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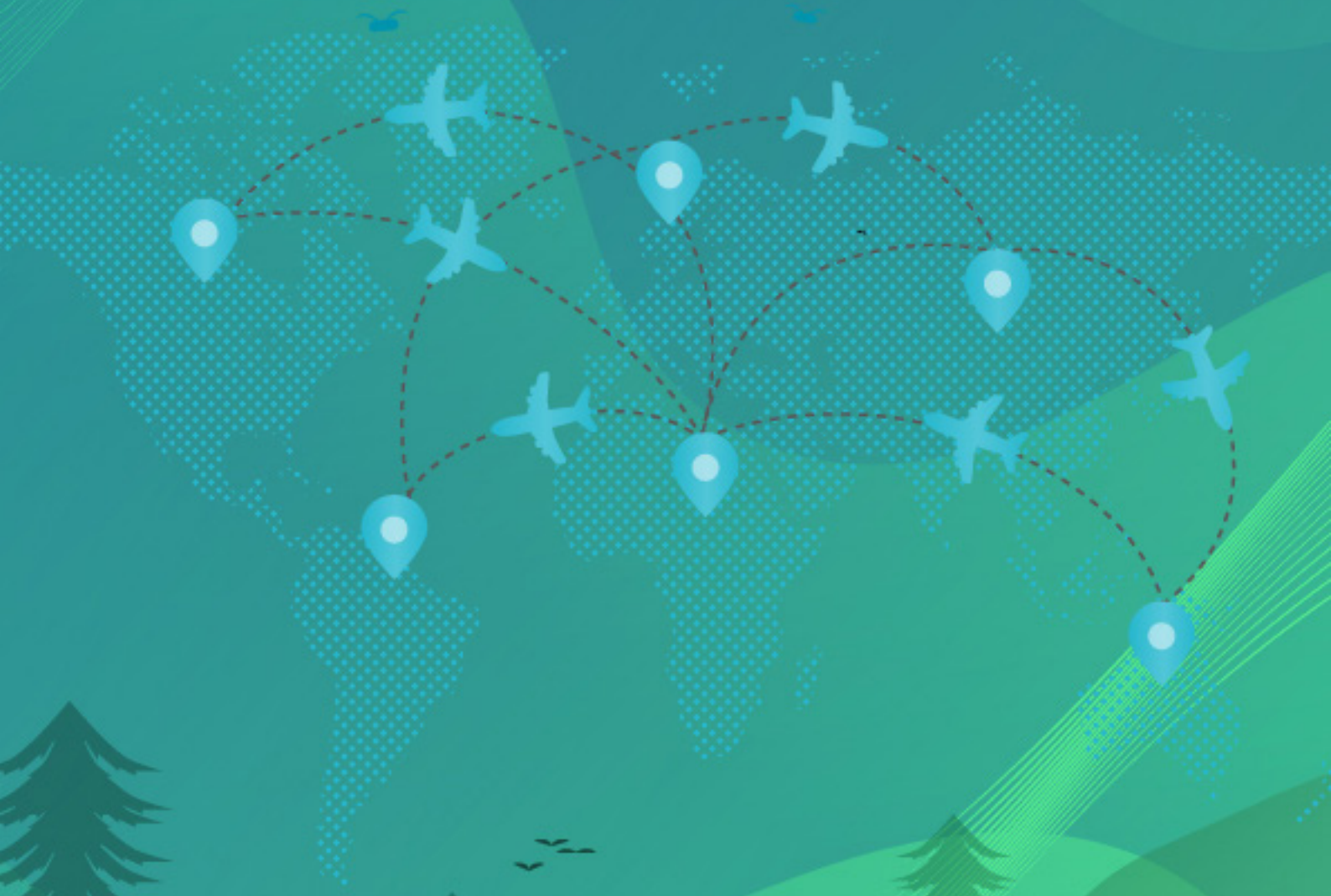

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Dimensions of Sustainable Ecotourism Practices as Perceived by Local Communities

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ABSTRACT

Ecotourism is regarded as a sustainable alternative to traditional tourism that balances empowering local communities, preserving local culture, environmental conservation, and socio-economic development, yet recent research shows significant gaps between its vision and practices. The inconsistencies of ecotourism policy therefore call for the development of new framework ensuring the equilibrium of development and conservation. This study utilizes an exploratory factor analysis to determine the dimensions of ecotourism as perceived by local community members. Qualitative data collection was initially conducted through interviews with 12 participants from various localities with a high abundance of tourism. Identified items were converted into survey questionnaire and administered to 300 local community members. A data reduction technique is used to determine the number of extracted dimensions based on the specified criteria, while thematic analysis is used to label the extracted dimensions. Results show six crucial dimensions of ecotourism, these dimensions include Empowering Local Business/Products, Promote Sense of Responsibility, Access to Information, Guidelines on Disruption and Wastes, Clear Guidelines on Capacity and Time Visit, and Empowering Local Inhabitants. From these, a framework was created along with the identified dimensions to better understand the indicators of ecotourism practices. Furthermore, this ecotourism framework will serve as guidelines for policymakers, tourism planners, and community leaders to create a sustainable community.

