From Awareness to Action: Bridging the Knowledge –Attitude–Practice Gap in Sustainable Tourism Communication at Kilangin Falls, Liliw, Laguna

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ABSTRACT

Sustainable tourism requires strategic communication that translates environmental awareness into responsible behavior and meaningful community participation. However, research on how tourism communication initiatives bridge the gap between community knowledge, attitudes, and practices (KAP) remains limited in emerging ecotourism destinations. This study evaluated sustainable tourism communication in Kilangin Falls, Liliw, Laguna, Philippines, by assessing community KAP and examining the quality and effectiveness of existing Information, Education, and Communication (IEC) materials. The study employed quantitative descriptive research design and included 292 randomly selected community residents. The study gathered data using a validated structured questionnaire and documentary analysis of existing IEC materials. Descriptive statistics and one-way analysis of variance (ANOVA) were used to analyze the data. Findings indicated that respondents demonstrated high knowledge and positive attitudes toward sustainable tourism, whereas reported sustainable practices remained comparatively low, revealing some knowledge–attitude–practice gap. Significant differences in KAP scores across selected demographic characteristics further suggested the importance of audience-responsive communication strategies. Documentary analysis also identified limitations in message clarity, language accessibility, visual presentation, and content organization, potentially constraining the communicative value of existing IEC materials. In response, the study proposed an evidence-based communication action plan using the Audience–Behavior–Condition–Degree (ABCD) framework to align communication objectives with desired behavioral outcomes and strengthen community engagement. By integrating community KAP assessment with IEC material evaluation, this study advances a context-specific approach to sustainable tourism communication that connects knowledge dissemination with behavioral improvement and participatory destination governance. Its findings offer practical guidance for local tourism stakeholders seeking to strengthen environmental responsibility, community involvement, and sustainable destination management, contributing to Sustainable Development Goals 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), and 17 (Partnerships for the Goals).

Keywords: ABCD framework, KAP, tourism communication

INTRODUCTION

Environmental conservation has become a global priority to address biodiversity loss, ecosystem degradation, and the growing impacts of climate change. Protected areas such as parks, wildlife sanctuaries, and forest reserves play a vital role in protecting biodiversity and preserving important ecosystem services. These spaces offer homes for endangered species and support essential natural processes like pollination and water purification. They also store carbon, helping to reduce the impacts of climate change (World Wildlife Fund [WWF] 2020). But for these protected areas to remain healthy over time, conservation efforts must go beyond rules and policies. They need the involvement of local communities and all stakeholders. Without participation, these protected areas could lose their benefits.

The world is seeing a drop in biodiversity, worsened by growing populations and increased use of natural resources. These pressures weaken ecosystems' ability to support life. As Sustainability and Biodiversity

(2023) points out, biodiversity loss directly harms the services people depend on. Okuh et al. (2021) also stress that when biodiversity declines, the very systems that sustain life—like air and fresh water—also start to fail. This shows how urgent it is to pair resource use with environmental education. Clear, effective communication is also essential to help people understand why conservation matters. When communities are informed and engaged, conservation efforts are more likely to succeed.

Tourism brings both opportunities and challenges for protection. I see tourism as an economic driver that creates jobs. Tourism supports businesses. Gives people the chance to understand each other better. This understanding helps build communities. When tourism is poorly managed, it can harm nature. Tourism can damage areas. Disturb animals' habitats. Tourism can also lead to waste. It can also damage important parts of local culture passed down for generations. Higgins-Desbiolles (2018) highlighted the effects of tourism growth, especially when money matters are prioritized over caring for the planet and people. Consequently, sustainable tourism has emerged as an important development approach that balances economic viability, environmental protection, and sociocultural responsibility. Achieving this balance needs more than tourism regulations. We also need communication strategies that tell visitors what to do, encourage responsible behavior, boost environmental awareness, and bring the community into meaningful participation.

Communication about tourism plays a big part in turning environmental rules and conservation goals into real actions for tourists, residents, and tourism partners. Through information, education, and communication (IEC) programs, destinations can share rules, promote visitors' behavior, and ask everyone to help protect nature. Signs, community talks, posters, public campaigns, and online tools help people learn and shape their attitudes and habits toward the environment. We should not judge these programs only by how much information they spread. We should look at how communication changes people's knowledge, shapes their attitudes, and leads to environmental actions. This link shows whether communication can close the gap between knowing about the environment and acting responsibly.

