



Assessing Environmental Leadership among Youth Officials in Local Governance: Quantitative Insights from the Sangguniang Kabataan in Bataan, Philippines

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Youth participation is widely recognized as a critical component of sustainable local governance; however, the effectiveness of youth-led institutions depends not only on motivation and engagement but also on the capacity to translate commitment into informed action. This study examined the environmental leadership of Sangguniang Kabataan (SK) officials in Samal, Bataan, focusing on three interrelated dimensions: motivation, leadership capacity, and environmental expertise. Using a cross-sectional descriptive-comparative design, data were collected from 77 elected SK officials across all barangays through a structured survey instrument grounded in an established environmental leadership framework. The findings indicate that SK officials exhibit very strong motivation and strong self-perceived leadership capacity, reflecting high readiness to engage in environmental initiatives, while environmental expertise, although generally classified as high, was uneven and largely limited to foundational knowledge, with weaker familiarity in policy and systems-level sustainability concepts. Differences in environmental expertise were associated with educational attainment and prior leadership experience, whereas no significant differences were observed across sex or SK position. These results highlight a gap between youth leaders' strong commitment to environmental action and their preparedness for policy-informed environmental governance, underscoring the need for targeted capacity-building interventions and strategic collaboration between local government units and educational institutions to strengthen youth participation as a driver of sustainable local development.

Keywords: Environmental leadership, Youth governance, Sangguniang Kabataan, environmental expertise, Sustainable development, Education for sustainable development

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INTRODUCTION

Environmental challenges such as climate change, pollution, and ecological degradation continue to intensify worldwide. The World Meteorological Organization (2024) confirmed that 2023 was the warmest year on record, with a global average temperature 1.45°C above the pre-industrial baseline. These escalating trends are further

reflected in the rising frequency of extreme weather events, the degradation of ecosystems, and unsustainable resource consumption. NASA (2024) affirm the scientific consensus that human-induced greenhouse gas emissions are accelerating the planet's warming. Addressing these interconnected crises requires coordinated leadership across levels of governance and sectors of society.

The United Nations' Sustainable Development Goals (SDGs) offer a global framework for responding to these environmental threats. SDG 13 specifically calls for urgent action on climate change, while other goals promote sustainable cities (SDG 11), responsible consumption and production (SDG 12), and ecosystem conservation (SDG 15) (United Nations, 2023). However, translating these global objectives into effective local action remains a persistent challenge, particularly in developing countries where resources, capacity, and awareness vary widely. In the Philippines, environmental laws such as the Clean Air Act of 1999 (RA 8749), the Ecological Solid Waste Management Act of 2000 (RA 9003), and the Environmental Awareness and Education Act of 2008 (RA 9512) illustrate the state's formal commitment. Yet many of these efforts encounter limitations due to weak enforcement, budget constraints, lack of long-term political will, resulting in underutilized environmental programs (Valenzuela, 2025).

Local leadership plays a vital role in shaping environmental outcomes. In the Philippines, the *Sangguniang Kabataan* (SK) serves as the formal youth governance body, created through the Local Government Code of 1991 (RA 7160). It provides avenues for young people to participate in local decision-making, including the planning and implementation of programs through the Annual Barangay Youth Investment Program. This program includes ten Centers of Youth Participation, one of which focuses on environmental concerns. In line with this, the Department of Interior and Local Government (2024) emphasizes the mandate to align the Sangguniang Kabataan programs and plans with SDGs. Despite the institutional platform, national youth assessments have consistently reported low levels of youth participation in environmental initiatives and a lack of substantive engagement with sustainability issues (Raji, 2024). These findings suggest a disconnect between the structural presence of youth leadership and its functional impact on environmental outcomes (Castillo et al., 2024; Damit, 2025).