INTRODUCTION

It is undeniable that the world has a lot of great things to offer that includes breathtaking sceneries that reach the point of some being considered as a tourist spot of a country or in a locality. However, recent studies find issues in maintaining the overall well-being of these sites due to some factors that include environmental issues such as degradation, pollution, rapid growth of visitors, etc (Dilshod *et al.*, 2024). Moreover, due to the rise of these concerns, a social movement called ecotourism, which promotes environmental conservation, resolves the issue (Cobbinah, 2015). In addition, this also helps promote economic progress for some locals who rely on tourism economic activities that significantly improve their way of living (Chew *et al.*, 2023). However, due to this positive impact on society, environmental conservation was least observed by the public, which led to its gradual degradation (Baloch *et al.*, 2023). Hence, this study aims to develop an ecotourism framework that addresses environmental issues without compromising other aspects of ecotourism.

In a global context, environmental destruction increases due to the increase in consumption as well as the opening of tourist spots have found that tourism contributes to biodiversity loss, contributing to an increasing number of endangered species (Tolvanen & Kangas, 2016). Thus, it can be concluded that tourism can also have a harmful effect on the community, especially on the environment (Turan Koyuncu, 2024). Additionally, tourists' engagement deeply stressed the environmental supplies, and can lead to growing environmental pollution (Metilelu *et al.*, 2022). Sekarningrum (2020) stated that tourism actions may cause harmful impacts due to the production of waste that is not properly controlled.

In the Philippines, as its tourism industry has been considered a major contributor towards economic growth, it is important to have an awareness in regards of its impact, whether it would be positive or not (Pilapil-Añasco & C. Lizada, 2014). Studies indicate that responsible tourism is rarely practiced by people and even by local communities in the host area. Inocente *et al.* (2023) and (Hapinat, 2023) highlight the negative effects of tourism on the environment, such as the increase in plastics and water contamination. Though infrastructures related to tourism activities are well-developed for they have a significant contribution towards economic growth in the community (Quevedo *et al.*, 2021). However, some of these projects threaten the biodiversity of the coastal ecosystem, as there are changes in water conditions due to domestic waste pollution (Aguilar & Domasian, 2023). Additionally, Gumede & Nzama (2020) mentioned that some factors, including not having the essential skills of community members to protect their natural environment, are also contributing factors. Thus, it is crucial for community members to be involved and also become knowledgeable about their natural environment to attain sustainable tourism in the locality.

The International Ecotourism Society (TIES) states that ecotourism promotes eco-travel to conservational areas and empowers local development (Das & Chatterjee,

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2015). Also, it includes appreciating cultural differences, improving socioeconomic status, and promoting valuable experience for both host and tourist (Boley & Green, 2016). Moreover, ecotourism resolves unemployment and poverty, for it offers job opportunities (Hunt *et al.*, 2015). Therefore, ecotourism is crucial in addressing problems in the community.

One of the main challenges faced by ecotourism is the lack of a clear framework and guidelines. Fernando & Kaluarachchi (2016) and Irani *et al.* (2024) mentioned that there is an absence of a concrete framework and guidelines, which creates confusion and issues related to ecotourism. Additionally, Pujar & Mishra (2021) claim that due to the lack of a clear framework in ecotourism, there are inconsistencies in how ecotourism is implemented. Moreover, the absence of an ecotourism framework hampers in promoting of ecotourism in the locality (Mgonja *et al.*, 2017). The findings of these different studies call for an excellent framework that balances the various aspects of ecotourism and ensures that the local community benefits from ecotourism while also protecting the environment.

This study is anchored on the concept of Community-based Tourism of Murphy (2013), wherein he emphasized that local community involvement promotes success in the aspects of economic, cultural, environmental, etc. Additionally, the involvement of local communities was more effective in the development of ecotourism when compared to the formulated developmental strategies (Khaledi Koure *et al.*, 2023). The collaborative effort between stakeholders led to the achievement of environmental preservation outcomes (Olvera Garcia & Neil, 2020). Inadequate local involvement in environmental preservation can lead to consequences for the environment. Moreover, incorporating the concept of community-based tourism in a locality offers numerous benefits, which include economic growth, a sense of stewardship, environmental and cultural preservation, and sustainable practices.

This study aims to address the issues of tourism, primarily on ecotourism, focusing on the local areas. The goal of this study is to determine the dimensions of ecotourism in the locality to create a framework that serves as a guiding principle of ecotourism in the locality. This will significantly increase the participation of community members in protecting the natural environment in relation to the increasing number of tourism activities in the community.

