# COMMUNITY INVOLVEMENT IN THE BIODIVERSITY CONSERVATION OF MT. KALISUNGAN: INPUT FOR POLICY NOTE FOR PROFESSIONAL DEVELOPMENT OF TEACHERS

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## ABSTRACT

*The study investigated the role of community involvement in the biodiversity conservation of Mt. Kalisungan and its implications for policy development in teacher professional growth. Specifically, it explored the demographic profile of residents to understand how these factors influence participation in conservation efforts. The research further analyzed the level of community involvement in participation rates, training initiatives, and locally driven conservation programs. Additionally, it evaluated the implementation of social-environmental policies, focusing on decision-making processes, policy integration with local livelihoods, and governance structures. Based on the findings, the demographic profile of Mt. Kalisungan's respondents revealed a community characterized by gender balance, a concentration of individuals in their early middle age, and a predominance of high school education levels. This composition fosters a blend of seasoned local knowledge from long-term residents and innovative perspectives from newer community members. Community engagement and policy implementation were observed to be moderate. However, factors such as sex and educational attainment play a significant role in predicting the level of participation. This underscores the importance of inclusive strategies that consider these variables to enhance community involvement. The relationship between community participation and policy implementation highlights the necessity for educational programs and collaborative efforts. These findings highlighted the importance of empowering communities and fostering trust to ensure sustainable biodiversity conservation and enhancing academic programs, community-driven awareness campaigns, sustainable livelihood initiatives, and strong partnerships and participatory governance. These can empower communities to take an active role in biodiversity conservation. Furthermore, these integrated strategies not only address key challenges but also create a foundation for long-term, inclusive, and effective environmental policy implementation.*

Keywords: *Biodiversity Conservation; Community Involvement; Environmental Education; Policy Integration; Sustainability, SDG 15.*

# Introduction

Biodiversity conservation is a vital part of people's commitment to a sustainable future. Sustainable Development Goal (SDG 15), which focuses on life on land, underlines the importance of protecting, restoring, and promoting the sustainable use of the ecosystem. Community involvement has become a cornerstone of effective biodiversity conservation globally. By empowering the communities to manage natural resources sustainably, conservation efforts have improved environmental outcomes and enhanced livelihoods, contributing significantly to global biodiversity goals.

In the Philippines, community involvement plays a crucial role in conserving biodiversity, one of the world's recognized biodiversity hotspots. Programs such as community-based forest management and volunteer-driven initiatives empower local populations to manage natural resources sustainably, fostering a balance between ecological preservation and economic progress. These efforts not only safeguard biodiversity but also strengthen community livelihoods and resilience.

Mount Kalisungan is known for its rich biodiversity and historical significance. The mountain's diverse ecosystems, including fruit tree groves and grasslands, support a variety of flora and fauna, making it a vital area for conservation efforts.

Based on (CMS-BONN, 2025), community involvement plays a crucial role in the conservation of such biodiverse areas. Engaging local communities in conservation initiatives has been shown to enhance the effectiveness of preserving biodiversity. For instance, community-led conservation strategies have been instrumental in the successful conservation of migratory species, highlighting the importance of local participation in environmental stewardship.

The ecological balance of the planet Earth depends on biodiversity, which offers vital services like clean air and water, climate regulation, and habitat for many species. Yet, human activities such as habitat destruction, pollution, and climate change are posing a significant danger to global biodiversity.

To safeguard the diversity of animal and plant species in ecosystems, it is essential for conservation strategies to include participation from local communities and strong policy measures. (Fabricante et al., 2020) Stated that involving these communities can result in sustainable management techniques and improved care of natural resources. Nevertheless, according to (Esmail, N et al., 2023), the success of community-based conservation initiatives is influenced by delivery mechanisms, community characteristics, and the broader socioeconomic and political context. Transformative change in biodiversity policy requires recognizing Indigenous peoples' and local communities' rights and agency (Reyes-García, V et al. 2022). Additionally, according to Raymond, C. M. et al. (2022), inclusive conservation approaches that engage diverse actors and local communities are important for achieving effective biodiversity outcomes.

Integrating into education involves assessing community behaviors, attitudes, and perceptions regarding biodiversity conservation. By understanding the cultural factors influencing environmental decisions, policies can be tailored to promote sustainable practices more effectively. Furthermore, the behavioral impacts of educational interventions in the region can help guide future conservation strategies. By evaluating how education programs influence the behavior of local communities, conservation efforts can be

refined to maximize positive outcomes. The policy implications provide valuable insights into how other biodiversity hotspots can integrate education and community engagement into their conservation frameworks.

The results would enhance the knowledge of how working together can boost conservation tactics, providing valuable information for shaping upcoming policies and projects focused on protecting the distinct biodiversity of the Philippines. Abusing resources such as converting areas to public cemetery, housing projects, hunting, and logging decreases populations of species for ecosystem health. Pollution caused by agricultural runoff and waste disposal continues to harm wildlife and degrade habitats. Moreover, the entry of invasive species into ecosystems disturbs the balance by out-competing native species and changing ecological processes.

Incorporating local ecological knowledge alongside scientific understanding can improve the sustainability and resilience of social-ecological systems, thereby enhancing conservation efforts. By equipping educators with resources that blend these knowledge systems, there is significant potential to engage communities more deeply in biodiversity conservation initiatives (Cebrián-Piqueras, M.A. et al., 2020). By equipping educators with such resources, there is potential to foster greater community involvement in biodiversity conservation. As influential figures in their communities, teachers can disseminate knowledge and inspire action towards preserving natural habitats like Mount Kalisungan. Therefore, understanding the current level of awareness and community involvement in the conservation of Mount Kalisungan can provide valuable insights. These insights can inform policy recommendations aimed at enhancing the professional development of teachers, enabling them to effectively contribute to biodiversity conservation efforts within their communities.

Considering its ecological significance and the socioeconomic aspects of Mt. Kalisungan, it serves as the ideal site for this research, as it aims to explore effective community involvement and policy measures for biodiversity conservation. The growth of urban areas and the transformation of land into cemeteries and housing frequently result in deforestation, which may cause soil erosion and a decline in biodiversity in nearby regions.

Community involvement is widely acknowledged as essential for biodiversity conservation, both globally and in the Philippines, but there's still much to learn. Key research gaps remain, particularly in assessing the long-term impact of community-driven initiatives across various ecological and social landscapes. Factors like cultural traditions, financial incentives, and governance structures play a significant role in engagement, yet they are not fully understood. Bridging these gaps is vital to creating more effective, sustainable conservation strategies that truly empower communities.

## Theoretical Framework

This research focused on community involvement in the biodiversity conservation of Mt. Kalisungan. Theoretical perspectives underscore that meaningful community involvement, bolstered by adequate training and the promotion of community-led initiatives, is crucial for the success of biodiversity conservation efforts.

## Community-Based Conservation Theory

Community-Based Conservation (CBC) Theory is an approach to environmental conservation that emphasizes the active involvement of local communities in managing and protecting natural resources. It integrates local knowledge, socio-cultural practices, and participatory governance to enhance biodiversity protection while empowering communities socioeconomically.

The theory is Enhancing Conservation Efforts by involving local communities in conservation programs, leading to more effective protection of biodiversity and ecosystems. Also, to promote Sustainable Development, ensuring that environmental protection supports local livelihoods rather than restricting them. Addressing Policy and Governance Challenges, which inform policymakers on the best ways to design inclusive conservation policies that balance ecological protection with community needs (Sele & Mukundi, 2024).

Engagement from the community is vital for the effectiveness of conservation initiatives. A study conducted by Zhang et al. (2020) highlights that involving the community promotes sustainable use of natural resources by protecting the economic interests' community, honoring local cultural traditions, and increasing awareness of conservation requirements. This underscores the significance of high engagement levels in attaining biodiversity and ecological preservation objectives.

## Capacity Building and Community-Led Conservation Theory

Capacity Building and Community-Led Conservation Theory (CBCLC) is a continuous process of strengthening skills, resources, and institutional frameworks that enable individuals, organizations, and communities to effectively manage and preserve natural resources. By fostering training, resource accessibility, and institutional support, this approach ensures long-term environmental sustainability and adaptability to evolving challenges. Also closely tied to the power of grassroots initiatives in environmental protection, emphasizing the role of local communities in driving conservation through participatory governance, indigenous knowledge, and sustainable practices (Zafar et al., 2022). This theory lies in the transformative impact on sustainable development and environmental stewardship, which highlights that community-based conservation fosters local engagement, enhances biodiversity protection, and strengthens socioeconomic resilience, while Capacity building plays a crucial role in equipping communities with the necessary skills, knowledge, and institutional frameworks to manage conservation efforts effectively.

The Community Participation and Livelihoods report from the Convention on the Conservation of Migratory Species of Wild Animals (CMS) presents ten guiding principles for conservation strategies led by the communities, highlighting the importance of capacity building to enable communities to take charge of conservation initiatives. This method guarantees that interventions are customized to the local requirements and maintain sustainability over time (Padilla et al. 2024).

## Community-Scale Biodiversity Conservation Theory

Community-Scale Biodiversity Conservation (CSBC) is a localized conservation effort that integrates human communities into biodiversity protection. It emphasizes participatory governance, ecological stewardship, and sustainable resource management. This theory promotes environmental stewardship at the

grassroots level, ensuring that conservation strategies align with local socioeconomic and cultural contexts. Studies suggest that empowering communities leads to more effective and long-lasting conservation outcomes (Su et al., 2024).

This theory explores how urban communities can actively participate in biodiversity conservation through local initiatives, such as habitat gardens, that integrate human and ecological benefits within city landscapes.