Knowing about the environment and acting responsibly is essential. In the Philippines, linking care with tourism is especially important in ecologically valuable areas within protected landscapes. One such area is the Mount Banahaw-San Cristobal Protected Landscape (MBSCPL). This landscape holds resources and wildlife that keep the ecosystem stable. It also provides opportunities for nature-based tourism. Within this landscape, Kilangin Falls in the Municipality of Liliw, Laguna, is an attraction that can boost tourism. It can create opportunities for the community (Macueni Government Country, n.d.). Liliw, near Mount Banahaw, has features that support nature-oriented tourism. However, more visitors also bring challenges. These challenges include protecting the environment, managing guests, disposing of waste, and maintaining a healthy area. These problems show the need for tourism management that combines care with communication. They also show the need for involvement from all stakeholders.

Earlier studies have shown the importance of protecting wildlife, managing tourism sustainably, and using communication. Still, a major gap remains in understanding how tourism communication translates into knowledge, attitudes, and actions in communities that are just starting to use nature as a tourist draw. Little research has looked at how information, education, and communication programs help people in places like Kilangin Falls become aware, develop positive attitudes, and practice conservation. Also, knowledge and a positive attitude do not always translate into responsible action. This possible knowledge-attitude-practice (KAP) gap asks whether current communication meets people's concerns, habits, and needs for participation. Understanding this gap is key to seeing what works and what does not in today's communication efforts and to finding ways to improve tourism governance.

The researcher believes closing this gap matters more than simply checking whether communication materials exist. By examining how tourism communication connects to the community's knowledge, beliefs, and actions, I can understand how communication can help people care for the environment and get involved in managing tourism. The findings can strengthen information and education efforts, increase community involvement, and help create tourism policies and environmental rules that work for the place. This research also contributes to the tourism discussion by showing how effective communication can turn awareness into collective action in protected areas and other increasingly nature-focused places.

Thus, the study examined tourism communication programs and how they relate to local people's knowledge, attitudes, and practices about protecting the environment at Kilangin Falls in Liliw, Laguna. The goal was to find out how many communication programs exist and how much the community knows. It also aimed to identify gaps between these parts and provide solid evidence to support communication plans that boost community participation and help manage the destination sustainably.

METHODS

The study used a descriptive-survey research design. It was supported by analysis. The goal was to examine residents' knowledge, attitudes, and practices (KAP) regarding tourism communication initiatives. The research took place in a nature-based tourism destination in Liliw, Laguna. The descriptive approach was used to describe the extent of knowledge, attitudes, and practices focusing on tourism communication and environmental sustainability. The study used a validated questionnaire to gather information, and documentary analysis supported the survey results. This involved reviewing tourism-related documents, environmental regulations, and communication projects. The study also had another part. This part examined whether knowledge, attitudes, and practices differed across groups. This research approach was considered appropriate to let the researchers explain what was happening and helped find patterns in how people in the community thought and acted.

Participants were residents of a community near a natural waterfall and protected landscape in a municipality in Laguna, Philippines. The study used random sampling, giving each eligible resident an equal chance of being chosen. The researchers used Slovin's formula to determine the required sample size; this formula uses the population size and a chosen margin of error to create a sample that represents the whole group. This method helped reduce selection bias and gave participants whose answers could reflect the target population. Eligible participants were residents 18 years or older who had lived in the community long enough to learn about local tourism activities and communication programs. The study excluded nonresidents, people younger than 18, those unavailable when data were collected, and those who did not give consent. The study used random samples to ensure fair selection and make the data more representative. The study used a questionnaire that the researcher adapted for this work and reviewed documents. The questionnaire had two parts. The first part collected participants' information, such as age, gender, and education level. The second part assessed participants' knowledge, attitudes, and practices regarding tourism communication programs and environmental care. The instrument mainly used multiple-choice questions and a four-point Likert scale to measure participants' knowledge, attitudes, and practices.

The instrument mainly used multiple-choice questions and a four-point Likert scale to measure participants' knowledge, attitudes, and practices. Three experts with relevant backgrounds in tourism, research, and environmental management validated the questionnaire's content to ensure the items were appropriate, clear, and relevant. Pilot testing and reliability analysis results, including the Cronbach's alpha coefficient and content validity, are as follows: I-CVI: 0.80–1.00; S-CVI/Ave: 0.95; Cronbach's alpha: Knowledge = 0.87; Attitude = 0.91; Practices = 0.89; Overall = 0.90. The researchers personally administered the questionnaire to the selected respondents. Responses were scored using the prescribed four-point scale, with higher mean scores indicating greater knowledge, more favorable attitudes, or more frequent engagement in sustainable tourism practices, depending on the dimension assessed. The resulting scores were interpreted using the corresponding verbal descriptions established in the research instrument.