LITERATURE REVIEW

Sustainable ecotourism aims to protect the natural environment and species while supporting local communities (Satrya *et al.*, 2023). According to Buckley (2012), the sustainable tourism strongly focuses on tourism management to protect natural resources and community well-being. Furthermore, Boley & Green (2016) stated that sustainable ecotourism destinations contribute in the form of improved competitiveness from the protection of abundant natural resources while the conservation of natural resources is continuously valued due these resources are realized as the foundation of the sustainable tourism industry and the factor of all economic advantages pertaining to ecotourism. Additionally, Biradar (2024), mentioned that ecotourism raises consciousness of environmental issues, making tourist more conscious of the need for conservations through educational initiative and engaging experiences. Moreover, Huang *et al.* (2023), highlighted the importance of special training program that must be provided pertaining environmental protection, allowing them to enlighten the tourists in terms of respectful engagement with local traditions, cultures, and norms during traveling, as these community-based initiatives are closely linked to the sustainable development of ecotourism.

Due to fast growing tourism industry, Stronza *et al.* (2019), claim that ecotourism practices should be implemented for the preservation of biodiversity and empowering local communities. That includes greater emphasis of wildlife conservation through projects that promotes habitat restoration, endangered species preservation and enforcing strict inhibition of illegal wildlife trade (El Moslem Badr, 2022). Raising awareness about natural and cultural heritage of an area by interpretation and education program for tourists help to foster environmental stewardship (Üzülmez *et al.*, 2023). Additionally, recommendation to use the generated income from community-based ecotourism practices in contributing conservation of national resources, livelihood development and preserving culture (Teshome *et al.*, 2021). Embracing these ecotourism practices help to combat negative causes of pollution on sensitive ecosystem, improve economy, and promote ecological sustainability. (Karimov, *et al.*, 2024).

MATERIALS AND METHODS

Research Locale and Respondents

This research is conducted in the province of Davao del Sur, Philippines, specifically in the municipalities of Matanao, Santa Cruz and Digos City, for the reason that these three places are known for their rich tourist spots. This study requires a different set of local participants, as there are two distinct phases involved in this research. In the Qualitative phase, twelve local members of these respective areas who are residence for more than ten years and living closely to tourist spots are interviewed (Guest *et al.*, 2006). The researchers interviewed four local participants in each place to ensure representation of each identified areas. The data gathered in the interview are used to craft the survey questionnaires for the quantitative process.

In the quantitative phase, the survey questionnaires are administered to 300 local community members living in the three identified areas (specifically, living near the tourist destinations). This study employed the simple random sampling technique. This technique enabled the researchers to be unbiased when it comes

to data gathering, as it ensures equal probability of the population and, at the same time, it is economical, easy to conduct, and could minimize the variation of sampling effect (Shrestha, 2021).

Research Instrument

Researchers' interview guide, consent forms, recorder, notebooks, and a pen are the instruments used to conduct the interview. According to Wa-Mbaleka (2019), researchers are the key instrument in gathering the data. In qualitative phase, the researchers formulated an interview guide that serves as a tool to collect information from the participants. However, researchers may modify or add some questions during the interview process. Moreover, confirmability, reliability, credibility, and auditability each play a significant role in documentation (Kuckartz & Rädiker, 2019). In addition, this research used a semi-structured interview questionnaire to collect necessary information and gathering participants' perspectives (Creswell, 2005).

After the interview phase, 32 significant statements were formulated and underwent pilot testing by 30 respondents. Pilot testing is a process of ensuring the clarity, reliability, validity, and reduction of ambiguity in the survey questionnaire (Tate *et al.*, 2023). Subsequently, the researchers used Cronbach's alpha to measure the internal consistency of a set of items (Taber, 2018).

Design and Procedure

This study used the descriptive quantitative factor analysis wherein there is a complementarity between the descriptive statistics and factor analysis in quantitative research. Quantitative approach can be done through distribution of survey questionnaire or conducting interviews to delineate the characteristic of a population (Watson, 2015). Additionally, the purpose of descriptive research is to provide descriptions of individuals, events and conditions wherein the variables and samples are not being manipulated by the researchers but rather, just being solely described (Siedlecki, 2020). Moreover, factor analysis served as a medium to validate the evidence because it could help to confirm the interconnectedness between items of the survey and to identify the quantity of dimensions reported on the survey (Knekta *et al.*, 2019). The following steps were observed in the data gathering process of the study: (1) formulated and validated the interview guide, (2) obtained a data gathering certification from the Research and Publication Center (RPC) of the UM Digos College, and to the different localities, (3) conducted interviews, (4) the participants' responses were transcribed and translated (5) transcribed statement were reviewed to identify significant statement and converted into measurable items (6) conducted a pilot test for the survey questionnaire, (7) utilized Cronbach's alpha to evaluate the reliability of the questionnaire (8) implemented the quantitative phase, and (8) data were tabulated and analyzed using statistical tools to develop the framework.