Conceptual Anchors of Environmental Leadership

To better understand the observed gap between youth participation and environmental outcomes, it is necessary to examine the actual capacities of young leaders tasked with environmental responsibilities. Environmental leadership has been discussed in the literature through various lenses, including eco-leadership, environmental citizenship, and transformational leadership, all of which emphasize ethical commitment, participatory governance, and the ability to mobilize collective action toward sustainability goals. Across these perspectives, effective environmental leadership is understood as a combination of motivation, behavioral capacity, and knowledge that enables informed decision-making.

In this study, environmental leadership is operationalized using the framework developed by Akiyama et al. (2013), which conceptualizes leadership through three interrelated components: motivation, referring to the internal drive to act on environmental concerns; leadership capacity, involving decision-making, coordination, advocacy, and vision-setting; and expertise, defined as knowledge of environmental issues, systems, and relevant policies. This framework is particularly suitable for youth-led governance contexts because it integrates affective, behavioral, and cognitive dimensions of leadership that can be empirically measured at the individual level.

While prior studies suggest that young leaders often exhibit strong motivation and public engagement (Redmond & Dolan, 2014; Shahzad, 2023), considerably less is known about their technical competence and ability to translate commitment into policy-aligned and strategically informed environmental action. Akiyama et al.'s model highlights that motivation and leadership behaviors alone are insufficient if they are not grounded in adequate expertise, especially in governance settings where leaders are expected to design, implement, and evaluate sustainability-

oriented programs.

Guided by this framework, the present study examines the environmental leadership of Sangguniang Kabataan officials in Samal, Bataan, focusing on the dimensions of motivation, leadership capacity, and expertise. Using a quantitative survey of 77 SK officials across 14 barangays, the study aims to describe overall levels of environmental leadership and determine whether statistically significant differences exist based on key demographic variables, including sex, educational attainment, SK position, and prior leadership experience.

Findings from this study may also inform future collaborative efforts between youth development offices and Colleges of Education, particularly in the design of environmental leadership programs aligned with Sustainable Development Goal 4 (Quality Education). Such partnerships may help address cognitive and pedagogical gaps that limit the effectiveness of youth-led environmental governance.

Specifically, the study seeks to answer the following research questions:

1. How may the environmental leadership of the respondents be described in terms of motivation, leadership, and expertise?
2. Is there a significant difference in the environmental leadership of Sangguniang Kabataan officials when grouped according to their profile?
3. What policy recommendations can be drawn from the statistical findings to strengthen youth environmental leadership at the local level?

Through this analysis, the study contributes to ongoing discussions on youth governance, environmental capacity-building, and the need for evidence-based interventions in local sustainability leadership.

METHODOLOGY

This study employed a cross-sectional, descriptive-comparative quantitative design to assess the environmental leadership of *Sangguniang Kabataan* (SK) officials in Samal, Bataan. Anchored on the framework developed by Akiyama et al. (2013), the research focused on three interrelated dimensions of environmental leadership: motivation, leadership capacity, and expertise. The study further examined whether significant differences in these dimensions exist when respondents are grouped according to sex, educational attainment, SK position, and prior leadership experience.

A total of 77 elected SK officials from all 14 barangays of Samal were purposively selected as respondents. The participants included SK chairpersons, members, secretaries, and treasurers. The sample was nearly evenly split by sex. Most respondents were college undergraduates, held the position of SK member, and reported no prior leadership experience outside their current SK involvement. A detailed summary of participant characteristics is presented in Table 1.

Definition of Constructs

In this study, environmental leadership is examined through three analytically distinct but interrelated constructs: motivation, leadership capacity, and expertise. To ensure conceptual clarity and measurement validity, the three dimensions of environmental leadership examined in this study are defined as follows.

Motivation refers to the internal drive and personal commitment of youth leaders to engage in environmental action. This includes concern for environmental issues, willingness to participate in sustainability initiatives, and a sense of responsibility toward environmental protection. Motivation reflects the affective dimension of leadership and captures why young leaders are inclined to act on environmental concerns.

