ogbekene is the sole author. The author read and approved the final manuscript.

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Data Availability Statement

Data used:

- 1) THE QUALITY OF GOVERNMENT INSTITUTE- THE QOG BASIC DATASET 2023 CODEBOOK, (chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.qogdata.pol.gu.se/dataarchive/qog_bas_jan23.pdf)
- 2) OOG THE QUALITY OF GOVERNMENT INSTITUTE- QoG Environmental Indicators Dataset 2021 https://www.qogdata.pol.gu.se/data/codebook_ei_sept21_august2023.pdf, prepared by Marina Povitkina, Natalia Alvarado, and Cem Mert Dalli

Conflicts of Interest

The author declares no conflicts of interest.

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strategies in South Carolina and beyond. At SCWRC, he contributes to state water planning, conducts data analysis, supports water quality monitoring, and assists with research aimed at addressing critical water-related challenges. His doctoral research focuses on public risk perceptions of climate change and environmental sustainability, comparing the United States and Nigeria to inform policy implementation and enhance resilience strategies. Ifeanyi is also an active member of several prestigious environmental and sustainability organizations, where he engages in advocacy and collaboration to promote impactful environmental policies, demonstrating his commitment to advancing global sustainability goals.

Biography



Ifeanyi Ogbekene is a Research Assistant at the South Carolina Water Resources Center (SCWRC) and a Ph.D. student in Policy Studies at Clemson University, specializing in natural resource management and environmental sustainability. With over a decade of professional experience, Ifeanyi is deeply committed to advancing sustainable water resource management

Research Field

Ifeanyi Ogbekene: Water crisis, natural resources management, environmental sustainability, climate change mitigation and adaptation, collaborative governance, and environmental policy.