Data collection started after researchers got permission from the authorities and community leaders. Researchers. Researchers picked participants at random following the set sampling method. Before distributing the questionnaires, researchers explained the study's purpose, what it covered, and what it aimed to achieve. Researchers asked each person for their agreement, ensuring participation was voluntary and that they could say no or leave at any time without issue. Researchers also made sure people knew their names and personal details would be kept confidential and that the information would be used only for school and research. Researchers collected the questionnaires, checked that they were complete, and compiled them for analysis. Researchers also reviewed written information on tourism communication projects and environmental

management to understand the topic. Researchers followed participation rules, respected personal space, and handled data properly throughout the research process.

Researchers carefully organized, listed, and analyzed the data they collected using advanced statistical methods. Researchers used frequencies and numbers to present participants' details, such as age, sex, and years of schooling.

Researchers used weighted means to determine the extent of respondents' knowledge, attitudes, and practices regarding tourism communication initiatives. Researchers used a four-point Likert scale to quantify and interpret responses and used corresponding interpretations to describe the results. Researchers also used one-way analysis of variance (ANOVA) to determine whether significant differences existed in respondents' attitudes, and practices when grouped by age, gender, and educational attainment. Researchers set the significance level at 0.05. When they identified significant differences, researchers used post hoc comparisons to determine which specific groups differed. These statistical procedures provided a basis for describing community responses, examining variations across demographic groups, and identifying potential gaps between knowledge, attitudes, and actual practices concerning sustainable tourism communication.

RESULTS AND DISCUSSION

To determine the extent of the respondents' Knowledge, Attitude, and Practices Gap regarding the sustainability of tourism communication initiatives at Kilangin Falls in Liliw, Laguna, the following tables present the results.

Table 1. Demographic Profile of the Respondents in terms of Age, Gender, and Educational Attainment.

Demographic Profile		Frequency	Percentage
	18-28	2	1
AGE	29-39	200	68
	40 - Above	90	31
GENDER	Male	176	60
	Female	101	35
	Others (LGBTQ)	15	5
	Elementary	50	17
EDUCATIONAL ATTAINMENT	High School	228	78
	College	14	5

Note: Percentages are rounded to the nearest whole number.

Table 1 presents the demographic profile of the 292 respondents who participated in the assessment of sustainable tourism communication initiatives at Kilangin Falls, Liliw, Laguna. The respondents were classified by age, gender, and educational attainment to establish the demographic composition of the population whose knowledge, attitudes, and practices regarding tourism sustainability were examined.

In terms of age, most respondents were in the 29–39 age group (200 individuals, or 68% of the total sample). Next came respondents aged 40 years and above, with 90 individuals, or 31%. Only 2 respondents, or 1%, were in the 18–28 age group. This shows that the study mostly captured views from adults aged 29 and older. Their participation offers insight into how communities understand and engage in sustainable tourism efforts. These efforts include protecting the environment, promoting tourism, and preserving local natural resources.

Regarding gender, male respondents made up the largest group, with 176 individuals (60%). Female respondents totaled 101 (35%). Another 15 respondents (5%) identified as others or LGBTQ+. Including people from different gender groups helps capture a wider range of community perspectives. Still, these differences in numbers should not be seen as proof that one gender is more aware of sustainability or more responsible toward the environment. Such conclusions would need statistical analysis.

In terms of education, most respondents had completed school: 228 people, or 78% of the total. Next were those with elementary-level education, numbering 50 individuals, or 17%. 14 respondents, or 5%, had reached college level. This pattern matters for the study's communication. The audience's educational level can affect how they understand, interpret, and act on information about sustainability.

The results align with the research of Olivar et al. (2025), which examined tourists' knowledge, attitudes, and practices toward the Sustainable Development Goals in Davao City. Their study found that while people generally understood sustainability, their attitudes and actions did not always match their knowledge. This shows how important it is to consider the target group's traits when creating communication strategies that promote meaningful participation in sustainability. Similarly, Wut et al. (2023), in their review of attitude–behavior and intention–behavior gaps in tourism, pointed out that environmental knowledge, protected-area management, sustainability communication, environmental concern, and behavioral interventions all matter. Their review supports the idea that we need to go beyond just listening to demographics. We must examine how knowledge and positive views translate into environmental action. For Kilangin Falls, the demographic data provides a basis for building inclusive, audience-focused tourism communication. Since most respondents had a high school education, communication materials should use language, clear environmental messages, relevant pictures, and practical steps. These strategies can help ensure that information about waste management, biodiversity protection, responsible tourism, and community involvement is easy to understand and actionable for community groups.