## Participatory Governance Theory

Participatory Governance Theory refers to a democratic approach in which citizens actively engage in decision-making processes alongside public institutions. It aims to enhance transparency, accountability, and inclusivity by fostering collaboration between governments and communities. This theory emphasizes deliberative practices, citizen empowerment, and co-governance to improve policy effectiveness and social equity (Madekwe, 2025).

The study of Brouwer et al. (2020) states that government participation emphasizes the significance of involving local stakeholders in governance processes, improving the credibility and efficiency of conservation policies. Involving local communities in conservation decision-making ensures strategies are aligned with their needs and knowledge.

## Indigenous Rights and Biodiversity Conservation Theory

Indigenous Rights and Biodiversity Conservation Theory emphasizes the interconnectedness between Indigenous communities and environmental sustainability. Indigenous peoples have inherent rights to their land, culture, and self-determination while also playing a crucial role in preserving biodiversity. Their traditional knowledge and stewardship practices contribute to maintaining ecosystems, protecting endangered species, and ensuring sustainable resource management. By safeguarding Indigenous rights, biodiversity conservation efforts become more effective, promoting ecological balance and long-term environmental resilience (Wheeler & Root-Bernstein, 2020; Brittain et al., 2021).

Reyes-Gracia et. Al's (2021) study underscores the significance of recognizing Indigenous rights for effective biodiversity policy, asserting that community engagement leads to fair conservation outcomes. Harmonizing conservation with local livelihoods garners community support and sustainable resource use. Dawson et. Al's (2024) One Earth study advocates for incorporating Indigenous values into conservation efforts, presenting a classification of methods that integrate local livelihoods for more equitable and efficient strategies.

## Community-Centered Conservation Governance Theory

Community-Centered Conservation Governance Theory is the active participation of local communities in conservation efforts, ensuring that they have a voice in decision-making and resource management. This approach fosters bottom-up governance, where conservation strategies align with the social, economic, and cultural realities of the communities involved. Promoting multilevel collaboration among local groups, governments, and conservation organizations strengthens biodiversity stewardship while ensuring equity and inclusion, particularly for marginalized communities (Armitage et al., 2020).

Additionally, the theory advocates for rights-based conservation, granting communities autonomy and access to natural resources while revitalizing traditional and indigenous governance systems to support long-term ecological sustainability.

Furthermore, as discussed by Dawson et al. (2024) on Community-Centered Conservation Governance, this approach emphasizes the importance of governance structures that prioritize community engagement and leadership in conservation efforts. It outlines principles for creating inclusive decision-making processes that respect local knowledge and rights, aiming to enhance both ecological and social outcomes.

## Conceptual Framework

This framework demonstrates how community engagement, policy initiatives, and biodiversity conservation results are interconnected at Mt. Kalisungan.
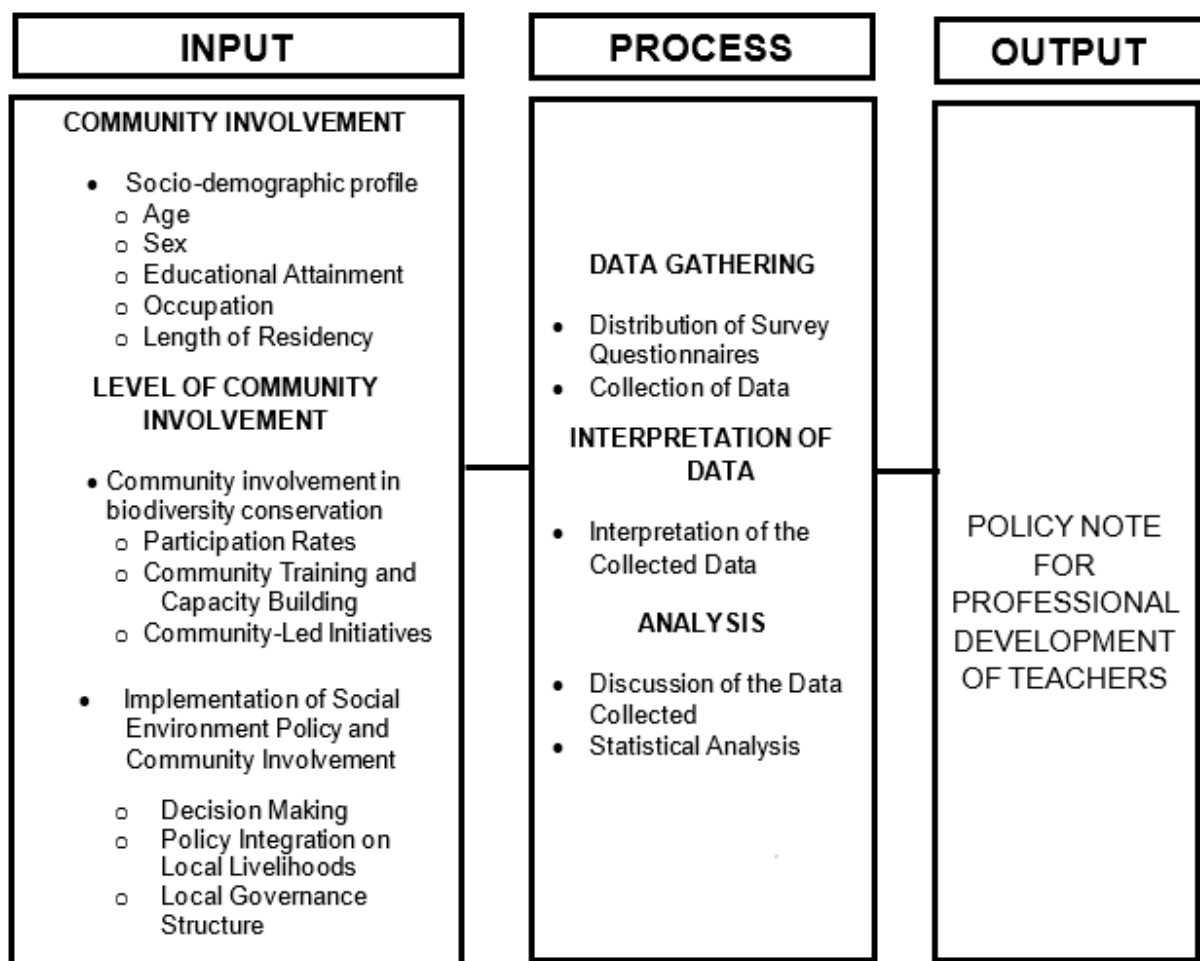


**INPUT**

COMMUNITY INVOLVEMENT

- Socio-demographic profile
  - Age
  - Sex
  - Educational Attainment
  - Occupation
  - Length of Residency

LEVEL OF COMMUNITY INVOLVEMENT

- Community involvement in biodiversity conservation
  - Participation Rates
  - Community Training and Capacity Building
  - Community-Led Initiatives

- Implementation of Social Environment Policy and Community Involvement
  - Decision Making
  - Policy Integration on Local Livelihoods
  - Local Governance Structure

**PROCESS**

DATA GATHERING

- Distribution of Survey Questionnaires
- Collection of Data

INTERPRETATION OF DATA

- Interpretation of the Collected Data

ANALYSIS

- Discussion of the Data Collected
- Statistical Analysis

**OUTPUT**

POLICY NOTE FOR PROFESSIONAL DEVELOPMENT OF TEACHERS

**Figure 1.** Research Paradigm

The input section of the conceptual framework focuses on community involvement as a factor in teacher development policies. It includes the socio-demographic profile, which consists of age, sex, educational attainment, occupation, and length of residency. Understanding these demographic details helps policymakers assess community characteristics and their potential influence on educational initiatives. Additionally, this section examined the level of community involvement, particularly in biodiversity conservation and social environment policy implementation. This includes aspects such as participation

rates, community training & capacity building, community-led initiatives, decision-making involvement, and policy integration on local livelihoods and local governance structure.

The Process section outlines the systematic approach to gathering and analyzing data to inform policy recommendations. This begins with data gathering, which involves distributing survey questionnaires and collecting responses from the community. Once data had been collected, it was interpreted through careful analysis to extract meaningful insights. The final stage of this process included statistical analysis and discussion of findings, ensuring that conclusions are based on empirical evidence.

The Output section presents the ultimate goal, which is the creation of a policy note for teacher professional development. This policy notes consolidated insights derived from demographic data, community involvement, and empirical analysis to establish recommendations that enhance teacher training and support programs. By integrating community perspectives and factual findings into the policy formulation, the resulting document provides well-informed strategies that promote effective teaching practices.

## Statement of the Problem:

This study generally aimed to explore community involvement and policy interventions in addressing biodiversity conservation in Mount Kalisungan Calauan, Laguna. Specifically, it aimed to bridge the gaps by examining the interplay between community dynamics and policy frameworks to propose actionable strategies that enhance conservation efforts to determine the following based on:

1. What is the demographic profile of the residents in Mt. Kalisungan in terms of;

   1.1. Age;

   1.2. Sex;

   1.3. Educational Attainment;

   1.4. Occupation, and;

   1.5. Length of residency?

2. What is the level of community involvement of the respondent on biodiversity conservation in Mt. Kalisungan concerning;

   2.1. Participation Rate;

   2.2. Community Training and Capacity Building, and;

   2.3. Community-Led Initiatives?

3. What is the extent of implementation of social environment policy in terms of;

   3.1. Decision Making;

   3.2. Policy Integration on Local Livelihoods and;

   3.3. Local Government Structure?

4. Is there a significant difference in the level of community involvement in biodiversity conservation based on the respondents' demographic profile?

5. Is there a significant difference in the extent of implementation of the social environment policy in biodiversity conservation in terms of the respondents' demographic profile?

6. Does the extent of implementation of social environment policy predict the community involvement in biodiversity conservation?