Leadership capacity refers to the ability of youth leaders to translate motivation into action through decision-

Table 1. Demographic characteristics of Sangguniang Kabataan Respondents in Samal, Bataan

Profile	Frequency (<i>n</i> = 77)	Percentage
Sex		
Female	40	52%
Male	37	48%
Educational Attainment		
College Undergraduate	66	86%
High School Graduate	6	8%
College Graduate	5	6%
SK Position		
Member	55	71%
Secretary	9	12%
Treasurer	7	9%
Chairperson	6	8%
Leadership Experience		
With Experience	20	26%
Without Experience	57	74%

making, coordination, advocacy, and vision-setting. This construct focuses on observable leadership behaviors, such as mobilizing peers, initiating environmental programs, and influencing collective action within their communities. Leadership capacity represents the behavioral and relational dimension of environmental leadership.

Expertise refers to the cognitive dimension of environmental leadership and encompasses knowledge of environmental issues, sustainable practices, and relevant environmental policies. This includes understanding of local and national environmental regulations, environmental systems, and evidence-based responses to environmental challenges. Expertise is treated as a distinct construct, as effective leadership in governance contexts requires not only motivation and initiative but also informed and policy-aligned decision-making.

Although these constructs are interrelated, they capture different aspects of environmental leadership. High motivation does not necessarily imply strong leadership capacity, and leadership behaviors may lack effectiveness in the absence of adequate expertise. Distinguishing among these dimensions allows for a more careful assessment of youth environmental leadership and its implications for local governance.

Data Gathering Instrument

To gather data, a structured survey instrument was developed based on the environmental leadership framework of Akiyama et al. (2013). The instrument comprised three main sections corresponding to the study dimensions. The motivation dimension consisted of 10 Likert-type items measuring respondents' pro-environmental motivations, including personal, legal, and social drivers. The leadership dimension included 15 items assessing self-perceived behaviors related to decision-making, collaboration, advocacy, and sustainability-oriented actions. Responses for both sections were rated on a five-point scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). Composite means for these dimensions were interpreted using predefined score ranges, as discussed in the Results section.

The expertise dimension was evaluated using a quiz designed to measure factual knowledge across four key content areas: environmental issues, responses to environmental issues, environmental policies, and sustainable development (see Table 3). The test consisted of 20 items, with each content area represented by five items. The development of these categories was guided by relevant national policies such as Republic Act No. 9512 and the

Table 2. Sample Items from the environmental leadership instrument

Dimension	Sample item	Response format
Motivation	<i>"I conserve the environment because it is my responsibility."</i>	5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree)
Leadership Capacity	<i>"I consistently advocate for policies and practices that promote conservation and protection of natural resources."</i>	5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree)
Expertise	<i>"Which government agency is responsible for implementing the Ecological Solid Waste Management Act (RA 9003)?"</i>	Multiple-choice (one correct answer)

Table 3. Subdomains of the environmental expertise component

Subdomain	Description	No. of items
Environmental issues	Concepts such as pollution, deforestation, and climate change	5
Environmental Issues' Responses	Community roles and sustainable practices (e.g., 4Rs, segregation)	5
Local and National Environmental Policies	Philippine laws and legal frameworks (e.g., RA 9003, RA 9512)	5
Sustainable Development	SDGs, sustainability concepts, and key government agencies	5

Note: Subdomains were aligned with major areas emphasized in Philippine environmental laws (e.g., RA 9512, RA 8749) and sustainability education frameworks.

Philippine Clean Air and Water Acts, as well as key sustainability education frameworks.

To enhance transparency and replicability, representative sample items from each instrument dimension are presented in Table 2, while the complete set of questionnaire items is available upon reasonable request.

While Table 2 illustrates how each dimension of environmental leadership was operationalized, the environmental expertise component warrants further elaboration due to its structured coverage of multiple knowledge domains. To ensure content validity and alignment with national environmental priorities, the expertise test was organized into four subdomains, as summarized in Table 3.