Table 2. The extent of Knowledge of the respondents on the sustainability of the tourism communication initiatives at Kilangin Falls in Liliw, Laguna

Indicators	**Weighted Mean**	**Categorical Response**	**Verbal Interpretation**
I am aware that Liliw practices sustainable tourism communication initiatives for Kinlangin Falls.	3.65	Strongly Agree	Very High
I am aware that Liliw incorporates sustainability messages into its communication materials.	1.9	Disagee	Low
I am aware that Liliw's sustainability-in-tourism communication initiatives support the long-term viability of Kinlangin Falls.	2.25	Agree	High
I am aware that Liliw's sustainability-in-tourism communication initiatives promote ecotourism as a potential source of income for local communities, promote conservation, and protect biodiversity.	3.51	Strongly Agree	Very High
I am aware that Liliw's sustainability in tourism Communication initiatives for Kinlangin Falls Attains and maintains a rational and orderly balance between socio-economic development and environmental protection.	3.56	Strongly Agree	Very High
Composite Mean	**2.97**	**Agree**	**High**

Table 2 presents the extent of respondents' knowledge concerning the sustainability of tourism communication initiatives at Kilangin Falls, Liliw, Laguna. The results yielded a composite meaning of 2.97, interpreted as High, indicating that respondents generally demonstrated a favorable level of awareness of the relationship between tourism development, environmental protection, and socioeconomic sustainability.

Among the indicators, people rated their awareness of sustainability in tourism communication efforts for Kilangin Falls. The average was 3.65. This was seen as Very High. Next was their awareness of balancing economic growth with environmental protection. The average was 3.56. Then came awareness of ecotourism to help the community earn money while also protecting nature. The average was 3.51. This was also seen as Very High.

These results show that people understand the importance of sustainable tourism. They see it to help the economy while also protecting the environment. This is important for places like Kilangin Falls. It is located inside the Mt. Banahaw-San Cristobal Protected Landscape. There was a big problem. People had awareness of sustainability messages in tourism materials. The average was 1.90. This was seen as Low. This suggests

that even though people know about tourism, they might not see the messages clearly in the materials they use. The results show a gap between understanding and seeing these messages in the information provided.

Olivar and colleagues in 2025 support this idea. They examined what tourists know, how they feel, and what they do about the Sustainable Development Goals. They discovered that high awareness does not always lead to action. Their research indicates that simply knowing about sustainability is not enough. People also need chances, help, and encouragement to act. Bhattacharyya and colleagues (2024) studied how tourism communicates sustainability. They found that when people see information about sustainability efforts, they are more likely to act. The study stresses the importance of showing what is being done for the environment. This is especially true for Kilangin Falls. Communication materials should promote the place. Also explain the conservation work, responsibilities, and achievements. Also, Kim and Pennington-Gray (2025) studied how environmental messages affect tourists. They found that how people process the message, how persuasive it seems, and how much effort it takes to act all matter. This means that communication should not just offer facts. It should also help people understand and take part in protecting the environment.

In this study, the average was 2.97. This means that people generally understand the value of tourism. There is a clear need to improve how sustainability messages are communicated. So, tourism messages at Kilangin Falls should be easier to see, clearer, more consistent, and more practical. This will help turn awareness into real action.

Table 3. The extent of respondents' attitudes toward the sustainability of tourism communication initiatives at Kilangin Falls in Liliw, Laguna.

Indicators	**Weighted Mean**	**Categorical Response**	**Verbal Interpretation**
I believe that sustainable tourism communication initiatives will help protect, restore, and promote the sustainability of Kilangin Falls.	3.58	Strongly Agree	Very High
I believe that sustainability communication materials such as brochures, websites, and social media will strengthen the promotion of Kinlangin Falls.	3.5	Strongly Agree	Very High
I believe that the long-term viability of sustainable tourism Communication initiatives will secure the protection of Kinlangin Falls as one of the Mt. Banahaw-San Cristobal Protected Landscape (MBSCPL.	3.55	Strongly Agree	Very High
I believe that Liliw's sustainability in tourism Communication initiatives for Kinlangin Falls will minimize environmental impact	3.55	Strongly Agree	Very High
I believe that Liliw's sustainability in tourism Communication initiatives for Kinlangin Falls supports local culture, heritage, and economies.	3.57	Strongly Agree	Very High
Composite Mean	**3.54**	**Strongly Agree**	**Very High**

Table 3 presents the respondents' attitudes toward the sustainability of tourism communication initiatives at Kilangin Falls, Liliw, Laguna. The findings generated a composite mean of 3.55, verbally interpreted as Very High, indicating that respondents generally demonstrated favorable attitudes toward the role of tourism communication in promoting environmental conservation, sustainable destination management, and community development.

The weighted mean was 3.58. This shows that respondents strongly believe sustainable tourism communication initiatives can help protect, restore, and sustain Kilangin Falls. The second highest was the belief that such initiatives support culture, heritage, and economies. That received a weighted mean of 3.57.

