



How can the Environmental Impact of Tourism be Reduced in the Coastal Community of Bangsaen Beach?

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Abstract: Tourism is one of the world's fastest-growing industries. Its expansion has far-reaching consequences for the economy, culture, community, and environment. On the other hand, the industry has hurt the environment, harming coastal communities. The tourism industry has contributed to air pollution from CO₂ emissions, sea and water pollution from sewage waste, the introduction of plastics, and ecological deterioration, all of which have contributed to a gradual shift in climate in coastal areas and around the world. If left uncontrolled, tourism's detrimental influence on the environment might gradually lead to even more destruction, so it must be managed effectively to reduce the risk of future damage. The primary goal of this research is to determine how the environmental impact of tourism can be reduced in the coastal community of Bangsaen Beach, Thailand. This analysis uses quantitative research and MS Excel codes. It analyzes the data gathered to create meaningful information that can derive inferences, including descriptive statistics such as mean, average, and percentage. The study results showed that respondents' perception is that tourists contribute to sea pollution, traffic congestion, and air pollution in the coastal region. Respondents mostly agreed that tourism operators, the private sector, and the local government are the lead beneficiaries of tourism.

Keywords: Service Quality, Budget Hotel, Customer Satisfaction, Purchase Intention, Bangkok.

1. Introduction

Coastal tourism has steadily grown in importance in the global economy in recent years. Many nations with shore zones benefit from the sector's economic development. Coastal tourism is a type of tourism that involves visitors and individuals visiting coastal zones for reasons such as their natural beauty, culture, resources, and atmosphere (Chandravanshi et al., 2020). As a result, when tourists visit coastal areas, they help to stimulate the development of the areas surrounding the coast. Employment, competitive advantage, foreign exchange, promotion of local economies, and development of surrounding communities are just a few of the advantages of coastal tourism. Coastal locations are said to have a lot of biodiversity. Coastal zones are surrounded by animals, plants, and other organisms, despite the presence of people. These are examples of biodiversity that play an important role in attracting tourists to coastal areas. The Bangsaen Beach community is one of Thailand's most well-known coastal areas. Tourists from Thailand and other parts of the world routinely visit the beach for enjoyment (Khamung & Siu Hsu, 2018). However, the growing population density near the coast has had a severe influence on the ecosystem. Sustainable tourism, according to Sánchez del Ro-Vázquez et al. (2019), should take into account the local economy's environmental, social, and economic results. Extreme pollution levels have resulted from a lack of environmental protection, affecting the coastal communities in the region in many ways. Financial benefits, government revenue, and advanced environmental management and planning are some of the consequences of tourism on the coastal community (Rath & Gupta, 2017). Tourists and locals who visit coastal beaches pay for parking, security, food, and transportation. The government obtains revenue from taxes and license fees for the region's development and welfare, and these fees add to the community's financial benefit for those living inside the coastal region.

Coastal tourism necessitates better environmental management and planning as well. Developing attractive venues, such as hotels, is part of this planning. Coastal tourism, on the other hand, has severe consequences for the coastal communities. The shortage of natural resources on the beach has been exacerbated by increased coastal tourism. The beach in Bangsaen has suffered from water shortages, local resources, and land degradation. In addition, there is more pollution in the form of rubbish, plastic waste, and traffic congestion, all of which contribute to carbon emissions into the atmosphere (Khamung & Siu Hsu, 2018). In this regard,

according to Sánchez del Ro-Vázquez et al. (2019), tourism can become a substantial economic danger if it does not adequately serve the requirements of tourists as well as current and future generations of locals. It's also worth noting that tourists' expectations for satisfaction are typically higher than residents', necessitating the need for collaboration. Tourism's detrimental environmental repercussions on Bangsaen Beach have increased dramatically. This rationale necessitates the implementation of actual policies and initiatives to reduce the environmental impacts of tourism in the Bangsaen Beach coastal community. This research aims to identify the key sources of environmental contamination in the coastal community. Mitigation measures to address the current situation may be proposed as a result.