The instrument underwent content validation by three field experts: a Municipal Youth Development Officer, a Municipal Environment and Natural Resources Officer (MENRO), and an Environmental Education Professor. Their recommendations informed revisions in item clarity, appropriateness, and contextual accuracy. A pilot test was conducted with SK officials from a neighboring municipality to assess reliability and usability, and minor refinements were made based on pilot feedback. Internal consistency of the Likert-type scales was verified using Cronbach's alpha, yielding reliability coefficients of 0.91 for motivation, 0.88 for leadership capacity, and 0.76 for the expertise scale, indicating good to excellent internal consistency.

Survey administration was conducted in person from January 2024 to March 2024, with coordination from barangay councils and SK officials. Ethical protocols were strictly followed. Participants were informed of the study's purpose and voluntarily signed informed consent forms. Anonymity and confidentiality were maintained throughout the process.

Preliminary analysis using the Shapiro–Wilk test revealed non-normal data distribution across all three leadership dimensions: motivation ($W = .71, p < .001$), leadership capacity ($W = .96, p = .025$), expertise ($W = .93, p < .001$), justifying the use of nonparametric statistical tests. Descriptive statistics were applied to summarize respondents' demographic profiles and composite scores. Group differences were analyzed using the Mann–Whitney U test for dichotomous variables (sex and leadership experience) and the Kruskal–Wallis test for variables with more than two categories (educational attainment and SK position). A significance threshold of $p < .05$ was set. All analyses were conducted using Jamovi version 2.4.8.

RESULTS

This study examined the environmental leadership of Sangguniang Kabataan (SK) officials in Samal, Bataan, across three dimensions: motivation, leadership capacity, and expertise. Table 4 presents the composite scores for each dimension and the results of nonparametric tests examining group differences across selected demographic variables.

Environmental expertise was assessed using a 20-item multiple-choice test, with one point awarded for each correct response. Raw scores were converted into percentage scores to facilitate interpretation using predefined percentage-based classifications, where higher percentages indicate greater knowledge of environmental issues, policies, and sustainable development concepts.

Overall, motivation registered the highest composite mean ($M = 4.44$, $SD = 0.72$), classified as *Very Strong*, followed by leadership capacity ($M = 3.93$, $SD = 0.56$), interpreted as *Strong*. These results indicate that SK officials generally perceive themselves as highly motivated and capable in performing leadership-related roles.

In contrast, the expertise dimension yielded a mean raw score of 15.23 ($SD = 3.25$), corresponding to a mean percentage score of 76.15%. Based on the study's classification scheme, this falls within the *High* expertise category. While this suggests a reasonable level of environmental knowledge, the expertise items primarily assessed foundational concepts, warranting further examination of domain-specific strengths and limitations.

To further examine patterns in environmental expertise, performance on the 20-item test was analyzed by content domain, as shown in Table 5. The overall mean correct response rate was 76.15%, which falls within the *High* category based on the study's percentage-based classification scheme (61–80%). This suggests a generally adequate level of environmental knowledge among SK officials, although the results reflect performance on items assessing foundational concepts.

Across domains, the highest performance was observed in *Responses to Environmental Issues* ($M = 4.21$ out of 5, 84.2% correct). This indicates that SK officials are most familiar with practical, community-level sustainability practices such as waste segregation, the 4Rs, and household-based environmental actions. Such practices are frequently emphasized in public information campaigns and local government initiatives, which may contribute to greater familiarity in this area.

Table 4. Composite scores and group differences in environmental leadership dimensions among SK officials ($N = 77$)