Data Analysis

Moreover, to further determine the dimensions of ecotourism, the following techniques were used: (1) significant statement derived from the qualitative analysis were systematically transformed into quantifiable variable for the quantitative questionnaire design, (2) data reduction analysis is used to reduce the multidimensionality of the obtained data (Reddy *et al.*, 2020), (3) use of Keiser-Meyer-Olkin Measure (KMO) to determine if the sampling adequacy of the obtained data (Shrestha, 2021), (4) Bartlett's test of Sphericity was used to the null hypothesis of the study (Tobias & Carlson, 1969), (5) Initial Eigenvalue above 1.0 was set to reduce the factors by analyzing the variance that the factor explained (Kuczyński & Woźniakowski, 1992), (6) Varimax Rotation using Kaiser Normalization was used to reduce the number of factors with significant loading (Kaiser, 1959), (7) factor loading of 0.40 is used to reduced cross-loading of items and to generate more reliable dimensions (Hair *et al.*, 2010), (6) Cattell-Scree plot was used to have a visualization of how many dimensions are created (Horn & Engstrom, 1979), and (8) Cronbach's Alpha test was calculated for each dimension to assess data reliability and acceptability (Ahady *et al.*, 2017), and (7) thematic analysis to name the dimensions created (Braun & Clarke, 2012).

Table 1: Interpretation of Cronbach's Alpha

Cronbach's Alpha	Interpretation
$\alpha > 0.9$	Excellent
$\alpha > 0.8$	Good
$\alpha > 0.7$	Acceptable
$\alpha > 0.6$	Questionable
$\alpha > 0.5$	Poor

RESULTS AND DISCUSSION

Dimensions of Ecotourism

To determine the dimensions of ecotourism, the use of data reduction analysis was performed and the initial Eigenvalue of above 1.0 is set to reduce the dimensions generated. In addition, the varimax rotation is set to 25 iterations. However, it is found that 10 iterations are enough to get reliable dimensions. Table 2 shows the result of KMO measure of sampling adequacy and Bartlett's test of sphericity. The KMO obtained a value of .931 and the Bartlett's test of sphericity (Chi-Square=4660.274; p=0.000) was significant. Based on

Beavers *et al.* (2013) that a KMO of above 0.40 with a significant value signifies an appropriateness to conduct a factor analysis. Thus, the findings of the study validate the assumption, therefore, analysis of the created dimensions is possible.

After ensuring that the created dimensions are suitable for analysis, the next stage is to determine the suitability of developed dimensions based on the set parameters. Using the eigenvalue of greater than 1.0, there are five dimensions suitable to be extracted (see Table 3). These findings show that the items are not all loaded in dimension.

Table 2: KMO and Bartlett's Test Sphericity

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		0.931
Bartlett's Test of Sphericity	Chi-Square	4660.274
	df	496
	Sig.	0.000

Table 3: Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	12.261	38.316	38.316	11.779	36.808	36.808	3.060	9.562	9.562
2	1.589	4.967	43.284	1.132	3.541	40.349	2.453	7.664	17.227
3	1.460	4.561	47.845	.966	3.018	43.367	2.326	7.269	24.496
4	1.261	3.941	51.786	.779	2.435	45.802	2.192	6.851	31.347
5	1.110	3.468	55.253	.605	1.891	47.692	2.187	6.834	38.180
6	1.076	3.362	58.616	.586	1.831	49.523	2.086	6.518	44.698
7	1.002	3.130	61.745	.522	1.632	51.155	2.066	6.457	51.155
8	.874	2.730	64.476						
9	.847	2.648	67.124						
10	.762	2.383	69.506						

Following the analysis, the scree plot was utilized to provide a clear visualization to the developed dimensions of the study. Figure 1 shows the graph of eigenvalues of all dimensions created and based on this; it can be shown that the graph start flattened as it approaches the 5th dimension. After ensuring that the sample size is adequate and there can be dimensions generated, the next stage involves determining how many dimensions are suitable to be included. Based on the suggestion of Raubenheimer (2004) that dimensions with fewer than 3 items are not considered suitable to be included.