Meanwhile, indicators on protecting Kilangin Falls as part of the Mt. Banahaw-San Cristobal Protected Landscape and reducing environmental impacts both received weighted means of 3.55. The belief that

sustainability communication materials, including brochures, websites, and social media, can strengthen destination promotion received a weighted mean of 3.50.

These findings show that people generally understand and value the role of tourism communication. They see it as more than just promoting a place. Instead, they believe it should encourage environmental care, support communities, and protect natural resources. The results align with Wut et al. (2023): when people hold environmental views, they are more likely to make sustainable tourism choices. The review also found a gap. People may feel good about the environment. Don't always act in ways that support sustainability. This matters for this study because even if people say they care, they might not always follow through with actions that reflect that care.

Bhattacharyya et al. (2024) also showed that when tourism companies talk about their sustainability efforts, travelers are more likely to behave in ways that reflect that care. This happens because such communication makes people believe the company is truly committed, so how information is shared matters. Instead of just saying things like "we care about the environment, " it's better to show real actions—like clean-up programs or local partnerships. Notorio et al. (2025) examined how destination management organizations in the Philippines use their websites to communicate about the Sustainable Development Goals. They found that communication builds awareness and brings people together. The study also noted that some sustainability claims don't feel genuine. This means Kilangin Falls' communication must be honest and clear. It needs to be backed by work like protecting the water or working with local groups. Transparency is key.

Overall, the findings indicate that respondents possess highly favorable attitudes toward sustainable tourism communication. However, these positive attitudes should be accompanied by opportunities for active participation, accessible environmental information, and concrete conservation activities. The findings provide an important basis for examining whether favorable attitudes translate into sustainable practices, which is the central concern of the knowledge–attitude–practice gap investigated in this study.

Table 4. The extent of respondents' practice level on the sustainability of the tourism communication initiatives at Kilangin Falls in Liliw, Laguna

Indicators	**Weighted Mean**	**Result**	**Verbal Interpretation**
I collaborated with local communities to promote sustainable tourism communication initiatives for Kilangin Falls.	1.15	Disagree	Low
I ensure the sustainability of tourism communication initiatives by using eco-friendly materials for printed communication.	1.18	Disagree	Low
I am educating tourists about sustainable initiatives and practices in Kinlangin Falls	2.5	Agree	High
I support sustainable funding mechanisms for the implementation of tourism policies, plans, programs, projects, and activities for Kinlangin Falls in Liliw	2.1	Agree	High
I support the tourism business in Kinlangin, tourists, and vloggers who actively communicate their sustainability practices and experiences at Kinlangin Falls.	2.7	Agree	High
Composite Mean	**1.73**	Disagree	Low

Table 4 examines the extent to which respondents translate their knowledge and favorable attitudes into actual practices that support sustainable tourism communication initiatives at Kinlangin Falls, Liliw, Laguna.

Based on the accompanying narrative in the manuscript, the respondents demonstrated relatively greater participation in supporting tourism businesses, tourists, and vloggers who communicate their sustainability practices and experiences, with a reported weighted mean of 2.70, interpreted as High. This was followed by educating tourists about sustainable initiatives and practices, with a weighted mean of 2.50. Support for

sustainable funding mechanisms for tourism policies, programs, projects, and activities obtained a reported weighted mean of 2.10.

However, respondents showed relatively weaker engagement in using environmentally friendly materials for printed communication (weighted mean = 1.18) and collaborating with local communities to promote sustainable tourism communication initiatives (weighted mean = 1.15). These findings point to limitations in translating sustainability awareness and positive attitudes into collective and operational environmental practices.

At the same time, the reported composite mean of 1.73, which we interpret as Low, shows a gap between how much respondents like sustainability and how much they do sustainability activities. This is the concern of this research: people know that protecting the environment is important and say they support sustainable tourism, but their commitment does not always translate into action.

Olivar et al. (2025) supported this pattern: although local tourists were very aware of the Sustainable Development Goals, their knowledge did not strongly match their sustainable actions. Their study also showed that attitudes partly mediate the link between knowledge and behavior. This means that awareness and attitude are useful, but they alone do not always lead people to adopt sustainable practices. Additionally, Wut et al. (2023) found that the attitude–behavior gap remains a big problem in sustainable tourism studies. Their systematic review listed reasons that stop people from turning good attitudes into real actions: inconvenience, low motivation, lack of environmental knowledge, and how tourism management is run. These results help explain why people at Kilangin Falls say they support the environment but do not take part much in community teamwork or environmental communication.