Dimension	Mean	SD	Grouping Variable	Test Used	Test Statistic	<i>p</i> -value
Motivation	4.44	0.72	Sex	Mann-Whitney U	$U = 577.5$	.093
			Educ Attainment	Kruskal-Wallis	$\chi^2 = 0.25$	.884
			SK Position	Kruskal-Wallis	$\chi^2 = 1.53$	.676
			Leadership Exp	Mann-Whitney U	$U = 424.0$	.086
Leadership	3.93	0.56	Sex	Mann-Whitney U	$U = 602.5$	.162
			Educ Attainment	Kruskal-Wallis	$\chi^2 = 1.05$	.592
			SK Position	Kruskal-Wallis	$\chi^2 = 1.67$	.643
			Leadership Exp	Mann-Whitney U	$U = 438.0$	.126
Expertise	15.23	3.25	Sex	Mann-Whitney U	$U = 671.5$	.485
			Educ Attainment	Kruskal-Wallis	$\chi^2 = 6.56$	*.038
			SK Position	Kruskal-Wallis	$\chi^2 = 2.71$	.438
			Leadership Exp	Mann-Whitney U	$U = 346.0$	*.001

Note: Motivation and leadership scores were interpreted using Likert-scale composite means. Environmental expertise levels were interpreted using percentage-based classifications derived from raw scores obtained from the 20-item test: 0–20% = Very Low; 21–40% = Low; 41–60% = Average; 61–80% = High; 81–100% = Very High. $p < .05$.

Table 5. Breakdown of environmental expertise scores by topic area among SK officials ($n = 77$)

Topic Area	No. of Items	Mean Score	% Correct
Environmental Issues	5	3.75	75
Response to Environmental Issues	5	4.21	84.2
Environmental Policies	5	3.65	73
Sustainable Development	5	3.62	72.4
Overall	20	15.23	76.15

Note: 0–20% = Very Low; 21–40% = Low; 41–60% = Average; 61–80% = High; 81–100% = Very High.

Relatively lower, though still *High*, levels of performance were found in *Environmental Issues* (75%) and *Environmental Policies* (73%). These results suggest general awareness of key environmental problems, including pollution and climate change, as well as familiarity with major legislative frameworks such as the Ecological Solid Waste Management Act (RA 9003) and the Environmental Awareness and Education Act (RA 9512). However, performance in these domains may reflect recognition of commonly referenced concepts rather than deeper conceptual understanding.

The lowest mean performance was recorded in the *Sustainable Development* domain (72.4%). This domain included items related to the Sustainable Development Goals, intergenerational equity, and national development priorities. Although still classified as *High*, the comparatively lower score points to potential gaps in understanding long-term sustainability frameworks that are essential for strategic planning and policy alignment in youth governance.

Taken together, the domain-level results indicate that while SK officials demonstrate stronger knowledge of practical environmental responses, their understanding of sustainability frameworks and policy integration is less developed. This pattern aligns with the study's conceptualization of expertise as extending beyond awareness toward comprehensive understanding of environmental systems, governance structures, and long-term development goals.

DISCUSSION

The results of this study offer relevant insights into the environmental leadership of Sangguniang Kabataan officials in Samal, Bataan. Guided by the research questions, this section discusses the findings in relation to three core objectives: (1) describing the respondents' environmental leadership in terms of motivation, leadership capacity, and expertise; (2) determining whether significant differences exist across selected demographic variables; and (3) identifying policy directions that may strengthen youth participation in environmental governance. The discussion is organized to reflect the order of the research questions and is grounded in existing literature to provide a focused and contextualized interpretation of the findings.

Environmental Leadership Profiles of SK Officials

As shown in Table 4, the findings reveal a pronounced contrast between the high levels of self-reported motivation ($M = 4.44$) and leadership capacity ($M = 3.93$) among SK officials and their comparatively uneven performance in environmental expertise (76.15%). While the expertise score falls within the “High” category based on the study's classification scheme, closer inspection of the domain-level results indicates that correct responses were largely concentrated in items requiring basic factual recall. Performance was relatively weaker on items that demanded applied understanding, policy familiarity, and systems-level reasoning. This pattern suggests that although SK officials are highly engaged and willing to lead, their cognitive preparedness for policy-informed environmental governance may be limited.