Despite the key contributions of the steady growth of economies in many nations, tourism has been known to have detrimental impacts on the coastal communities' environment globally and regionally. According to Balsalobre-Lorente et al. (2020), the tourism industry can be credited for creating millions of jobs, increasing income sources, and promoting GDP growth through tax revenues to the government. Consequently, tourism is one of the fastest-growing industries in the global economy, making it positively and negatively influential in the environmental dimension of society (Rath & Gupta, 2017). Coastal tourism can be linked to two significant negative impacts on the environment: depletion of natural resources. Extreme overuse of water in hotels and swimming pools causes water scarcity, primarily freshwater, for the community living in coastal areas (Rath & Gupta, 2017). According to Jermstiparsert and Chankoson (2019), carbon dioxide emission in Thailand has reached 3.8%, with a deviation of 0.496. The transport sector contributes 26.87% of carbon emissions, compared to other industries, such as construction and manufacturing, which contribute 5.2% of CO₂ emissions (Jermstiparsert & Chankoson, 2019). Stukalo et al. (2018), that society has opted to pursue sustainable tourism in response to the environmental damage consequences to the community and social cultures. Thus, tourism significantly impacts ecological degradation and depletion of natural resources.

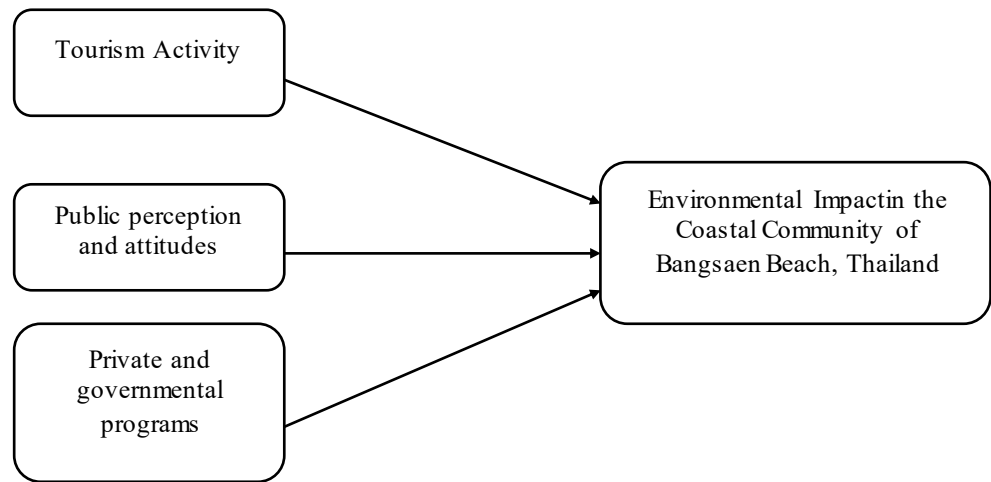
A variety of public perceptions and attitudes have emerged in the debate on the environmental impact of tourism. Islam et al. (2019) indicate that sustainable development in the tourism industry is a primary concern for many communities around tourist attraction sites. Similarly, Unhasuta et al.'s (2021) research showed that communities perceived tourism development as an essential industry that promotes economic growth. Individuals within the coastal community were satisfied that the tourism industry promoted local enterprises and improved their livelihoods. According to Islam et al. (2019), sustainable development in tourism should emphasize using assets that meet the people's demands with less risk of attaining future needs. Jermstiparsert and Chankoson (2019) calls for the necessity of significant actions to limit the environmental pollution caused by the tourism industry. The awareness has practically been evident, mainly during the COVID-19 pandemic. In their study, Candia & Pirlone (2021) suggested that Life Cycle Assessment (LCA) was the most sustainable methodology that can be used to develop the coastal community by improving the tourism industry. The LCA would focus on all sectors directly related to the tourism industry, such as transportation. The LCA proposes that adapting activities like jet skiing and hiking would promote environmental growth. Also, using canoes and stand-up paddles as means of water transport would help minimize water pollution (Candia & Pirlone, 2021). Overall, the public cares about their current livelihoods. With appropriate awareness and programs, they would take action to protect the environment for sustainable tourism that cares about future generations.