7. What are the policy notes for the professional development of teachers?

## Scope and Delimitation of the Study

The study aimed to analyze the socioeconomic conditions and policy interventions for biodiversity conservation in selected barangays near Mt. Kalisungan. Over five months, surveys and interviews were conducted among individuals living in Barangay Lamot 1, Lamot 2, and Barangay Sto. Tomas, all within a 10-kilometer radius of the mountain. By gathering quantitative data from a sample of 300 to 500 household members, the research sought to assess community involvement and its impact on conservation efforts. The findings help understand local participation in biodiversity preservation and provide insights into how socioeconomic factors influence conservation policies.

This research examined the community's current socioeconomic conditions and their participation in biodiversity conservation efforts. However, focusing exclusively on the existing socioeconomic situation and policy interventions within the study period limited the broader applicability of the results.

## METHODOLOGY

### Research Design

The research design of the study on biodiversity conservation in Mt. Kalisungan community involvement included population and procedures to assess educational interventions and policy implications. It used quantitative research, a systematic investigation that focuses on numerical data and statistical analysis to understand relationships and trends using a structured questionnaire. The study gathered data from stakeholders like students, teachers, community members, and policymakers. This design aimed to collect strong data to evaluate the effectiveness of educational strategies in influencing pro-environmental behavior and policy development. Quantitative research is valuable for studying community involvement in biodiversity conservation because it provides measurable data that can be analyzed statistically and assesses ecological patterns and human interactions with biodiversity (Hsu et al., 2025).

### Population and Sampling Techniques

The research targeted a diverse population comprising students, teachers, local community members, and policymakers in the Mt. Kalisungan area. The population included approximately 300 residents from barangay Lamot 1, Lamot 2, and Sto. Tomas surrounding communities, 50 students, 20 teachers from local schools, and 10 policymakers or environmental advocates involved in biodiversity initiatives.

Simple random sampling was used to capture perspectives from different stakeholder groups proportionally. Separate strata were created for students, teachers, community members, and policymakers to ensure balanced participation. Within each stratum, participants were selected randomly to avoid bias. This sampling approach ensured diverse perspectives while focusing on those directly affected by or involved in biodiversity conservation efforts.

**Research Instruments**

The study used various research tools to collect quantitative data based on an understanding of biodiversity, community involvement, sustainable practices and social environment policy. Surveys were conducted using a questionnaire and Likert-scale questions to measure participants' participation rate, community training and capacity building, community-led initiative, decision-making, policy integration on local livelihoods and local governance structure. These tools ensured a thorough data collection process, generating evidence-based recommendations for biodiversity conservation efforts.

**Validity and Reliability of the Research Instrument**

To validate research instruments, a systematic process was used to ensure they capture intended data effectively. A questionnaire measuring the comprehensiveness of the context's general appearance was validated by experts, one from UPHSD Graduate Studies as the internal and external validators from LSPU San Pablo City Campus Research Unit Head from College of Teacher Education, College of Engineering, College of Arts and Sciences, and Research Director, to ensure relevance and clarity. A pilot test assessed the reliability using Cronbach's alpha statistical measures with the result in Community Involvement on Biodiversity Conservation in terms of a participation rate ($\alpha$=0.897) with a good reliability level, community training and capacity building ($\alpha$=0.766) with an acceptable reliability level, and community-led initiative ($\alpha$=0.840) with a good reliability level. The implementation of Social Environment Policy and Community Involvement in Biodiversity Conservation were all acceptable reliability levels in terms of decision-making ($\alpha$=0.767), policy integration on local livelihoods ($\alpha$=707), and local government structure ($\alpha$=0.742). This rigorous validation enhanced the credibility and reliability of the research, ensuring instruments measure variables effectively and contribute to the study's integrity.

**Data Gathering Procedures**

Data was collected through a survey questionnaire to assess changes in knowledge and perceptions about biodiversity conservation. This multi-faceted approach enabled a robust analysis of the impacts of educational interventions on participant behavior and attitudes while providing valuable insights into the effectiveness of integrating education policy into conservation strategies.

**Statistical Treatment of Data**

Descriptive statistics such as frequency distribution and percentage were used to analyze the demographic profile of the residents in Mt. Kalisungan in terms of age, sex, educational attainment, occupation, and length of residency. These statistical tools allowed for a clear presentation of the collected data, showing trends and distributions among the respondents.

Likert-scale responses were utilized to measure the level of community involvement and the extent of implementation of social environment policies and community involvement in biodiversity conservation. These responses were analyzed using descriptive statistics such as mean and standard deviation, which helped to quantify the participation rate, community training and capacity building, and community-led initiatives also to assess the effectiveness of decision-making processes, policy integration on local livelihoods, and local government structures.

Additionally, to determine whether there is a significant difference in the level of community involvement and policy implementation based on demographic profile, inferential statistical tests ANOVA were conducted. These tests compared the responses across different demographic categories, such as age, sex, and educational background, to identify variations in engagement and policy effectiveness.

To correlate the results, regression analysis was employed to examine whether community involvement and policy implementation significantly affect biodiversity conservation efforts. These statistical methods assessed the relationship between these variables, determining whether higher community engagement and well-executed policies contribute to more effective conservation outcomes.

**Ethical Consideration**

Ethical guidelines were implemented during data collection to guarantee the safety of participants. Consent was obtained from all respondents prior to data collection, guaranteeing voluntary involvement. Confidentiality and anonymity were rigorously upheld by encrypting responses and safeguarding all information. To ensure adherence to ethical research standards, the gathered information was utilized exclusively for scholarly objectives, promoting transparency and honesty.

# PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This work presents the key findings, exploring the demographic profile of Mt. Kalisungan residents and their engagement in biodiversity conservation efforts. It examined key aspects such as participation levels, community-led initiatives, and training programs alongside the implementation of social-environmental policies, including decision-making processes and local governance. The discussion interpreted these findings within the context of existing research and highlighted their implications for policy recommendations aimed at strengthening teachers' professional development in environmental education.

**Problem 1. What is the demographic profile of the respondent in Mt. Kalisungan**

| DEMOGRAPHIC PROFILE | | Frequency | Percentage |
|---|---|---|---|
| AGE | 20 years old or below | 55 | 14.47% |
| | 21 – 30 | 77 | 20.26% |
| | 31 – 40 | 114 | 30.00% |
| | 41 – 50 | 37 | 9.74% |
| | 51 and above | 97 | 25.53% |
| SEX | Male | 149 | 39.21% |
| | Female | 190 | 50.00% |
| | Preferred Not to Say | 41 | 10.79% |
| EDUCATIONAL ATTAINMENT | No Schooling | 0 | 0% |
| | Preparatory Level | 0 | 0% |
| | Elementary Level | 13 | 3.42% |
| | Elementary Graduate | 31 | 8.15% |
| | High School Level | 65 | 17.11% |
| | High School Graduate | 135 | 35.52% |
| | Vocational Graduate | 12 | 3.16% |
| | College Level | 65 | 17.11% |
| | College Graduate | 57 | 15.00% |
| | Post Graduate | 2 | 0.53% |
| OCCUPATION | Farming | 45 | 11.84% |
| | Sari-Sari Store | 55 | 14.47% |
| | Government Employee | 38 | 10.00% |
| | Private Employee | 66 | 17.37% |
| | Poultry Owner | 3 | 0.79% |
| | None | 101 | 26.58% |
| | Others | 72 | 18.95% |
| LENGTH OF RESIDENCY | 5 years below | 15 | 3.95% |
| | 6 – 10 | 15 | 3.95% |
| | 11 – 15 | 67 | 17.63% |
| | 16 – 20 | 29 | 7.63% |
| | 21 – 30 | 95 | 25.00% |
| | 31 and above | 159 | 41.84% |

**Table 1.** Demographic Profile Frequency and Percentage Distribution of the Respondents

The table 1 presents the gender distribution of 380 respondents from Mt. Kalisungan, showing that 190 individuals (50.00%) identified as female, making them the largest group, followed by 149 individuals (39.21%) who identified as male. Additionally, 41 respondents (10.79%) chose not to disclose their gender, labeled as "Preferred Not to Say." This distribution indicates a relatively balanced representation between male and female participants, with a notable portion opting for privacy or identifying outside the traditional binary categories.

The table also displays the age distribution of 380 respondents from Mt. Kalisungan, indicating that the largest group consists of individuals aged 31–40, totaling 114 respondents or 30.00%. This is followed by the 51 and above age group with 97 respondents (25.53%) and those aged 21–30 with 77 respondents (20.26%). Meanwhile, 55 respondents (14.47%) are 20 years old or below, and the smallest group comprises individuals aged 41–50, with 37 respondents (9.74%). The data suggests a diverse age representation, with a notable concentration in the 31–40 age bracket.

Additionally, table 1 shows the educational attainment distribution of 380 respondents in Mt. Kalisungan, where the majority, 135 individuals (35.52%), are high school graduates. This is followed by those who attained college-level education and high school-level education, both with 65 respondents each (17.11%). College graduates account for 57 individuals (15.00%), while 31 respondents (8.15%) are elementary graduates. Smaller groups include those at the elementary level (3.42%), vocational graduates (3.16%), and postgraduates (0.53%). No respondents reported having no schooling or being at the preparatory level. The data indicates that most respondents have at least a high school education, with a substantial number progressing to college-level or higher.

The distribution of occupations among respondents is also included in this table, particularly the significant percentage with no specific occupation (26.58%), which presents an opportunity to enhance community involvement in biodiversity conservation efforts for Mt. Kalisungan. Engaging these individuals, alongside farmers, sari-sari store owners, and other groups, can foster collective action, leveraging their unique perspectives and experiences. By crafting policies that emphasize collaboration and skill development among teachers and various occupational groups, educators can become catalysts for sustainable conservation initiatives, embedding awareness and action within the local community. This approach aligns education, community engagement, and environmental stewardship, creating a cohesive strategy for protecting Mt. Kalisungan's biodiversity.