The strong self-perceptions of motivation and leadership observed in this study are consistent with prior research emphasizing the civic orientation and advocacy-driven nature of youth leadership. Qualitative research on Filipino youth leadership has documented a strong sense of civic duty and commitment to community service, alongside active participation in local governance and youth-led initiatives (Reguindin, 2023). Similarly, Estilong and Lansang (2025) reported that youth leaders are highly engaged in program implementation and participatory decision-making, particularly in sustainability-related initiatives. Regional and international reports further underscore the enthusiasm and activism that young people bring to environmental causes, often driven by personal values and collective identity (Sok et al., 2020). Studies by Shahzad (2023) and Castellano (2024) likewise portray youth as dynamic actors in climate and sustainability movements, motivated by solidarity, urgency, and a desire for social change.

However, the present findings suggest that such motivation and leadership orientation do not necessarily translate into strong environmental expertise. Despite the overall classification of expertise as *High*, domain-level analysis revealed that respondents performed better on general environmental issues and community-based response strategies than on items related to environmental policies, sustainability frameworks, and long-term planning concepts. This imbalance points to a form of leadership that is action-oriented but not always grounded in technical or policy knowledge. In governance contexts where SK officials are expected to plan, prioritize, and allocate resources, such gaps may constrain the effectiveness and sustainability of youth-led environmental initiatives.

Akiyama et al. (2013) emphasize that environmental leadership is multidimensional, requiring not only motivation and behavioral engagement but also cognitive and interdisciplinary expertise that informs sound decision-making in complex sustainability contexts. They argue that such expertise is particularly critical in policy and institutional settings, where leaders must navigate competing priorities and systemic constraints. In the Philippine context, where the Sangguniang Kabataan holds a formal mandate within local governance structures, limited expertise may result in initiatives that are symbolic or short-term rather than strategic and transformative. This tension between commitment and preparedness has also been observed in earlier qualitative work among Filipino student leaders, which documented strong environmental concern alongside uneven technical understanding (Batchar, 2024).

Group Differences in Environmental Leadership Dimensions

Analysis of group differences revealed that statistically significant differences emerged only in the dimension of environmental expertise. SK officials with at least some college education scored significantly higher on the knowledge assessment than those who had completed only high school. This finding aligns with studies showing that environmental topics receive greater emphasis in upper secondary and higher education curricula, where learners are exposed to more complex concepts, frameworks, and policy discussions (Nayle et al., 2024; UNESCO, 2021). Similarly, respondents with prior leadership experience outside the SK demonstrated significantly higher expertise scores, supporting evidence that leadership exposure can enhance issue-based learning and cognitive development (Torrico et al., 2025).

These patterns are consistent with the framework of Akiyama et al. (2013), which identifies education and experience as critical factors in strengthening leadership effectiveness. Higher educational attainment may increase opportunities to engage with environmental content through formal coursework or extracurricular activities, while leadership experience may provide access to trainings, mentorship, and collaborative problem-solving environments. Valenzuela (2025) similarly argue that meaningful youth participation depends not only on representation but on competence and context-specific preparation. This perspective is reinforced by the Philippine Environmental Awareness and Education Act (RA 9512), which recognizes environmental literacy as a cornerstone of national development.

Interestingly, no statistically significant differences were observed in motivation, leadership capacity, or expertise

when respondents were grouped by sex or SK position. This suggests that environmental leadership potential is broadly distributed across genders and organizational roles within the SK structure, supporting arguments for the inclusive nature of youth leadership participation. At the same time, the absence of differences between chairpersons and members may indicate an undifferentiated approach to leadership development within the SK, where role-specific competencies are not sufficiently emphasized. This raises important questions about whether current training and support mechanisms adequately account for the distinct responsibilities associated with different SK positions.

Policy Recommendations and Strategic Opportunities

The patterns observed in this study underscore the need for targeted, data-informed capacity-building strategies that address the specific gaps identified in environmental expertise. While the SK system provides an institutional platform for youth participation, limited technical knowledge may constrain its potential contribution to environmental governance. High levels of motivation and leadership confidence among SK officials offer a strong foundation for development; however, without structured learning opportunities, this potential may remain underutilized (Valenzuela, 2025).