Moreover, Kim and Pennington-Gray (2025) argued that effective environmental communication must consider how people understand sustainability messages and whether they think the suggested actions are doable. Their results suggest that communication projects should provide step-by-step guidance and make the effort required for pro-environmental actions seem smaller. In Kilangin Falls, this means messages must go beyond talking about protecting the environment and provide clear instructions on sorting waste, behaving responsibly as a visitor, protecting biodiversity, and joining conservation projects. Also, research by Lupini et al. (2024) on changing tourism highlighted the importance of using participatory methods and developing interventions together. Their work supports the idea that sustainable tourism needs involvement from all stakeholders, not just information-sharing. This is especially relevant to the level of community teamwork that we saw in this study. The results suggest that the main problem at Kilangin Falls is not a lack of awareness or positive attitudes, but that these good feelings do not translate into consistent environmental action. Therefore, tourism communication projects should be participatory and action-focused, encouraging residents, tourism stakeholders, visitors, and digital creators to share the duty of protecting the environment. Thus, the knowledge–attitude–practice gap found in this study shows that tourism communication must move beyond information provision and focus on behavior and community involvement.

Table 5. The significant difference between the extent of the respondents' Knowledge, Attitude, and Practices on the sustainability of the tourism communication initiatives at Kilangin Falls in Liliw, Laguna, and the respondents' demographic profile when grouped according to Age, gender, and Educational Attainment.

Description	P - Value	Result	Decision
Age	**0.0119**	Significant	The null Hypothesis is rejected
Gender	**0.0023**	Significant	The null Hypothesis is rejected
Educational Attainment	**0.0306**	Significant	The null Hypothesis is rejected

Table 5 presents statistical results examining whether respondents' knowledge, attitudes, and practices concerning sustainable tourism communication initiatives at Kilangin Falls differ significantly by demographic characteristics, specifically age, gender, and educational attainment.

Based on the reported p-values, age had a p-value of 0.0119, gender 0.0023, and educational attainment 0.0306. Because all three values are below the 0.05 level of significance, the results indicate statistically significant differences by these demographic characteristics, assuming the reported tests were conducted properly, and the p-values correspond to the stated hypotheses.

These findings suggest that respondents' demographic backgrounds may be associated with variations in their knowledge, attitudes, and practices concerning sustainable tourism communication. Age differences may reflect variations in environmental experiences, exposure to sustainability information, and participation in community activities. Similarly, differences by gender and educational attainment may offer additional perspectives on how individuals' access, understand, and respond to sustainability-related information.The findings may be examined alongside the research of Olivar et al. (2025), which considered the KAP dimensions of local tourists toward sustainable development. Their study demonstrated the importance of examining the relationships among knowledge, attitudes, and behavior when assessing sustainability participation.

Moreover, Wut et al. (2023) emphasized that multiple factors influence sustainable tourism behavior, including environmental knowledge, attitudes, communication, and contextual barriers. This suggests considering demographic characteristics alongside the broader social and behavioral conditions that influence environmental participation.

In the context of Kilangin Falls, these findings highlight the importance of developing differentiated communication strategies that consider the characteristics and information needs of various population groups. However, the results should not be interpreted as establishing that demographic characteristics directly cause differences in sustainable tourism behavior. The direction and magnitude of the differences must be examined using the appropriate statistical tests and effect-size measures.

TECHNICAL EVALUATION AND CONTENT ANALYSIS OF IEC MATERIALS

The technical evaluation of existing Information, Education, and Communication (IEC) materials for Kilangin Falls revealed several areas requiring improvement to strengthen sustainable tourism communication.

Table 6. Technical Evaluation of Existing IEC Materials for Sustainable Tourism Communication at Kilangin Falls

Evaluation Criteria	**Assessment**	**Findings**
Format Appropriateness	Needs Improvement	Text-heavy layouts reduce readability and audience engagement.
Graphic Appeal	Needs Improvement	The report uses too few visuals to reinforce sustainability messages.
Language Appropriateness	Partially Adequate	Technical terminology may reduce accessibility and comprehension.
Strategic Placement	Needs Improvement	Materials are not consistently positioned in high-traffic areas.
Message Consistency	Adequate	Messages are present but are not consistently reinforced across platforms.

The evaluation showed that current IEC materials need improvements in key areas related to audience-centered communication. Specifically, the format, graphic appeal, and strategic placement of materials need strengthening. Language appropriateness was seen as partially adequate. Message consistency was rated as adequate. Sustainability messages were not consistently reinforced across different communication platforms.

The findings show that the main issue is not whether IEC materials exist but whether they effectively deliver sustainability information to the audience. Text-heavy layouts may stop people from reading and

understanding information. At the same time, a lack of visual elements can make the materials less able to catch attention and support important conservation messages.