Likewise, it shows that the length of residency provides valuable insights into the potential for community involvement in the biodiversity conservation of Mt. Kalisungan. A significant majority of respondents (41.84%) have lived in the area for 31 years or more, with an additional 25% having resided there for 21-30 years. These long-term residents likely have a deep-rooted connection to the local environment, which makes them ideal stakeholders in conservation efforts. Their lived experiences and knowledge of the area can be tapped to enhance biodiversity protection strategies, ensuring they are culturally relevant and locally informed.

On the other hand, newer residents, those who have lived in the community for less than 20 years (approximately 33.16% combined), bring fresh perspectives and ideas that could complement the expertise of long-term residents. Together, these groups represent a diverse pool of knowledge and commitment that, if harnessed effectively, can lead to robust and collaborative conservation initiatives for Mt. Kalisungan.

**Problem 2. What is the Level of Community Involvement of the Respondent on Biodiversity Conservation of the Respondent in Mt. Kalisungan?**

| | MEAN | SD | Verbal Interpretation |
|---|---|---|---|
| 1. I actively participate in local biodiversity conservation activities (e.g., tree planting, clean-up drives, habitat restoration). | 2.822 | 0.713 | Moderate |
| 2. I participate in supporting eco-tourism initiatives to highlight local biodiversity. | 2.617 | 0.672 | Moderate |
| 3. I volunteer to participate in clean-up drives to protect and restore natural habitats | 2.703 | 0.769 | Moderate |
| 4. I engage in advocacy efforts by participating in awareness campaigns for biodiversity conservation. | 2.696 | 0.719 | Moderate |
| 5. I collaborate with local organizations, government agencies, and schools in conservation efforts. | 2.677 | 0.719 | Moderate |
| **Over-all Mean** | **2.703** | | **Moderate** |

Legend: 1 – 1.4 – very low; 1.5 – 2.4 -low; 2.5 – 3.4- moderate; 3.5 - 4- High

**Table 2.** Community Involvement in Biodiversity Conservation Based on Participation Rate

Table 2 highlights the extent to which individuals engage in conservation efforts. The data indicates that participation across five different activities generally falls within the "moderate" category, suggesting that while people are involved, their engagement is not frequent enough to create a lasting impact and/or offer valuable insights into the level of involvement. Active participation in conservation activities, such as tree planting and habitat restoration, has a mean score of 2.8215, indicating moderate engagement. Supporting eco-tourism initiatives has the lowest mean value at 2.6168, suggesting that these programs may need more promotion and accessibility. Volunteering for clean-up drives holds a mean of 2.7034, while advocacy efforts, including awareness campaigns, have a similar mean score of 2.6955. Lastly, collaboration with organizations, government agencies, or schools has a mean participation rate of 2.6772, reflecting a need for stronger institutional partnerships.

The table also shows variations in participation levels among respondents. The highest SD is 0.7693 for clean-up drive volunteering, indicating significant differences in individual involvement. The implications of these findings are clear: conservation efforts require sustained participation, and targeted outreach could encourage greater community involvement. Educational campaigns, incentives, and collaborative projects could be key strategies for strengthening engagement. Literature supports the importance of community-based conservation efforts, emphasizing that long-term success depends on active involvement and benefits for local communities (Tumbaga et al. 2021). For instance, studies show that demographic factors, such as income and the number of implemented programs, influence participation levels. Additionally, according to Mi et al. (2021), community capacity-building initiatives are critical for fostering positive attitudes and behaviors toward conservation. Leveraging the unique knowledge of long-term residents and the fresh perspectives of newer residents can create a balanced approach to conservation.

Therefore, while there is existing involvement in biodiversity conservation, it remains inconsistent. Addressing gaps through awareness programs, accessibility improvements, and institutional partnerships could enhance participation rates and ensure biodiversity protection becomes a long-term commitment.

| | | MEAN | SD | Verbal Interpretation |
|---|---|---|---|---|
| 1. | I have attended training sessions or workshops on biodiversity conservation organized by the community. | 2.538 | 0.708 | Moderate |
| 2. | I am applying the knowledge and skills gained from biodiversity conservation training programs. | 2.614 | 0.827 | Moderate |
| 3. | I have shared the knowledge and skills from biodiversity conservation training with others in my community. | 2.575 | 0.847 | Moderate |
| 4. | Community training programs have increased my willingness to participate in biodiversity conservation initiatives. | 2.759 | 0.683 | Moderate |
| 5. | Ongoing training and capacity-building efforts are essential for effective biodiversity conservation. | 2.764 | 0.669 | Moderate |
| | **Over-all Mean** | **2. 650** | | **Moderate** |

Legend: 1 – 1.4 – very low; 1.5 – 2.4 -low; 2.5 – 3.4- moderate; 3.5 - 4- High

**Table 3.** Community Involvement in Biodiversity Conservation Based on Community Training and Capacity Building

Table 3 presents community involvement in biodiversity conservation through training and capacity-building efforts. The mean values indicate that engagement falls within the "moderately" range (2.5–3.4), showing moderate but inconsistent participation. Attendance in training sessions has a mean value of 2.5381, suggesting that some community members join workshops but not regularly. Similarly, applying acquired knowledge has a mean of 2.6142, indicating that while individuals sometimes implement what they learn, widespread application remains limited. The willingness to share knowledge with a mean value of 2.5748 suggests occasional dissemination but not a strong culture of collective learning. The mean value of 2.7585 reflects how training helps increase participation in conservation efforts, but motivation varies among individuals. Additionally, recognizing ongoing training's importance with a mean of 2.7638 implies that people acknowledge its significance but do not actively seek consistent learning opportunities.

The literature emphasizes the importance of community-based conservation efforts, which rely on active involvement and tangible benefits for local communities. For instance, capacity-building initiatives have been shown to empower communities, fostering positive attitudes and behaviors toward conservation (Raquino et al., 2023).

Consequently, the findings suggest that while training efforts contribute to biodiversity conservation awareness, greater commitment is needed to strengthen participation, enhance knowledge-sharing, and make training programs more effective. Encouraging sustained engagement can help build a more environmentally responsible and proactive community.

|  | MEAN | SD | Verbal Interpretation |
|---|---|---|---|
| 1. I am aware of community-led initiatives focused on biodiversity conservation in my area. | 2.766 | 0.665 | Moderate |
| 2. I have taken an active role in planning and organizing community-led biodiversity conservation activities. | 2.717 | 0.663 | Moderate |
| 3. The community encourages and supports individuals who take the lead in conservation projects. | 2.866 | 0.699 | Moderate |
| 4. I have seen measurable improvements in biodiversity due to community-led conservation actions. | 2.837 | 0.535 | Moderate |
| 5. I am motivated to continue participating in or leading community-led conservation efforts in the future. | 2.843 | 0.722 | Moderate |
| **Over-all Mean** | **2.806** |  | **Moderate** |

Legend: 1 – 1.4 – very low; 1.5 – 2.4 -low; 2.5 – 3.4- moderate; 3.5 - 4- High

**Table 4.** Community Involvement in Biodiversity Conservation Based on Community-Led Initiatives

Table 4 highlights community involvement in biodiversity conservation based on community-led initiatives. It presents five statements evaluating various aspects of engagement, awareness, and motivation, each accompanied by its corresponding mean numerical value and standard deviation. The verbal interpretation of all statements indicates moderate engagement levels among respondents. Regarding awareness of community-led initiatives, a mean value of 2.7664 suggests that respondents are somewhat aware of conservation efforts in their area. Another statement that evaluates active participation in planning and organizing initiatives has a mean of 2.7165, implying that involvement fluctuates among individuals but remains occasional. Next, assessing community support for leaders in conservation projects has a mean of 2.8661, suggesting that encouragement is present but not consistently strong. Another statement, measuring observed improvements in biodiversity due to these efforts, has a mean of 2.8373, indicating that noticeable positive changes are perceived at times. Lastly, motivation to continue engaging in conservation activities scores a mean of 2.8425, showing that individuals feel moderately inclined to participate in future initiatives.

Tumbaga et al. (2021), in their study on community participation in biodiversity conservation in the Philippines, highlight that demographic factors, such as income levels and the number of implemented programs, significantly influence participation rates. This aligns with the findings in this study, where moderate engagement may indicate barriers such as limited resources or awareness. Additionally, capacity-building initiatives have been identified as critical for fostering positive attitudes and behaviors toward conservation. Providing training and resources to community members can empower them to take ownership of conservation activities.

Therefore, the numerical values reveal that community involvement in biodiversity conservation through grassroots initiatives is present but not consistently strong. Responses vary, as indicated by the standard deviations, suggesting that individuals experience different levels of engagement and perception. While some community members actively participate and see measurable benefits, others may have limited involvement or awareness. Strengthening outreach and support mechanisms could enhance engagement, fostering greater participation in conservation efforts for long-term ecological benefits.

| | MEAN | Verbal Interpretation |
|---|---|---|
| Participation Rate | 2.7029 | Moderate |
| Community Training and Capacity Building | 2.6499 | Moderate |
| Community-Led Initiatives | 2.8058 | Moderate |
| **Total Average Mean** | **2.7195** | **Moderate** |

Legend: 1 – 1.4 – very low; 1.5 – 2.4 -low; 2.5 – 3.4- moderate; 3.5 - 4- High

**Table 5.** Composite Table of the Level of Community Involvement of the Respondent on Biodiversity Conservation

The data in Table 5 shows that the respondents in the community do take part in biodiversity conservation, but not as consistently as they could. Whether it is joining activities, attending training sessions, or leading initiatives, their engagement falls into the "Moderate" category. This means they care about the environment and contribute when they can, but involvement may depend on factors like awareness, accessibility, or personal motivation. To strengthen this, the community could benefit from more opportunities to participate, easier access to training, and encouragement to take a bigger role in conservation efforts. With the right support and initiatives, biodiversity conservation can become a shared responsibility rather than just an occasional effort.