Local government units are therefore encouraged to design training programs that are responsive to the educational backgrounds and functional roles of SK officials. Such programs should move beyond general awareness-raising and include focused modules on environmental legislation, sustainability frameworks, climate adaptation planning, and project monitoring and evaluation within local governance contexts. Higher education institutions, particularly those with teacher education and environmental education expertise, may serve as strategic partners in developing and delivering these initiatives, given their capacity for instructional design and community-based learning (Batchar, 2025).

Mentorship-based approaches may further enhance these efforts. Pairing less experienced SK officials with peers who have successfully implemented environmental projects can facilitate experiential learning, promote accountability, and strengthen continuity within the youth leadership pipeline (Luo & Stoeger, 2023; Murrell et al., 2021). Such strategies align with the Philippine Youth Development Plan 2023–2028, which emphasizes the integration of environmental literacy into youth program indicators and calls for stronger youth engagement in environmental governance (National Youth Commission, 2023). Aligning local capacity-building efforts with SDG 4 (Quality Education) may also create opportunities for policy coherence, inter-agency collaboration, and sustained investment in youth leadership development.

Limitations of the Study

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted within a single municipality, focusing on elected Sangguniang Kabataan officials in Samal, Bataan. While this context provides valuable insights into youth environmental leadership at the local level, the findings may not be directly transferable to other municipalities with different governance structures or levels of institutional support. Second, the study employed a cross-sectional design, which captures leadership characteristics at a single point in time and does not allow for causal inferences or examination of changes in leadership capacities over time. Third, motivation and leadership capacity were assessed using self-reported measures, which may be influenced by social desirability or respondents' self-perceptions. Finally, the environmental expertise component focused primarily on foundational knowledge aligned with national policies and sustainability frameworks. While this approach was appropriate for the study's objectives, it did not assess higher-order analytical or problem-solving skills related to environmental governance. Despite these limitations, the study provides a meaningful baseline assessment of youth environmental leadership and offers evidence-based directions for capacity-building and future research.

Conclusion

This study examined the environmental leadership of Sangguniang Kabataan officials in Samal, Bataan by assessing three interrelated dimensions: motivation, leadership capacity, and environmental expertise. The findings indicate that SK officials exhibit strong motivation and high self-reported leadership capacity, reflecting their readiness and willingness to engage with environmental concerns at the community level. These affective and behavioral attributes underscore the important role of youth leaders as active contributors to local sustainability efforts.

At the same time, the results reveal a constraint in the cognitive dimension of environmental leadership. Although overall environmental expertise was classified as *High*, performance was uneven and largely concentrated on foundational knowledge, with lower proficiency in areas requiring familiarity with national environmental laws, sustainability frameworks, and policy-oriented concepts. This pattern highlights a gap between youth leaders' strong commitment and their preparedness for policy-informed and technically grounded environmental governance.

Significant differences in environmental expertise were associated with educational attainment and prior leadership experience, reinforcing the role of formal learning environments and experiential exposure in strengthening environmental literacy. The absence of differences across sex and SK position suggests that leadership potential is broadly distributed among youth officials, underscoring the importance of inclusive and differentiated capacity-building initiatives.

Overall, the study contributes to the literature on youth environmental governance by demonstrating that motivation and enthusiasm, while essential, must be complemented by sustained development of environmental knowledge and technical readiness. As the SK continues to function as a frontline mechanism for youth participation in local governance, ensuring that elected officials are not only motivated but also adequately prepared is critical to strengthening the impact and sustainability of youth-led environmental initiatives.

Recommendations

Based on the findings of this study, several recommendations are proposed to strengthen the environmental leadership capacities of Sangguniang Kabataan officials and enhance youth participation in sustainable local governance. First, local government units, in coordination with youth development offices, should institutionalize targeted capacity-building programs that focus on environmental literacy, policy awareness, and sustainability-oriented project planning. Given the uneven levels of environmental expertise observed among SK officials, these programs should be responsive to differences in educational background and prior leadership experience and should emphasize practical application of environmental laws, climate adaptation strategies, and sustainability frameworks at the barangay level.