In response to leading people toward caring for the environment for sustainable tourism, the government and the private sector are responsible for implementing different environmental-oriented programs. Sánchez del Río-Vázquez et al. (2019) indicate that in most instances, the current and future needs of the residents have been foregone at the expense of tourist needs, creating a disparity and the lack of urgency handle the environmental impacts. There is a need to change this rationale to develop sustainable tourism that cares for the population. Islam et al. (2019) suggest sustainable development strategies such as limiting the dimension of tourist movement would help promote and maintain a high-quality tourism industry. As a result, the government can oversee the use of natural resources and preserve local culture and tradition (Islam et al., 2019). Besides government involvement, Shahzad et al. (2020) add that corporate social responsibility (CSR) activities ensure environmental sustainability. Most corporate social responsibility activities and organizational strategies positively impact sustainable environmental development (Shahzad et al., 2020). In the tourism industry, Stukalo et al. (2018) recommend three types of tourism: anthropogenic tourism, elite tourism, and mild tourism, as well as many sustainable changes that might be implemented to strengthen this sector. Anthropogenic tourism entails growing the economy by improving the quality and quantity of tourist attractions. Elite tourism entails putting in place facilities that will attract a more conscious audience. Finally, mild tourism is being used to obscure the conceptual business. The oversight will ensure long-term initiative, the impact of government regulations, and crisis situations.

The researcher noticed significant gaps in the literature following a review of pertinent publications. The development of methodological approaches for assessing the environmental impact of tourism and the use of various methods is one of the most significant gaps in the literature at the moment. As a result, only a few studies have developed and implemented standards for sustainable tourism development and implementation.

Additionally, it is unknown whether visitor behavior can be observed in order to determine the effectiveness of community-wide environmental programs. This research will attempt to close these gaps.

2. Methodology



Tourism activity, public perceptions and attitudes, and private and governmental programs are all considered independent variables because they have a direct impact on the environment. Sustainable tourism acts as a moderator for the dependent variables. The environment is the dependent variable because it is the variable that is influenced by other variables. Positive development toward sustainable tourism results in environmental protection along Bangsaen Beach's coast.

This section details how the researcher collected the data to answer the research questions. It depicts the data collection methods, instruments, and data analysis from the study. The study used a cross-sectional survey to see how the environmental impact of tourism can be reduced in Bangsaen Beach, a coastal community. Cross-sectional surveys, according to Wang & Cheng (2020), are less expensive and easier to perform in order to gather preliminary evidence. This technique allowed the researcher to collect data from various sources, organize it, and evaluate it to give long-term solutions to the pollution problem in Bangsaen Beach's coastal community. It was critical for the researcher to get more conclusive and non-biased data on pollution remedies that could be used in other locations facing similar problems.

A total of 435 people from the Thai coastal community of Bangsaen Beach were included in the study. To ensure that unbiased representative respondents were included in the experiment, a random sampling approach was adopted. According to Cunningham et al. (2019), utilizing a random selection strategy ensures that all subsets of persons have an equal chance of being chosen, reducing bias in the study outcomes. The inhabitants of the region were included in the study since pollution from beach tourism has a direct influence on them in the area. The study's goal was explained to the selected sample, and they were promised that any personal information they supplied would be kept private. The survey questions were pre-programmed by the researcher for the respondents to answer. They included the following information on the respondents: age, gender, educational level, tourist impact, public perceptions and attitudes, and private and governmental projects to ameliorate the situation of tourism's environmental effects.

The researcher utilized statistical analysis to produce more credible information that can be used to make decisions. This analysis uses quantitative research, and MS Excel is used to code and analyze the data gathered to create meaningful information that can be used to derive inferences including descriptive statistics such as mean, average, and percentage. The study made several assumptions while conducting this research. To start with, the researcher assumed that the data obtained from the target population was unbiased. Secondly, the respondents were assumed to provide their utmost frank answers to the questionnaire's questions. The collection process also applied the standards needed when collecting data from human subjects. The results of the analysis were also assumed to be reliable and representative of the whole population.

3. Results and Discussion

The respondents were asked to indicate their gender, age, and level of education. The results are shown in Table 1.

Table 1.Demographic Characteristic

Customer demographic characteristics		N = 400	Percent
Gender	Male	100	24.83
	Female	292	73.10
	Prefer not to say	8	2.07
Age	Less than 20 years old	52	13.10
	21-30 years old	264	65.98
	31-40 years old	54	13.33
	41-50 years old	20	5.06
	Over 51 years old	10	2.53
Level of Education	High school graduate or below	71	17.7
	Bachelor's degree	200	49.89
	Master's degree	9	2.3
	Some college/ No degree	120	30.11

The results show that the majority of the respondents were females, representing 73.1%, males represented 24.8%, and 2.1% of the respondents did not indicate their gender. Thus, more females were incorporated into the study mainly because women typically like visiting the beach more than men. That most respondents 65.98% are aged 21-30 years. The respondents aged 20 years or below and 31-40 years were the second majority participants in the study. Thus, more youths appear to visit the beach than other age groups. The most respondents had a bachelor's degree, representing 49.89%. 30.11% have gone to college but had no degrees. The minorities were high school graduates and postgraduate degrees. Thus, the majority of the population in the area is educated.