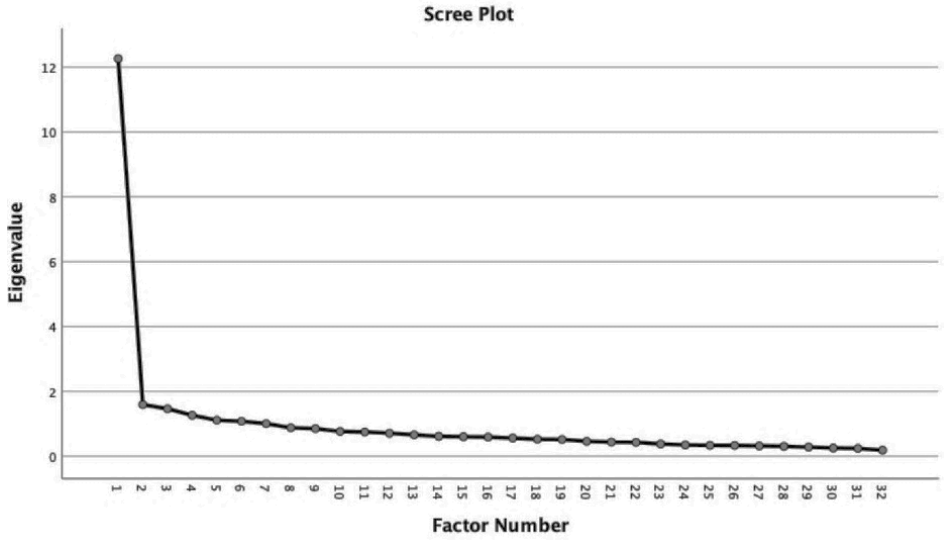

Figure 1: Scree Plot of the developed dimension

This is based on the assumption that dimensions with less than 3 items can generate a misleading result and can produce lower reliability. This aligns with Carmines & Zeller (1979) and Pallant (2020) findings that dimensions with fewer items often yield lower reliability coefficients. Following this suggestion, a total of 6 dimensions are suitable to be extracted (see Table 4).

Table 4: Factor Loading of the Dimensions of Ecotourism

Item	Statement	Dimensions					
		1	2	3	4	5	6
32	Support from the local government unit should be extended to the local business owners.	.558					
1	Capacity building of local business owners can enhance sustainable development in ecotourism industry	.518					
21	Embedding local knowledge in the area can help promote ecotourism	.506					
30	Hotels and accommodations should strictly follow the environmental policies.	.505					
24	Implementation of "local products system" in the area is one way to support local business owners	.453					
28	Increasing cultural awareness of visitors in the area can help promote sustainable tourism	.432					
9	Conduct of clean-up drive by visitors can help promote self-awareness and sustainable ecotourism		.667				
16	Clear guidelines on solid waste management should be posted in designated area.		.648				
11	Conduct of tree planting activities in a natural park by tourists can help promote sustainable ecotourism.		.525				
29	Clear guidelines on violations should be posted in the area.		.428				
18	Presence of trash bins must always be visible in different area.		.405				
8	Availability of posters of different animals and plants in an area can help spread awareness among tourists			.553			
19	Educating local community members on the impact of tourism in their area can help promote sustainable ecotourism			.546			
7	Availability of signage and maps can help promote sustainable ecotourism			.520			
26	Posting signage of historical record of the area can help promote awareness			.497			
20	Banning single-use plastics in the area can help promote order and cleanliness in the area.				.598		
22	Minimizing noise can help protect sensitive animal species in the area.				.544		
23	Banning of flammable objects/source of fire can help protect the area (e.g. forest/grassland area)				.533		
3	Implementing regulations as to the number of tourists in a given period can promote sustainable ecotourism					.598	
6	Closure of tourist spots in a specific day/time can help reduce environmental stress (specially animals).					.582	
27	Portion of income in the area should be allocated to area rehabilitation.					.533	
2	Tour guides should undergo proper training on sustainable ecotourism						.511
21	Embedding local knowledge in the area can help promote ecotourism						.506

31	Local tour guides should be given priority in job hiring in the area.						.463
Eigenvalue		12.261	1.589	1.460	1.261	1.110	1.076
% of Variance		38.316	4.967	4.561	3.941	3.468	3.362
Reliability by Cronbach Alpha		.875	.892	.801	.882	.870	.844
Overall Reliability by Cronbach Alpha		.929					

Based on the findings of the study, a total of six dimensions is generated. Discussion of each generated dimension are as follows:

Dimension 1: Empowering Local Businesses/Products

Consist of six items (item_32, item_1, item_21, item_30, item_24 and item_28) with a factor loading ranges from 0.558 to 0.432. In addition, this dimension has an eigenvalue of 12.261 with a total % percentage of variance explained of 38.316 and an internal consistency of 0.875. After confirming the items and the literature associated in this dimension, this dimension is then named "Empowering Local Businesses/Products".

This study underscores factors that promote sustainable ecotourism, as this segment serves as a product and service-oriented sector that yields widespread advantages and significant impact on society and the economy. Developed tourism destinations are attributed to the good quality of local businesses, services, and products offered, which enhance the overall experience of the tourist (Gonda *et al.*, 2021). In the study of Surya *et al.* (2021) state that support from local government units plays a significant role in strengthening local businesses because it boosts their productivity and increases people's welfare through government policies, business capital support, and human resource capacity. Moreover, following strict environmental regulations and policies of small and medium-sized enterprises encourages sustainable business models, as it reduces pollution, emissions, energy consumption, and develops sustainable products (Madrid Guijarro & Duréndez, 2024). Also, Nugroho *et al.* (2020) assert that capacity building of local business owners can enhance sustainable development in the ecotourism industry, as economic variables serve as a bridge that connects social influence to the development of ecotourism.