**Problem 3. What is the Extent of Implementation of Social Environment Policy and Community Involvement in Biodiversity Conservation?**

| | MEAN | SD | Verbal Interpretation |
|---|---|---|---|
| 1) Community members are actively involved in decision-making processes related to biodiversity conservation policies. | 2.958 | 0.630 | To a Moderate Extent |
| 2) Local authorities and policymakers seek input from the community before implementing biodiversity conservation policies. | 3.016 | 0.735 | To a Moderate Extent |
| 3) The community's concerns and suggestions are considered in biodiversity-related policy decisions. | 3.126 | 0.644 | To a Moderate Extent |
| 4) Social and environmental policies improved community involvement in conserving biodiversity. | 3.097 | 0.713 | To a Moderate Extent |
| 5) The community helps shape biodiversity policies through tree planting and eco-tourism efforts. | 3.066 | 0.622 | To a Moderate Extent |
| **Over-all Mean** | **3.053** | | To a Moderate Extent |

Legend: 1 – 1.4 -To a very low extent; 1.5 – 2.4 -To a low extent; 2.5 – 3.4 -To a moderate extent; 3.5 – 4 -To a high extent

**Table 6.** Implementation of Social Environment Policy in Terms of Decision Making.

Table 6 presents data on the extent to which respondents engage with and perceive the effectiveness of biodiversity conservation efforts within their communities. The mean scores for each statement range from 2.7165 to 2.8661, with all responses falling within the verbal interpretation of "To a moderate extent." Assessing awareness of community-led initiatives has a mean score of 2.7664 with a standard deviation of 0.6645, indicating that respondents are occasionally informed about conservation efforts. When it comes to focusing on active participation in organizing conservation activities, the mean of 2.7165 and a standard deviation of 0.6628 shows that involvement in planning efforts is somewhat limited. Encouragement from the community in conservation leadership is reflected in a mean of 2.8661, the highest in the table, with a

standard deviation of 0.6990, suggesting moderate support for individuals taking the initiative. The observation of measurable biodiversity improvements due to conservation efforts scores 2.8373, indicating that respondents sometimes see positive results from such initiatives. The final statement, regarding motivation to continue engaging in conservation work, has a mean score of 2.8425, showing a moderate level of willingness to remain active in biodiversity efforts.

A study conducted by Su et al. (2025) emphasizes the role of participatory approaches in achieving sustainable environmental outcomes. As Kegamba et al. (2024) note, addressing local concerns and sharing benefits equitably can enhance both ecological and social objectives. However, despite moderate involvement, there is a part to deepen engagement through co-management frameworks and capacity-building activities.

Based on these findings, it is clear that while community-led biodiversity conservation efforts are acknowledged and sometimes supported, engagement and direct involvement remain inconsistent. The moderate scores indicate that conservation programs have reached a reasonable level of awareness and impact, but further encouragement and structured initiatives may be necessary to enhance participation and sustained commitment. Strengthening community-driven actions and addressing potential barriers to involvement could improve biodiversity conservation efforts.

| | MEAN | SD | Verbal Interpretation |
|---|---|---|---|
| 1) Local environmental policies support sustainable livelihood practices that benefit the community and biodiversity. | 3.066 | 0.655 | To a Moderate Extent |
| 2) Local Governments and NGOs support sustainable livelihood programs that create eco-friendly products from locally available materials. | 3.099 | 0.710 | To a Moderate Extent |
| 3) Policy integration facilitates the adoption of sustainable livelihood practices by promoting biodiversity conservation. | 3.165 | 0.685 | To a Moderate Extent |
| 4) The integration of biodiversity conservation policies into local livelihoods has improved the quality of life in my community. | 3.123 | 0.734 | To a Moderate Extent |
| 5) The continuation and expansion of policies that align biodiversity conservation with local livelihood development is supported. | 3.139 | 0.679 | To a Moderate Extent |
| **Over-all Mean** | **3.119** | | To a Moderate Extent |

Legend: 1 – 1.4 -To a very low extent; 1.5 – 2.4 -To a low extent; 2.5 – 3.4 -To a moderate extent; 3.5 – 4 -To a high extent

**Table 7.** Implementation of Social Environment Policy in Terms of Policy Integration on Local Livelihoods.

Table 7 provides an analysis of social environmental policies and community involvement in biodiversity conservation by examining policy integration with local livelihoods. It presents five key statements evaluated by respondents, each with numerical mean values ranging from approximately 3.07 to 3.17, indicating general agreement. The assessment of whether local environmental policies support sustainable livelihood practices has a mean of 3.0656; regarding the role of local governments and NGOs in promoting eco-friendly livelihood programs, it has a mean of 3.0997. These values suggest moderate agreement among respondents on the positive impact of environmental policies on sustainable economic activities.

In addition, the one that highlights the role of policy integration in facilitating sustainable livelihood practices and biodiversity conservation has the highest mean of 3.1654, indicating strong agreement. This aligns with Kendal's (2023), cited by Su et al. (2025) research on urban biodiversity, which highlights participatory approaches as essential for sustainable outcomes. Meanwhile, the one that examines whether integrating biodiversity conservation policies into local livelihoods has improved the community's quality of life, I garnered a mean of 3.1234. Lastly, the support for the continuation and expansion of policies aligning biodiversity conservation with livelihood development garnered a mean of 3.1391. The relatively high agreement across these statements suggests that respondents recognize the benefits of integrating environmental policies with local economies.

This implies that environmental policies play a crucial role in shaping sustainable livelihoods and supporting biodiversity conservation. The overall agreement suggests that ongoing policy efforts are viewed positively, though differences in standard deviations indicate variations in individual experiences. Policymakers and stakeholders can use these insights to refine existing strategies, ensuring that policies remain inclusive, effective, and responsive to community needs.

| | MEAN | SD | Verbal Interpretation |
|---|---|---|---|
| 1) Local government structures effectively implement social environmental policies related to biodiversity conservation. | 3.286 | 0.717 | To a Moderate Extent |
| 2) Local government upholds transparency in implementing and monitoring biodiversity conservation policies. | 3.378 | 0.679 | To a Moderate Extent |
| 3) Local government provides sufficient resources for community-led biodiversity conservation initiatives. | 3.331 | 0.747 | To a Moderate Extent |
| 4) Local government structures collaborate effectively with non-governmental organizations (NGOs) and other stakeholders to promote biodiversity conservation. | 3.365 | 0.743 | To a Moderate Extent |
| 5) Local government allocates and safeguards urban green areas for conservation, preventing uncontrolled development. | 3.320 | 0.799 | To a Moderate Extent |
| **Over-all Mean** | **3.336** | | To a Moderate Extent |

Legend: 1 – 1.4 -To a very low extent; 1.5 – 2.4 -To a low extent; 2.5 – 3.4 -To a moderate extent; 3.5 – 4 -To a high extent

**Table 8.** Implementation of Social Environment Policy in Terms of Local Governance Structure.

Table 8 presents findings on local governance structures and their effectiveness in implementing social environmental policies related to biodiversity conservation. Each statement was assessed based on mean scores, standard deviations, and a verbal interpretation of agreement levels. This evaluated whether local governments effectively implement biodiversity conservation policies. With a mean score of 3.2861 and a standard deviation of 0.7169, respondents generally agree that local governments successfully implement these policies. This implies that communities recognize local authorities' efforts in environmental protection. When it comes to the transparency of local governments in monitoring and implementing conservation policies, the mean score of 3.3780 and standard deviation of 0.6788 indicate agreement among respondents. This suggests that local governance structures are perceived as being open and accountable in their conservation measures.

In addition, to consider the sufficiency of resources provided by local governments for community-led biodiversity conservation initiatives, the mean score of 3.3307 and standard deviation of 0.7465 suggest that respondents agree local governments are providing adequate resources. This implies that community-driven conservation efforts are supported. To examine the collaboration between local governments and NGOs or other stakeholders in biodiversity conservation, a mean score of 3.3648 and a standard deviation of 0.7429 indicate general agreement that these partnerships exist and function effectively. This suggests that stakeholders and local authorities are working together to advance conservation efforts. Recent literature, such as the work by Kegamba et al. (2024), emphasizes that partnerships between governments and communities can enhance conservation strategies while addressing local needs.

Further, analyzes whether local governments allocate urban green areas for conservation to prevent uncontrolled development; the mean score of 3.3202 and standard deviation of 0.7985 indicate agreement among respondents. This implies that people perceive local governments as actively safeguarding green spaces from excessive urban expansion.

The findings highlight that local governance structures are perceived as effective in implementing, supporting, and monitoring biodiversity conservation policies. The agreement across all statements suggests that respondents trust local authorities to manage resources, maintain transparency, and collaborate with stakeholders for environmental sustainability. However, variations in standard deviations indicate differing levels of confidence, hinting at potential areas for improvement in policy execution and engagement.

| | MEAN | Verbal Interpretation |
|---|---|---|
| Decision Making | 3.053 | To a Moderate Extent |
| Policy Integration on Local Livelihoods | 3.119 | To a Moderate Extent |
| Local Government Structure | 3.336 | To a Moderate Extent |
| **Total Average Mean** | **3.169** | To a Moderate Extent |

Legend: 1 – 1.4 -To a very low extent; 1.5 – 2.4 -To a low extent; 2.5 – 3.4 -To a moderate extent; 3.5 – 4 -To a high extent

**Table 9.** Composite Table of the Extent Implementation of Social Environment Policy and Community Involvement in Biodiversity Conservation

Table 9 highlights how well social environment policies and community involvement in biodiversity conservation are being implemented. It focuses on three key areas: Decision Making, Policy Integration on Local Livelihoods, and Local Government Structure. The numbers suggest that the respondents generally agree that these aspects are in place and functioning. It also suggests that efforts are working, but there is still room for improvement. While respondents acknowledge that policies are making an impact, pushing toward a stronger commitment could elevate the effectiveness of biodiversity conservation. Strengthening governance and ensuring policies truly benefit local livelihoods. Further, refining decision-making processes would help shift perceptions toward full support, making these initiatives even more meaningful.