Impact of Tourists on the Beach on Air Pollution

The respondents were asked to rate whether they think the tourists in the beach area impact the environment through air pollution. 1 represents strongly disagree while 5 strongly agree. The results show that most respondents of 32.41% were undecided since they were unsure whether tourists contributed to air pollution on the beach. 26.21% of the respondents agree that tourists contribute to air pollution on the beach. The respondents 19.31% strongly agree, 12.64% disagree, and 9.43% strongly disagree that tourists contribute to air pollution on the beach. Arguably, according to the literature reviewed tourists contribute significantly to beach air pollution. Respondents may have fundamentally misunderstood this problem.

Impact of tourists on sea pollution

The respondents were requested to indicate what they think about the impact of tourists on the beach on sea pollution. The majority of the respondents, represented by 37.93%, strongly agree that tourists are critical contributors to sea pollution on the beach. 31.49% agreed, while 20.69% were neutral in their opinions. Only 6.67% disagreed, and 3.22% strongly disagreed that tourists contribute to sea pollution on the beach. Tourists are significant contributors to sea pollution and respondents mostly seem to agree.

Impacts of tourists on traffic congestion

The respondents were requested to rate the contribution of tourists to traffic congestion. The results indicate that the majority of the respondents, represented by 29.89%, strongly think that tourists contribute significantly to traffic congestion on the beach. 26.90% of the respondents agreed that tourists contribute to traffic congestion. 25.29% of the respondents were undecided. 9.43% disagreed, and 8.51% strongly disagreed that tourists contribute to traffic congestion. It is evident that tourists contribute to traffic congestion from these results.

Impacts of tourists on rubbish found on the beach

The respondents were requested to indicate whether they think tourists contribute to the waste found on the beach. The results indicate that the majority of the respondents, represented by 53.33%, strongly agree that tourists contribute to rubbish found on the beach. 24.83% agreed, 16.32% were undecided, 4.14% disagreed, and 1.38% strongly disagreed. It is evident that tourists cause the accumulation of rubbish found on the beach.

Impacts of special events hosted on the beach on the environment

The respondents were asked whether they thought the special events hosted on the coast contributed to environmental pollution. The results indicate that 33.10% of the respondents agreed that special events hosted

on the beach contribute significantly to environmental pollution. 32.64% stated they strongly agreed, 23.45% were undecided, 8.51% disagreed, and the other 2.30% strongly disagreed that special events impacted the environment. The research bears out the fact that more visitors to a location has a greater impact on the environment, respondents agreed that special events on the beach significantly contribute to beach environment pollution.

Adding special events on the beach to attract tourists

The respondents were requested to indicate whether they think more special events on the beach were needed to attract more tourists to the area. From the results, it is evident that the majority of the respondents (54.25%) strongly agreed that adding more special events to the beach should occur to attract more tourists. 24.14% agreed, and 14.25% were undecided. About 5.98% disagreed, while only 1.38% strongly disagreed. Most of them strongly agreed, and the statistics moved towards an agreement that additional special events on the beach would be welcomed. Although the respondents and the research would agree that more visitors means more impact on the environment, respondents overwhelmingly wanted more visitors. It suggests a willingness to implement programs to control this increase in visitors and awareness of the environmental impact.

Government regulations to reduce environmental impacts of tourism

The respondents were asked whether they think it is necessary to impose government regulations to reduce the environmental impacts of tourism in the beach area. The results indicate that the majority of the respondents (56.78%) strongly agreed that the government needs to impose regulations to control tourism impacts on the environment. 26.90% agreed, and 12.87% were undecided. Only 2.53% disagreed, and 0.92% strongly disagreed that the government should impose laws around the beach area to control tourism's impact on the environment. Relatively, respondents agree that it is necessary to set regulations on the beach to put an order in preserving the environment.