It is prevalent that protected areas also offer ecotourism opportunities that generate economic activities that help the local community, so it is important to embed local knowledge in the area to promote ecotourism. Zainal *et al.* (2024) highlight that utilizing and actualizing local knowledge and traditional values increases sustainability in ecotourism development. Additionally, Jaafar & Maideen (2012) assert that to maintain the economic sustainability of small islands and beaches, promoting a local business system makes a great contribution, as there is a high correlation between products offered locally and environmental attractions when promoting the sustainability of tourism sectors. Apart from this, Satrya *et al.* (2023) explain that cultural awareness of visitors contributes to promoting ecotourism because if an individual feels higher cultural attractiveness from a certain tourist destination, it influences them to visit or revisit the area.

Dimension 2: Promote Sense of Responsibility

Promote Sense of Responsibility has a total of five items (item_9, item_16, item_11, item_29, and item_18) with a factor loading ranges from 0.667 to 0.405. In addition, this dimension has an eigenvalue of 1.589 with a % of variance explained of 4.967 and an internal consistency of 0.892. After confirming the items and the literature associated in this dimension, this dimension is then named "Promote Sense of Responsibility".

Ecotourism has become a popular concept of tourism nowadays which make it necessary to be responsible when visiting a tourist destination. In the study of Lim *et al.* (2023) stated that sense of responsibility is a moderator between preserving and visiting. The more a tourist has a high sense of responsibility, the more they indulge in nature with the intention to conserve it through participation in environmental protection activities. This study highlighted practices of being responsible that will help promote ecotourism. Kaffashi *et al.* (2015) stated that as visitors get more opportunities to be involved in clean-up drives, such as waste management and trash collection bins along the trails and coast, to address park-related issues, they change from passive to active visitors who care about the management of the park and other visitors' behavior. Brancalion & Holl (2020) further explained that the other way is implementing well-planned tree planting, as it serves as an intervention to address challenges in recent years, such as the mitigation of climate change and the conservation of biodiversity.

Additionally, as urban population and industrial activities continue to grow, accumulation of solid waste has significantly increased, prompting serious environmental challenges and quality issues (Tsai *et al.*, 2021). In this context, establishing a clear solid waste management guideline is crucial to promoting sustainability and environmental stewardship. In the study of Apriliyanti & Randelli (2020) argued that developing ecotourism is attributed to waste management, for it positively impacts the social, economic, and environmental life of the community in a tourist area. Similarly, Bokov *et al.* (2020) highlighted that activities should have legal restrictions to abide which includes policies of tourism activities for monitoring their impact on the environment that significantly support the protection of the area. Moreover, Robinson (2023) states that addressing

environmental concerns the abundance of waste bins in public tourist destination is a recommended solution to increase disposal behavior of the visitors.

Dimension 3: Access to Information

Access to Information has a total four items (item_8, item_19, item_7 and item_26) with a factor loading ranges from 0.553 to 0.497. In addition, this dimension has an eigenvalue of 1.460 with % of variance explained of 4.561 and an internal consistency of 0.801. After confirming the items and the literature associated in this dimension, this dimension is then named "Access to Information".

This study highlights the importance of informative displays in tourist spots, such as posters of different species, signage, maps, and historical records should be readily available, along with educational efforts of the local community, which plays an important role in spreading knowledge about environmental conservation within communities. Maps were similar to the areas acknowledged by the tourism officials as essential for the development of tourist spots, such as those with notable plants and both public and private protected tourist spots (Nahuelhual *et al.*, 2013). Also, signage and storytelling greatly affect tourists as they visit without the motive to learn and leave feeling more engaged and educated in responsible ecotourism (Cook *et al.*, 2024). Tourist spots should provide readable historical information and records to help tourists become more aware. Ismagilova *et al.* (2015) stated that the historical and cultural heritage plays an important role in the development of internal ecotourism and becomes one of the real opportunities and advantages of social, economic growth, and cultural restoration.

Educating the local members about the environmental impact of tourism is crucial in ensuring local community participation in ecotourism enhancement and natural resources conservation (Chan *et al.*, 2021). Moreover, the local community serves as an important member in decision-making and planning processes, helping to ensure that the tourism growth aligns with goals and values (Sapkota *et al.*, 2024). According to Michniewicz-Ankiersztajn *et al.* (2018) engaging local communities enables the tourism sector to achieve sustainable success while contributing to environmental leadership and community development. Overall, Stuchlikova & Botlikova (2021) stated that there is a significant change in the field of information accessibility due to growing demand from tourists for credible, comprehensive information and the efforts of ecotour providers to meet the standard by providing precise and transparent environmental information.