Second, mentorship mechanisms should be integrated within the SK structure to support experiential learning and peer-based knowledge transfer. More experienced SK officials or those who demonstrate stronger environmental expertise may serve as mentors to newly elected or less experienced leaders. Such arrangements can promote continuity, strengthen accountability, and create opportunities for collaborative learning across barangays, thereby reinforcing leadership development beyond formal training sessions.

Third, higher education institutions, particularly Colleges of Education, should be engaged as strategic partners in the design and delivery of environmental leadership training for youth officials. Their expertise in pedagogy, curriculum development, and community extension positions them to support evidence-based and context-sensitive capacity-building initiatives. Collaborative programs between local government units and teacher education institutions may also contribute to the broader goal of advancing education for sustainable development, consistent with SDG 4.

Fourth, evaluation frameworks for SK environmental programs should be enhanced to include indicators related

to environmental knowledge, policy engagement, and sustainability outcomes. Moving beyond measures of project quantity or budget utilization, such indicators can help assess whether youth-led initiatives are grounded in informed decision-making and contribute to long-term community impact.

Finally, future research should explore youth environmental leadership using longitudinal or mixed-methods approaches to capture changes in leadership capacities over time and across contexts. Comparative studies across municipalities may further illuminate how institutional support, education, and governance environments shape the effectiveness of youth-led environmental initiatives.

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필리핀 바탄주 상구니앙 카바타안(Sangguniang Kabataan)을 대상으로 한 지방 거버넌스 내 청년 공직자의 환경 리더십 평가: 정량적 분석

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본 연구는 필리핀 바탄주 사말 지역의 상구니앙 카바타안(Sangguniang Kabataan, SK) 선출 공직자들을 대상으로, 환경 리더십을 동기, 리더십 역량, 환경 전문성이라는 세 가지 차원에 근거한 횡단적 양적 연구 설계를 통해 분석하였다. 본 연구는 성별, 학력, SK 직위, 그리고 이전 리더십 경험과 같은 인구통계학적 특성에 따라 이들 세 차원이 유의미한 차이를 보이는지를 탐색하였다. 구조화된 설문지가 해당 지방자치단체의 14개 barangay의 모든 청년 대표 77명에게 배포되었다. 동기과 리더십 역량은 리커트 척도 문항으로 측정되었고, 환경 전문성은 환경 문제, 대응 전략, 국가 정책, 지속가능성 개념 등을 중심으로 한 20문항의 객관식 시험을 통해 평가되었다. 연구 결과, 응답자들은 자신을 매우 높은 수준의 동기 부여 상태로 평가했으며, 강한 리더십 특성을 보였다. 환경 전문성의 경우, 채점 기준에 따라 “높음” 수준의 점수를 보였으나, 올바른 응답은 주로 기초적인 사실 회상에 국한되어 있었다. 이는 기본적인 환경 지식은 갖추고 있으나 심화된 이해는 부족하다는 점을 시사한다. 환경 전문성은 학력과 리더십 경험에 따라 통계적으로 유의미한 차이를 보였으며, 더 높은 점수는 형식 교육과 지역사회 참여와 관련이 있었다. 반면, 동기나 리더십 역량은 인구통계학적 집단 간에 유의미한 차이가 나타나지 않았다. 이러한 결과는 청년 리더를 위한 차별화된 역량 강화 프로그램의 필요성을 강조하며, 특히 청년 개발 기관과 교육기관 간의 제도적 협력의 중요성을 제기한다. 지역 거버넌스에서의 환경 교육 경로를 강화하는 것은 양질의 교육과 평생학습을 추구하는 지속가능발전목표(SDG) 4의 실현에 기여할 수 있을 것이다.

주제어: 환경 리더십, 청년 거버넌스, 상구니앙 카바타안, 양적 연구, 필리핀, 지역 환경 실천

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