**Problem 4. Is there a significant difference in the level of community involvement in biodiversity conservation based on the respondents' demographic profile?**

| ANOVA | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Community Involvement in Biodiversity Conservation (SEX) | Between Groups | 2.744 | 2 | 1.372 | 5.272 | .006 |
| | Within Groups | 98.379 | 378 | .260 | | |
| | Total | 101.123 | 380 | | | |
| Community Involvement in Biodiversity Conservation (AGE) | Between Groups | .227 | 5 | .045 | .169 | .974 |
| | Within Groups | 100.895 | 375 | .269 | | |
| | Total | 101.123 | 380 | | | |
| Community Involvement in Biodiversity Conservation (LENGTH OF RESIDENCY) | Between Groups | 1.567 | 5 | .313 | 1.180 | .318 |
| | Within Groups | 99.556 | 375 | .265 | | |
| | Total | 101.123 | 380 | | | |
| Community Involvement in Biodiversity Conservation (OCCUPATION) | Between Groups | 7.355 | 6 | 1.226 | 4.889 | .000 |
| | Within Groups | 93.768 | 374 | .251 | | |
| | Total | 101.123 | 380 | | | |
| Community Involvement in Biodiversity Conservation (EDUCATIONAL ATTAINMENT) | Between Groups | 3.625 | 7 | .518 | 1.981 | .057 |
| | Within Groups | 97.497 | 373 | .261 | | |
| | Total | 101.123 | 380 | | | |

$p < 0.05$ (*significant*); $p > 0.05$ (*not significant*)

**Table 10.** Test of Difference between the demographic profile and the level of community involvement of the respondent in biodiversity conservation

The statistical analysis presented in Table 10 demonstrates a significant difference in community involvement based on sex, further substantiated by the post-hoc analysis in Tables 11 and 12. The results reveal that both male and female respondents exhibit significantly higher participation levels in conservation efforts compared to individuals who preferred not to disclose their sex, with a p-value of 0.006 and an F-value of 5.272, indicating that both male and female respondents exhibit higher levels of participation compared to those who preferred not to disclose their sex. Similarly, occupation plays a major role, with a p-value of 0.000 and an F-value of 4.889. Individuals engaged in farming, operating sari-sari stores, or those without formal employment show a stronger commitment to conservation efforts than government employees. Furthermore, farmers demonstrate notably higher involvement compared to other occupational groups, suggesting that those whose livelihoods depend on local resources are more invested in preserving biodiversity. This aligns with previous findings suggesting that environmental stewardship is often linked to economic dependence on local ecosystems (Smith et al., 2020).

Conversely, statistical analysis on age, length of residency, and educational attainment reveals no significant difference in participation levels based on these factors on age (p-value: 0.974, F-value: 0.169), length of residency (p-value: 0.318, F-value: 1.180), or educational attainment (p-value: 0.057, F-value: 1.981). This implies that conservation engagement is independent of how long an individual has lived in the area, their level of education, or their age. These findings highlight the importance of occupation-driven engagement strategies, focusing on those whose daily lives and livelihoods are directly linked to

environmental sustainability, to promote more effective conservation efforts. The research by Ambreen et al. (2025) highlights how community engagement and eco-education initiatives play a crucial role in shaping environmental participation, reinforcing the idea that experiential and socio-economic influences are more significant than formal education or residency duration.

Borg et al. (2024) emphasize that socio-demographic variables like age and occupation often have limited predictive power compared to education and awareness. These insights suggest that targeted educational programs and awareness campaigns could enhance community engagement in biodiversity conservation efforts.

| Dependent Variable | (I) Sex | (J) Sex | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Community Involvement in Biodiversity Conservation | Prefer not to say | Male | .27575* | .08913 | .006 | .0660 | .4855 |
| | | Female | .26663* | .08699 | .007 | .0620 | .4713 |

*. The mean difference is significant at the 0.05 level.

**Table 11.** Post-Hoc Analysis in Community Involvement on Biodiversity Conservation in Terms of Sex

Table 11 presents a post-hoc analysis examining differences in community involvement in biodiversity conservation based on sex. It compares the significance levels to indicate how likely it is that the differences in biodiversity conservation participation among men, women, and those who prefer not to disclose their gender are genuine and not just random chance. Essentially, the significance level results of 0.006 and 0.007, which are below the significance value of 0.05, say that sex shapes participation patterns.

| Dependent Variable | (I) Occupation | (J) Occupation | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Community Involvement in Biodiversity Conservation | Farming | Gov't Employee | -.44487* | .11031 | .001 | -.7719 | -.1178 |
| | | Others | -.28259* | .09515 | .049 | -.5647 | -.0005 |
| | Sari-sari store | Gov't Employee | -.36380* | .10562 | .011 | -.6769 | -.0507 |
| | Gov't Employee | Farming | .44487* | .11031 | .001 | .1178 | .7719 |
| | | Sari-sari store | .36380* | .10562 | .011 | .0507 | .6769 |
| | | None | .39006* | .09516 | .001 | .1080 | .6722 |
| | None | Gov't Employee | -.39006* | .09516 | .001 | -.6722 | -.1080 |
| | Others | Farming | .28259* | .09515 | .049 | .0005 | .5647 |

*. The mean difference is significant at the 0.05 level.

**Table 12.** Post-Hoc Analysis in Community Involvement on Biodiversity Conservation in Terms of Occupation

Table 12 presents a post-hoc analysis comparing community involvement in biodiversity conservation across various occupations. It shows statistical results indicating whether significant differences in involvement levels exist between occupations such as farming, government employees, sari-sari store owners, and others. The analysis reveals that government employees tend to be more actively engaged in biodiversity conservation compared to farmers; the mean difference between government employees and farmers is -0.44487 (p = 0.001), indicating lower participation among farmers. Similarly, sari-sari store

owners exhibit less engagement than government employees, with a mean difference of -0.36380 (p = 0.011).

Additionally, individuals without occupations demonstrate significantly lower involvement than government employees, as reflected in a mean difference of -0.39006 (p = 0.001). Farming also displays notably lower conservation efforts compared to other occupational groups, such as the "Others" category, with a mean difference of -0.28259 (p = 0.049). This indicates lower engagement, possibly due to limited access to environmental programs or less exposure to conservation initiatives.

Likewise, individuals without a formal occupation participate less, likely due to fewer structured opportunities. These differences highlight how one's profession can shape their role in conservation; some have more direct involvement, while others may encounter barriers to participation.

**Problem 5. Is there a significant difference in the extent of implementation of the social environment policy in biodiversity conservation in terms of respondents' demographic profile?**

| ANOVA | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Implementation of Social Environment Policy (SEX) | Between Groups | 2.534 | 2 | 1.267 | 4.913 | .008 |
| | Within Groups | 97.496 | 378 | .258 | | |
| | Total | 100.030 | 380 | | | |
| Implementation of Social Environment Policy (AGE) | Between Groups | 3.022 | 4 | .604 | 2.337 | .041 |
| | Within Groups | 97.008 | 375 | .259 | | |
| | Total | 100.030 | 380 | | | |
| Implementation of Social Environment Policy (LENGTH OF RESIDENCY) | Between Groups | 6.118 | 5 | 1.224 | 4.886 | .000 |
| | Within Groups | 93.912 | 375 | .250 | | |
| | Total | 100.030 | 380 | | | |
| Implementation of Social Environment Policy (OCCUPATION) | Between Groups | 3.697 | 6 | .616 | 2.392 | .028 |
| | Within Groups | 96.333 | 374 | .258 | | |
| | Total | 100.030 | 380 | | | |
| Implementation of Social Environment Policy (EDUCATIONAL ATTAINMENT) | Between Groups | 3.014 | 7 | .431 | 1.656 | .119 |
| | Within Groups | 97.016 | 373 | .260 | | |
| | Total | 100.030 | 380 | | | |

$p < 0.05$ (significant); $p > 0.05$ (not significant)

**Table 13.** Test of the difference between the demographic profile and the extent of the respondent's implementation of the social environment policy in biodiversity conservation.

The statistical analysis presented in Table 13 highlights the significant differences in concern for policy implementation based on sex, age, length of residency, and occupation. In terms of sex, supported with post-hoc analysis on Table 14, with a p-value of 0.008 and an F-value of 4.913, showing that both male and female respondents are more concerned compared to those who preferred not to disclose their sex. Age also emerges as a significant factor, as demonstrated in Table 15, with a p-value of 0.041 and an F-value of 2.337, revealing that individuals aged 51 years and above exhibit higher concern for biodiversity conservation policies compared to the younger age group of 21-30 years.

Additionally, length of residency demonstrates a significant impact as supported by post-hoc analysis in Table 16, with a p-value of 0.000 and an F-value of 4.886, indicating that those residing in the community for 31 years or more show greater concern than those living there for 21-30 years. Occupation also affects concern levels, as supported by post-hoc analysis in Table 17, with a p-value of 0.028 and an F-value of

2.392, highlighting that individuals who operate sari-sari stores express more concern for environmental policies compared to government employees.