Dimension 4: Guidelines on Disruption and Wastes

Guidelines on Disruption and Wastes has a total of three items (item_20, item_22, and item_23) with a factor loading ranges from 0.598 to 0.533. In addition, this dimension has an eigenvalue of 1.261 with a % of variance explained of 3.941 and an internal consistency of 0.882. After confirming the items and the literature associated in this dimension, this dimension is then named "Clear Guidelines on Disruptions and Wastes".

Implementing guidelines to ban single-use plastics, minimizing noise, and banning flammable objects in tourist spots are important for promoting environmental responsibility. Pilapitiya & Ratnayake (2024) state that the serious concerns of plastic waste on the environment and public health, plastics break down into micro and nano sizes, and they spread through air, water, and soil, affecting land and water species. For instance, the enforcement of the single-use plastic ban has been confirmed to be incredibly effective in raising awareness, encouraging eco-friendly practices, and fostering cleanliness (Natalac *et al.*, 2024). Similarly, the implementation of a provincial plastic ban in Tarlac Philippines influenced client behavior, leading to reduced plastic bag usage and increased use of reusable eco bags (Crowley, 2023). Furthermore, noise pollution is another major contributor impacting ecotourism. Study of Teff-Seker *et al.* (2022) indicate that wind turbine noise (WTN) harm to wildlife and can also be destructive to wildlife. In the study of Keyel *et al.* (2018), stated that the implementation of the mapping tools toolbox to reduce the noise from summer all-terrain vehicle recreation and snowmobiles was studied. The study found that minor adjustments in the location of noise sources could significantly minimize the intensity of noise in the area.

Insufficient separation of fire-prone materials like tents, improper parking, use of firewood to cook, use of gas to light, improper upkeep of materials, unsafe placement of fire materials, and lack of camper orientation for fire safety guidelines are among the major issues to be addressed in campsites (Almeida *et al.*, 2017). As a precaution Hanafiah *et al.* (2016) assert that ecotourism policy should include sustainable tourism planning and sustainable environmental practice. To conserve tourist spots in continuity while providing recreation opportunities, the tourism sector needs to assess the potential outcome over the long term, lasting for decades or centuries (Eagleston & Marion, 2017). The study of Furmanek (2024) shows that strict enforcement of fire safety regulations can protect both lives and property while posing risks to the authenticity and integrity of historical heritage.

Dimension 5: Clear Guidelines on Capacity and Time of Visit

Clear Guidelines on Capacity and Time of Visit has a total of three items (item_3, item_6, and item_27) with a factor loading ranges from 0.598 to 0.533. This dimension has an eigenvalue of 1.110 with a % of variance explained of 3.468 and an internal consistency of 0.870. After confirming the items and the literature associated in this dimension, this dimension is then named "Clear Guidelines on Capacity and Time of Visit".

In a determination of promoting sustainable tourism, it is essential to establish well-defined guidelines on visitor

carrying capacity, suitable time to visit, and allocate a portion of the income in the area for regular maintenance and rehabilitation of tourist spots. In fact, the Tourism Act of 2009 of the Philippines emphasizes the importance of prioritizing the protection and preservation of the tourist area. For instance, Section 2 of R.A. No. 9593 stated that tourism destinations should promote ecological sustainability, which involves conserving the tourist spots in ways that do not lead to severe deterioration of the environment. Correspondingly, Zhou (2023) supported the idea of the implementation of the regulations on the number of tourists, as overtourism is detrimental to the tourist spots. Similarly, Benner (2020) demanded the need for a scheduled rest day at a tourist spot to maintain the wellness of the area as large numbers of visitors bring severe disturbance to the environment. The same case happened to Boracay, who is considered as Philippine Tourism's gem who faced severe deterioration as a result of over tourism, business owners failed to observe environmental laws that resulted in its closure for 6 months to restore the island. Efforts had been made to restore the island which includes rehabilitation. As a matter of fact, it is encouraged for local governments to allocate funds for the maintenance and rehabilitation of tourist attractions to contribute to their environmental conservation and enhance the quality of life of local communities (Maming *et al.*, 2021). Rehabilitation of tourist attractions should be one of the priorities of local government as it is undeniable that tourism has fuel the economies and creates job opportunities to the locals.

Ecotourism is one of the agendas of Sustainable Development Goals that highlights the importance of sustainable tourism with an emphasis on environmental conservation and preservation. Therefore, the regulations on the number of tourists, closure of the area for a specific day or time, and funding for rehabilitation aimed to contribute to achieving SDG 14 and SDG 15. Actions related to the preservation and conservation of marine and terrestrial ecosystems play a pivotal role in achieving the SDG 14 and SDG 15 (Krause & Tilker, 2022; Neumann *et al.*, 2017). In conclusion, setting a clear guideline on capacity and time visit and allocating funds for rehabilitation are the step towards achieving the sustainable tourism.