Technical language may also confuse audiences with lower education levels. If materials are not placed where residents and tourists can easily reach them, then fewer people will see them. Although message consistency was considered adequate, the results suggest that sustainability messages need reinforcement across printed materials, social media, and other communication channels. This matters because consistent messaging helps people see, understand, and remember their responsibilities when visiting and protecting Kilangin Falls.

These findings align with Kim and Pennington-Gray (2025), who found that communication effectiveness depends on how audiences process messages and how much effort they feel is needed to act sustainably. Their research shows that communication materials should present achievable actions rather than general sustainability information. Similarly, Song et al. (2025) found that matching language and visual design in messages can affect tourists' willingness to follow environmental practices. Their study emphasizes that designers should consider both the words and visuals when creating messages.

Additionally, Richter and Gabe-Thomas (2025) further studied co-created environmental messaging in coastal communities in the Philippines. Their results highlight the importance of creating relevant messages that combine practical advice with emotional engagement. This is especially relevant to Kilangin Falls as it shows how community-informed communication strategies can help encourage people to act.

Thus, overall, the technical evaluation shows that existing IEC materials have a foundation but need improvements in presentation, readability, strategic distribution, and message reinforcement. These changes are needed to make sustainability communication more accessible, engaging, and effective in encouraging behavior.

Why Positive Attitudes May Not Translate into Sustainable Practices

The KAP assessment results and technical evaluation of IEC materials provide a basis for identifying factors that may contribute to the gap between positive sustainability attitudes and actual environmental practices. Three major considerations emerged from the assessment: communication design, enabling conditions, and community participation.

A. Communication Design – The evaluation found that communication materials had text-heavy layouts, few visual elements, language that was not fully accessible, and inconsistent placement of information. These problems could reduce how much people see, understand, and engage with sustainability messages. Even though respondents showed attitudes toward protecting the environment, how communication materials are designed may prevent those attitudes from turning into real environmental action.

B. Enabling Conditions – Turning attitudes into actual behavior depends on having the right tools and support. This includes having access to options, available resources, and strong institutional backing. Even if people know environmental protection matters, they may not act if their local environment doesn't make it easy. For example, a campaign might promote waste disposal, but if waste bins for sorting and proper disposal systems are not available, the message won't work as well.

C. Community Participation – The assessment showed that actual community participation was limited. This suggests that community members need chances to take part in efforts. Even when individuals care about the environment, those feelings do not always lead to group action. Without coordination among groups and real opportunities to get involved, community participation remains low. This aligns with Richter and Gabe-Thomas (2025), who found that when local communities help create messages, participation increases, learning improves, and behavior changes follows.

Similarly, Kim and Pennington-Gray (2025) pointed out that environmental communication must account for how much effort people think it takes to act sustainably. That means recommended actions should be easy to understand and practical to do. If people see a behavior as hard or complicated, they are less likely to try it.

These results show that closing the KAP gap—between knowledge, attitudes, and practice—goes beyond raising awareness. It also means improving how we share information, making communication materials clearer and more useful. It means building support from institutions and the environment itself. Most importantly, it means creating real, meaningful ways for community members to take part. Then we can turn good intentions into real change.

KAP and IEC Evaluation Findings

Integrating the KAP assessment and IEC technical evaluation reveals a significant communication concern at Kilangin Falls.

Research Dimension	Main Finding	Implication
Knowledge	High (2.97)	Respondents generally understand sustainability concepts.
Attitude	Very High (3.55)	Respondents strongly support environmental protection.
Practice	Low (1.73, as reported)	Sustainability commitment is not consistently reflected in actual practices.
IEC Evaluation	Several areas need improvement	Existing materials may not sufficiently support audience engagement and behavioral action.

The combined findings suggest that the gap between awareness and action may be understood through the interaction of communication-related and enabling factors.

The IEC assessment explains communication problems that may help explain the gap in knowledge, attitudes, and practices. The findings alone do not prove that poor IEC caused the low practice scores. Instead, they point out barriers and areas where more research is needed.

The main point of the study is that measuring tourism communication cannot rely only on how much information is available or how aware the public is. True effectiveness must also be judged by how well people understand the messages, how easy they are to access, how involved communities are, and whether sustainability promises lead to real environmental action.

Proposed ABCD-Based Strategic Sustainable Tourism Communication Framework for Kilangin Falls

Rationale

The ABCD-based Strategic Sustainable Tourism Communication Framework for Kilangin Falls is designed to turn the study's findings into a measurable way to share information. The Knowledge–Attitude–Practice study shows that people know a lot about tourism and feel very positive about protecting the environment. However, a gap seems to exist between what they believe and what they do. This shows a need for communication that does more than share information. It needs to set behavioral goals, use the right ways to involve people, and create the right conditions for people to take part in sustainable tourism.