Similarly, Aguila (2022) demonstrated that age, gender, and educational attainment are predictors of attitudes and perceptions toward environmental conservation. This study underscores the importance of incorporating socio-demographic complexities into policy design to enhance conservation outcomes.

On the other hand, the analysis found no significant difference between educational attainment and concern for policy implementation, as indicated by a p-value of 0.119 and an F-value of 1.656. Despite variations in sex, age, length of residency, and occupation, formal education did not appear to be a determining factor in influencing perceptions of biodiversity conservation efforts. These findings suggest that life experience, local involvement, and economic activities may have a more direct impact on individuals' engagement with environmental policies. Policymakers can use these insights to tailor conservation initiatives to better address the concerns of different demographic groups and ensure more effective policy implementation.

It reveals that higher education with strong reading comprehension skills is better equipped to analyze and apply environmental information, supporting enhanced policy (de-la-Peña and Luque-Rojas, 2021). These findings underscore the importance of promoting educational programs and addressing gender-related barriers to improving biodiversity conservation policies.

| Dependent Variable | (I) Sex | (J) Sex | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Implementation of Social Environment Policy | Male | Prefer not to say | -.27735* | .08872 | .005 | -.4861 | -.0686 |
| | Female | Prefer not to say | -.20428* | .08659 | .049 | -.4080 | -.0005 |
| | Prefer not to say | Male | .27735* | .08872 | .005 | .0686 | .4861 |
| | | Female | .20428* | .08659 | .049 | .0005 | .4080 |

*. The mean difference is significant at the 0.05 level.

**Table 14.** Post-Hoc Analysis of the Extent of Implementation of Social Environmental Policy in Terms of Sex

Table 14 shows that post-hoc analysis highlights significant gender-based differences in social environmental policy implementation. Individuals who prefer not to disclose their gender show higher implementation levels than both males and females. Males exhibit the lowest engagement with a significant value of 0.005, while females also score lower with a value of 0.049. These findings suggest that gender identity may influence policy commitment, emphasizing the need for inclusive strategies to enhance environmental policy execution.

| Dependent Variable | (I) Age | (J) Age | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Implementation of Social Environment Policy | 21-30 yr. | 51 yr. and above | .24153* | .07818 | .026 | .0176 | .4655 |
| | 51 years old and above | 21-30 yr. | -.24153* | .07818 | .026 | -.4655 | -.0176 |

*. The mean difference is significant at the 0.05 level.

**Table 15.** Post-Hoc Analysis of the Extent of Implementation of Social Environmental Policy in Terms of Age

Table 15 presents a post-hoc analysis comparing the implementation of social environmental policy between age groups. The results show a statistically significant difference of 21-30 years and 51 years and above, with younger individuals having a mean implementation level that is higher by 0.24153 compared to older individuals. The standard error is 0.07818, and the significance value is 0.026, confirming that age plays a crucial role in environmental policy implementation. This insight can help policymakers understand age-related differences in engagement with social and environmental policies.

| Dependent Variable | (I) Length of Residency | (J) Length of Residency | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Implementation of Social Environment Policy | 16-20 years | 21-30 years | -.30393 | .10617 | .050 | -.6081 | .0002 |
| | 21-30 years | 16-20 years | .30393 | .10617 | .050 | -.0002 | .6081 |
| | | 31 years and above | .30019* | .06489 | .000 | .1143 | .4861 |
| | 31 years and above | 21-30 years | -.30019* | .06489 | .000 | -.4861 | -.1143 |

*. The mean difference is significant at the 0.05 level.

**Table 16.** Post-Hoc Analysis of the Extent of Implementation of Social Environmental Policy in Terms of Length of Residency

Table 16 presents a post hoc analysis of how the implementation of social and environmental policy varies based on the length of residency in a particular area. The findings show that residents who have lived in the area for 21-30 years implement policies more actively than those with 16-20 years of residency, as indicated by a mean difference of -0.30393 and a significance value of 0.050. Furthermore, residents who have lived in the area for 31 years or more demonstrate significantly higher policy implementation compared to those in the 21-30 years group, with a mean difference of -0.30019 and a highly significant value of 0.000. These results suggest a clear upward trend in engagement, meaning that long-term residents are likely more committed to social environmental policies due to greater awareness, experience, or influence within the community. Since the significance levels confirm these differences are statistically valid, it reinforces the idea that the duration of residency plays a crucial role in shaping attitudes toward policy implementation.

| Dependent Variable | (I) Occupation | (J) Occupation | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Implementation of Social Environment Policy | Farming | Gov't Employee | -.33142 | .11181 | .050 | -.6629 | .0000 |
| | Sari-sari store | Gov't Employee | -.32469* | .10706 | .041 | -.6421 | -.0073 |
| | Gov't Employee | Farming | .33142 | .11181 | .050 | .0000 | .6629 |
| | | Sari-sari store | .32469* | .10706 | .041 | .0073 | .6421 |

*. The mean difference is significant at the 0.05 level.

**Table 17.** Post-Hoc Analysis of the Extent of Implementation of Social Environmental Policy in Terms of Occupation

Presents a post-hoc analysis in Table 17 of the extent of social environmental policy implementation across different occupations. Specifically, it compares positions in Farming, Sari-sari stores, and Government

Employment in terms of how they implement social environmental policies. In this case, the comparison between Farming and Government employees reveals a mean difference of -0.33142 with a significance of 0.050, suggesting a statistically significant contrast in policy implementation. Similarly, the Sari-sari store, compared to Government Employees, shows a mean difference of -0.32469 and a significance value of 0.041, further highlighting notable differences. These results indicate that occupation plays a substantial role in shaping how social environmental policies are executed, with government employees generally demonstrating stronger implementation compared to those in farming and sari-sari store occupations.

**Problem 6. Does the extent of implementation of social environment policy predict the community involvement in biodiversity conservation?**

| Model | R Square | Beta | Sig. |
|---|---|---|---|
| Decision Making | .307 | .339 | .000[b] |
| Policy Integration on Local Livelihood | | .376 | .000[b] |
| Local Governance Structure | | -.169 | .005[b] |

**Table 18.** Statistical Model Summary of the community involvement and extent of implementation of social environment policy significantly predicts the ability of biodiversity.

Table 18 highlights the statistical analysis of how community involvement and the implementation of social environment policies significantly predict biodiversity capability. It includes three models: Decision Making, Policy Integration on Local Livelihood, and Local Governance Structure, each demonstrating varying degrees of influence. The R Square values tell us how well certain factors explain changes in the outcome variable. The value of 0.307 means that 30.7% of the variability in biodiversity can be explained by community involvement and the extent of implementation of social environment policy. This signifies a moderate degree of predictability; it also indicates that more influences beyond these policies play a significant role. Understanding this helps researchers and policymakers assess how their current strategies are effective and explore additional factors that might improve biodiversity protection.

Additionally, the table also shows the (Sig.) values confirm the reliability of these relationships, with all three models showing a Sig. Value of 0.000 and 0.005. This indicates that the observed effects are highly significant and not due to random chance.

Moreover, the Beta values reveal the strength and direction of relationships between each model and biodiversity ability. Decision-making has the highest Beta coefficient at 0.339, suggesting a strong positive influence, meaning that as decision-making processes improve, biodiversity ability also increases significantly. Policy integration on local livelihood has a beta value of 0.376, which also shows a strong positive relationship between policy integration and biodiversity. Local Governance Structure has a Beta value of -0.169, indicating that there are limitations in governance biodiversity efforts, making conservation more challenging.

These findings are supported by studies such as Tumbaga et al. (2020), which emphasize the importance of community participation in biodiversity conservation among protected areas. Additionally, Garcia and Eje (2021) highlight that active people's participation in environmental management initiatives

leads to positive impacts on community development. These insights underscore the critical role of community engagement in shaping and implementing policies that protect biodiversity.

Armstrong (2024) emphasized the significant role of stakeholder engagement in addressing modern environmental challenges, where collaborative efforts between communities and policymakers were found to drive impactful solutions. These insights underscore that inclusive decision-making processes build trust, promote awareness, and encourage collective responsibility, ensuring the success and longevity of environmental policies.

The findings also reinforce the idea that meaningful community engagement is essential for successful environmental policies. When people are included in the decision-making process and policies are tailored to their local circumstances, their impact becomes much greater (Suryawan & Lee, 2025). While governance structures provide support, they work best when paired with active participation from the community (Peneciba, E.P., 2025). The results highlight the importance of collaborative and locally adapted approaches in making environmental policies effective and sustainable.

The findings align with recent studies, such as Armstrong (2024), which emphasize that inclusive community engagement fosters stronger policy adherence and more sustainable environmental management practices. In addition to the study of Camarillo and Bellotindos (2021), decision-making and policy integration benefit significantly from active community engagement, while local governance structures have a moderate but still relevant influence. These insights suggest that policymakers should prioritize participatory approaches to ensure the success of social environment policies.

**Problem 7. What are the policy notes for the professional development of teachers?**

"***CE-GROWTH*** – *Conservation & Education: Guiding, Raising Awareness, Outreach, Working, Training & Habits"*

The policy advocates for structured engagement programs where educators collaborate with local communities in biodiversity conservation efforts. This initiative includes capacity-building workshops, participatory conservation activities, and policy integration into local educational curricula.

Based on the findings, teachers and the community play a crucial role in shaping environmental awareness and enhancing environmental literacy. They gain firsthand knowledge and skills that they can pass on to students. This knowledge fosters a deeper understanding of conservation, inspiring future generations to take an active role in protecting the environment. Additionally, stronger community engagement strengthens the bond between schools and local communities, encouraging collective conservation efforts and creating lasting partnerships. Sustainable biodiversity management ensures the long-term protection of natural ecosystems by promoting responsible and inclusive action, reinforcing the importance of conservation at a community level. Lastly, capacity building for educators empowers teachers with practical conservation skills and leadership opportunities, equipping them to drive positive change within educational institutions and beyond.