Dimension 6: Empowering Local Inhabitants

Empowering Local Inhabitants has a total of three items (item_2, item_21, and item_31) with a factor loading ranges from 0.511 to 0.463. This dimension has an eigenvalue of 1.076 with a % of variance explained of 3.362 and an internal consistency of 0.844. After confirming the items and the literature associated in this dimension, this dimension is then named "Empowering Local Inhabitants". Moreover, the above items included in this analysis has an internal consistency of 0.929.

This research highlights the importance of local inhabitants as they play a significant role in promoting sustainable tourism. Empowering the local community involves promoting economic empowerment, involvement in decision making, knowledgeable of environmental conservation, and training local community members on responsible tourism (Dushkova & Ivlieva, 2024; Sapkota *et al.*, 2024; Sele & Mukundi, 2024). Prioritizing local members in job hiring contributes to the overall economic growth of the local community by providing job opportunities and reducing unemployment rates within the community (Liu *et al.*, 2023; MacDonald *et al.*, 2020; Sutrisno *et al.*, 2023). Iqbal *et al.* (2023) and Sutrisno *et al.* (2023) emphasized the importance of involving locals in decision-making in achieving a sustainable community. Draçi & Laska (2023) asserted that the key to successful sustainable tourism is educating local about responsible tourism which includes being aware of environmental conservation practices. Kafy (2021) criticized the lack of proper training of tour guides when it comes to sustainable tourism highlighting how inadequate training can contribute to the degradation of tourism quality. Tour guides are responsible for helping to avoid environmental damage, which includes educating tourists about minimizing disturbances to the ecosystem and proper waste management (Francis *et al.*, 2019). It is essential for tour guides to have a proper training as tour guides plays a significant role in educating tourist about protecting the ecosystem in the natural areas and promoting ecotourism.

In advancing sustainability, empowering local inhabitants is an important component as it promotes enhancement of local communities. Ahmad & Abu Talib (2015) recognized that strengthening community empowerment programs makes local members active participants in shaping the development of the community. Employing local members ensures that economic opportunities are retained in the community. Moreover, tourist guides must undergo different training programs, especially since tourist guides are responsible for promoting sustainable tourism practices (Güzel *et al.*, 2020). Overall, empowering local inhabitants is important dimension to create a sustainable tourism.

Ecotourism Framework

Ecotourism has emerged as a potential strategy for fostering sustainable development due to its focus on conservation of natural destinations and encouraging responsible behavior among visitors (Lim *et al.*, 2023). This framework has the potential to bring considerable importance in improving individuals' well-being and processes across the tourism industry and the local community. In the context of ecotourism, its implementation could serve as a strategic framework to achieve sustainability, which fosters environmental conservation, cultural preservation, economic growth, and empowers local inhabitants through responsible tourism.

Figure 2 shows the developed ecotourism framework. The framework consists of six dimensions:

(1) Empowering Local Business/Products,

(2) Promote Sense of Responsibility,

(3) Access to Information,
(4) Guidelines on Disruption and Wastes,
(5) Clear Guidelines on Capacity and Time Visit, and
(6) Empowering Local Inhabitants determined from the confirmed dimensions.

Figure 2: Ecotourism Framework

CONCLUSION

This study shows the importance of implementing strategic framework to achieve sustainability which foster environmental conservation, cultural preservation, economic growth and empowering local inhabitants through responsible tourism. Based on the findings of this study, there are six dimensions that serves as key components of a strategic framework which is also an indicator of a sustainable ecotourism: Empowering Local Businesses/Products, Promote Sense of Responsibility, Access to Information, Clear Guidelines on Disruptions and Wastes, Clear Guidelines on Capacity and Time of Visit, Empowering Local Inhabitants. This concludes that the sustainability of ecotourism attributes to attainment of balance between environmental conservation, cultural preservation, economic growth and empowering local community. Hence, this study advocates that sustainable ecotourism should have a synergistic relationship between environmental stewardship, economic interests, cultural awareness and respect. Additionally, sustainable ecotourism goals should not be limited to short-lived commercial success, but rather to prioritize in addressing deeper sustainability challenges rooted in inadequate planning or unmonitored development approaches.

The researchers recommend adopting the developed ecotourism framework that is specifically designed to address the existing gaps in ecotourism by the local government units, policymakers, and tourism planners. Considering its applicability and potential impact, it is recommended that the adopters initiate a pilot program to assess its potential for wider application. This includes implementing informative programs that encourages sustainable practices among tourist and local inhabitants. There must be a strong partnership between local governments, private tourism sectors, local communities and visitors to ensure collaboration and resource sharing. Presence of clear environmental and social regulations should be established to stimulate responsible tourism. Ensuring inclusive planning and equitable benefits, active community involvement must be encouraged. Additionally, to maintain ecological integrity, conservation efforts, combined with regular monitoring and evaluation, will help protect biodiversity and support long-term sustainability. By doing so, it helps ecotourism in the locality to strike a balance between environmental conservation, empowering local inhabitants, promoting cultural awareness, and ensuring economic sustainability.

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