The framework uses the Audience–Behavior–Condition–Degree approach to help develop communication strategies. The Audience part identifies the key people to reach. These include visitors, tourism companies, community leaders, and other involved groups. These groups have different needs, preferred ways to get information, and varying levels of involvement. The framework focuses on making sure messages about sustainability are important, easy to understand, and easy to access.

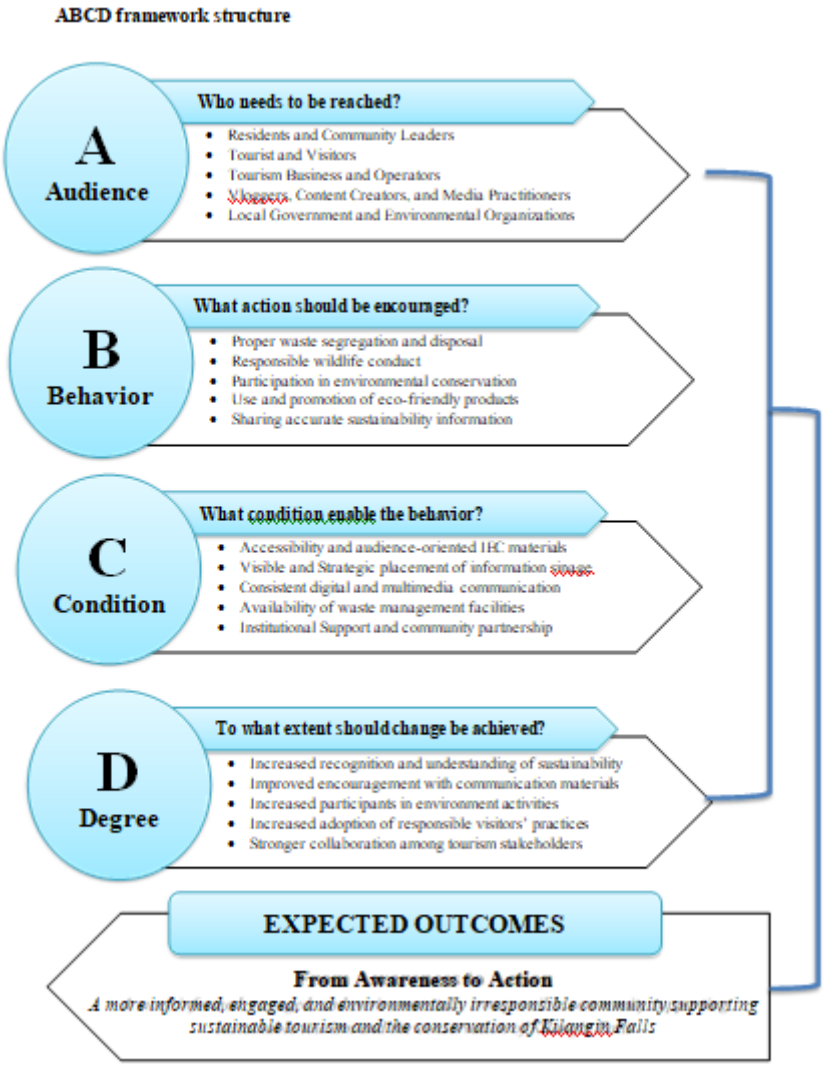
The Behavior part examines what communication efforts aim to encourage. Because a gap exists between what people think and what they do, the framework lists actions. These include throwing away trash, helping protect the environment, acting responsibly when visiting, and supporting sustainable tourism. This part shows that it's important to explain not only why protecting the environment matters, but also what people can do to keep Kilangin Falls clean and safe.

The Condition section says that people's behavior depends not only on what they know and how they feel, but also on the environment and the communication around them. The IEC review identified opportunities for improvement. These include improving materials by using the right words and placing them in the right places. This part suggests creating materials people can understand online, providing easy-to-access information, getting support from groups, and working together in the community. It also says communication efforts need tools and opportunities for people to get involved.

The Degree section outlines ways to check whether the communication strategies are working. These include whether people recognize the sustainability messages, how involved they are, how much the community participates, and how many people act responsibly. Setting up ways to check the framework helps ensure communication reaches the right people and changes their behavior.

Overall, the ABCD-based framework shows that tourism communication can bring people together. It connects the people who need to be reached with the actions they should take, the support they need, and the ways to check whether it is working. It offers a way to improve communication, engage people, and make tourism at Kilangin Falls more responsible.

ABCD framework structure



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