Disregarding environmental conservation efforts can have serious consequences. When communities are not actively involved in conservation programs, the collective effort to protect natural resources

weakens, making it harder to sustain a healthy environment. Educators, who play a crucial role in raising awareness and inspiring action, may struggle with limited opportunities to expand their knowledge on environmental policies, affecting their ability to effectively teach and advocate for sustainability. Additionally, without proper execution, local government initiatives aimed at biodiversity preservation may fail to make a meaningful impact, leaving ecosystems vulnerable to degradation. Taking action is essential to creating a future where people and nature can thrive together.

Despite moderate engagement in biodiversity conservation, there remains a gap in community-led initiatives and teacher involvement. Challenges include limited training opportunities for educators in environmental sustainability, weak integration of conservation strategies into local livelihoods, and inadequate decision-making structures that hinder effective policy execution.

The proposed policy aimed to integrate biodiversity conservation into various aspects of education, ensuring that educators and communities play an active role in sustainable environmental management. The primary objectives of this policy include incorporating biodiversity conservation into professional teacher development programs, strengthening community-led environmental initiatives with direct educator participation through an extension program, and enhancing local government involvement in policy integration for sustainable biodiversity management.

Several salient features have been outlined. First, the policy supports the development of community-based conservation training modules for educators, equipping them with the knowledge and skills necessary to advocate for environmental sustainability. Additionally, it promotes the establishment of partnership programs between schools, environmental NGOs, and local governments, fostering collaboration among key stakeholders to enhance biodiversity efforts. Furthermore, the integration of biodiversity-related policies into local educational curricula is emphasized, ensuring that sustainability becomes an integral part of formal education. Lastly, the policy encourages community-led conservation initiatives, ensuring that educators and residents actively contribute to protecting and preserving biodiversity. With these measures, the policy seeks to create a more environmentally conscious society that values and prioritizes biodiversity conservation in both education and local governance.

Studies emphasize the role of educators in fostering sustainability awareness. For instance, research conducted by Esmael et al. (2023) highlights the effectiveness of community-led conservation projects in improving biodiversity outcomes. Additionally, Berkes (2022) demonstrated that integrating conservation into education leads to increased engagement and long-term environmental benefits.

To promote biodiversity conservation in education, the following actions are suggested to implement the policy:

- Align priorities through stakeholder consultations with educators, communities, and policymakers.
- Equip teachers with biodiversity conservation knowledge through training programs.
- Foster school-community partnerships to support hands-on conservation projects.
- Monitor and evaluate the program to ensure effectiveness and long-term sustainability.

By implementing this policy, educators will play a pivotal role in biodiversity conservation, inspiring local communities to embrace environmental stewardship as a fundamental value. Their influence will help cultivate a deeper awareness and commitment to preserving natural ecosystems, ensuring a sustainable future for generations to come. This CE-GROWTH initiative is presented by **Asnar L. Aloro**, who advocates for fostering environmental responsibility within educational institutions. For further inquiries, please get in touch with **asnaraloro27@gmail.com**.

# SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This section highlights the key insights from the study and conclusions that pave the way for meaningful recommendations.

**Summary of Findings**

The findings summarized key relationships between demographic profiles, community involvement, and biodiversity conservation policies in Mt. Kalisungan. Statistical analysis highlighted significant factors shaping participation and policy implementation, providing insights to develop sustainable strategies for enhancing conservation efforts.

1. **Demographic Profile of Respondents in Mt. Kalisungan**

   Based on the findings, the respondents come from diverse backgrounds, ensuring a broad representation of perspectives. Sex distribution is relatively balanced, with individuals identifying as female or male and some choosing not to disclose their sexuality. A considerable number fall within the middle-adult age range, reflecting a mix of life experiences. Education levels vary, though many have completed high school, providing a foundation for shared understanding. A notable portion does not have a defined occupation, which may present unique socio-economic insights. Additionally, a significant number have lived in the area for an extended period, contributing valuable local knowledge that could enhance conservation efforts.

2. **Community Involvement in Biodiversity Conservation**

   According to the results of the community involvement in Mt. Kalisungan, participation is moderate, with participation often described as "Sometimes." Research stresses the value of community-based efforts and capacity-building initiatives to encourage active engagement. Combining long-term residents' knowledge with new perspectives from newer residents can create effective conservation strategies.

3. **Implementation of Social Environment Policy and Community Involvement**

   In view of the evidence, moderate involvement was observed in implementing biodiversity policies, with active decision-making and sustainable livelihood programs being key. Partnerships with local governments and NGOs promote transparency and participation. Empowering communities through equitable benefit-sharing and capacity-building can improve biodiversity conservation outcomes.

4. **Correlation Between Demographic Profile and Community Involvement**

   Based on the analysis, sex and occupation significantly impact biodiversity conservation involvement, with male and female respondents showing more participation than those who didn't disclose their sex. Farmers and informal workers are highly engaged due to their dependence on local resources, whereas

government employees are less involved. Meanwhile, age, residency length, and education do not significantly influence conservation efforts, suggesting that practical experience and community awareness play a larger role. These findings emphasize the need for targeted conservation strategies that consider socio-economic factors.

5. **Correlation Between Demographic Profile and Policy Implementation**

The findings suggest that sex, age, length of residency, and occupation all play a role in shaping respondents' engagement with environmental policies. Male and female respondents show greater concern compared to those who prefer not to disclose their gender, while older individuals express stronger interest than younger ones. Long-term residents are more invested in policy implementation compared to those with shorter residency in the community, and sari-sari store owners demonstrate more concern than government employees. However, educational attainment does not significantly affect concern levels, suggesting that experience, local involvement, and economic activities have a stronger impact than formal education. These insights provide valuable direction for policymakers in designing effective biodiversity conservation strategies.

6. **The extent of Community Involvement in Policy Implementation**

The findings indicate that community involvement has a meaningful role in shaping policy outcomes, though it's "To a Moderate Extent". The strong statistical significance reinforces the idea that inclusive decision-making and fostering trust among stakeholders are crucial for improving policy implementation. Community engagement is vital for ensuring long-term success in biodiversity conservation, emphasizing the need for collaborative approaches that integrate local voices and perspectives.

7. **Policy Note for Professional Development of Teachers**

The Policy Note CE-GROWTH on Enhancing Conservation Through Education and Community Action emphasizes the role of educators and communities in biodiversity preservation through training, participatory projects, and policy integration. It strengthens school-community partnerships, addressing challenges like limited educator training and weak conservation integration. Key strategies include embedding conservation into teacher programs, fostering collaborations, and integrating biodiversity policies into education. Research supports education-driven conservation, making educators pivotal in inspiring communities toward sustainability.

## Conclusion

The research concludes to underscore the importance of further exploration to enhance understanding and implications:

The people in Mt. Kalisungan come from diverse backgrounds and have a mix of ages, education levels, and occupations. Many have lived in the area for a long time, bringing valuable local knowledge that can help with conservation efforts.

Community involvement in biodiversity conservation is growing but needs strengthening. Boosting awareness and combining local knowledge with fresh ideas can improve efforts. Consistent engagement is

key to making conservation a shared, ongoing commitment. Encouraging collaboration among residents, organizations, and policymakers can further enhance conservation outcomes.

Policy implementation with community involvement is moderate. Partnering with local governments and organizations can improve participation, transparency, and sustainable livelihood opportunities. Strengthening education and awareness programs can further empower communities to take an active role in shaping policies.

Sex and education slightly impact how engaged people are in conservation, while factors like age, occupation, and how long they have lived there do not seem to matter much. Educational programs help boost participation. Therefore, the hypothesis based on the level of involvement of the respondent in terms of demographic profile failed to be rejected in terms of age, length of residency, and educational attainment, while in terms of sex and occupation, it was rejected.

Sex has a positive influence on policy execution, while age has a slightly negative effect. Education also helps, though it is not the main factor. Diversity and education should be considered in conservation strategies. Thus, the extent of implementation of the social environment policy of the respondents based on the demographic profile was accepted in terms of educational attainment, while the other factors, such as sex, age, length of residency, and occupation, were rejected.

Community involvement significantly affects policy implementation, though its impact remains moderate. The statistical significance highlights the necessity of inclusive decision-making and trust-building among stakeholders to ensure long-term conservation success. Therefore, the null hypothesis is rejected.

Teachers play a crucial role in environmental education. Giving them better training and resources allows them to inspire students to care for nature.

## Recommendations

Based on the findings, the following recommendations are proposed to strengthen biodiversity conservation efforts and enhance community involvement in Mt. Kalisungan:

It is recommended that Educational Programs be enhanced. Targeted educational initiatives that focus on biodiversity conservation should be developed in order to empower community members with knowledge and skills that would make them actively participate in conservation activities.

Community-driven Awareness Campaigns are recommended to be implemented. The organization of community-driven awareness campaigns to tackle barriers such as limited resources and gaps in understanding biodiversity conservation policies while emphasizing the importance of community involvement for successful policy outcomes should be put in place. Alongside these efforts, monitoring systems should be established to evaluate the effectiveness of campaigns and policies, enabling timely adjustments to strategies for sustained and impactful conservation progress.

Partnerships and collaboration should be strengthened. The promotion of partnerships between local governments, NGOs, and community groups should be considered and implemented. Transparent and

participatory governance models that involve all stakeholders can increase trust and improve the implementation of environmental policies.

Sustainable Livelihoods should be supported. Eco-friendly livelihood projects, such as sustainable farming and eco-tourism, should be introduced to provide tangible benefits for the community while supporting conservation goals.

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