A ban on plastic bags at the beach

The respondents were requested to record whether they would support a ban on plastic bags on the beach. The results indicate that most respondents, 56.78%, supported a ban on plastic bags on the beach. About 21.84% agreed, 13.79% were undecided, 4.14% disagreed, and 3.45% strongly disagreed. Based on respondents, more than half of the population would support the plastic bags ban on the beach due to their environmental impacts.

Support closing the beach for cleaning and reducing the environmental impact of tourism

The respondents were requested to indicate if they would support the closing of the beach for cleaning and reducing the environmental impact of tourism. The results indicate that 37.47% of the respondents indicated they strongly supported closing the beach for cleaning and reducing the environmental impact of tourism. 23.91% agreed with the view, 25.52% were undecided, 6.67% disagreed, and 6.44% strongly disagreed. The community supports the cleaning of the beach from the environmental impact of tourism.

Input of tourism operators to reduce the environmental impact of tourism

The results show that the majority of the respondents, 47.36%, strongly think that tourism operators should do more to reduce the environmental impact of tourism. 31.26% agreed, while 15.86% were undecided. 4.60% disagreed, and 0.92% strongly disagreed. Tourism operators have a role to play in reducing the environmental impact of tourism, especially since they are significant beneficiaries of the economic activity.

Input of local government to reduce the environmental impact of tourism

The results show that more than half, 61.23%, strongly agree that local governments should do more to reduce the environmental impact of tourism. 26.67% agree, 9.66% are undecided, 2.53% disagree, and 0.92% strongly disagree. Most citizens view the government as the lead in helping to reduce the environmental impact of tourism as a practical utilization of taxes collected.

Beneficiaries of tourism in the beach area

Which group receives the greatest benefit from beach area tourism?

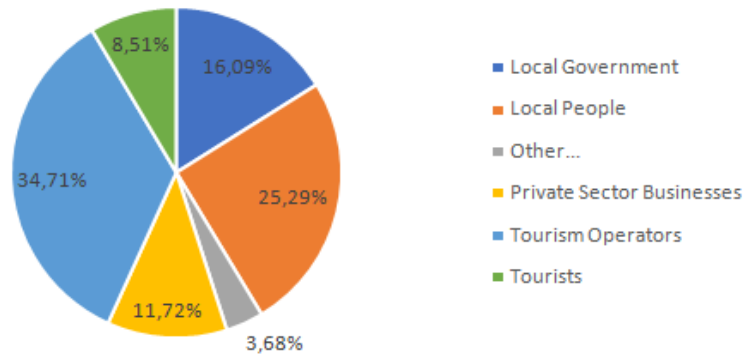


Fig1. Beneficiaries of tourism in the beach area

Fig1 shows that tourism operators are the greatest beneficiaries of tourism from the beach areas, as supported by 34.71% of the respondents. 25.29% think that local people are the greatest beneficiaries. 16.09% support, while 11.71% support private sector businesses are the greatest beneficiaries of tourism. The rest of the beneficiaries are local people and others. From the results, it is evident that respondents measure the level of benefits in economic value gained.

Responsible parties for finding solutions to reduce the environmental impacts of tourism

The respondents were asked to indicate whom they felt had the responsibility of finding the solution to the pollution problem on the beach.

Which group should be the most responsible for creating solutions to reduce environmental impact of tourism?

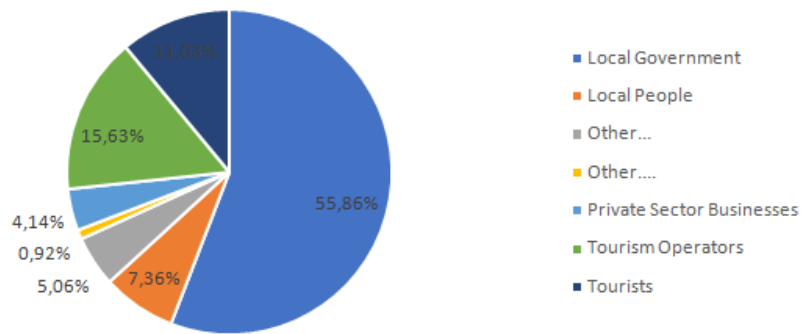


Fig2. Responsible parties for finding solutions

From fig2 shows that more than half of the respondents (55.86%) feel that the local government is responsible for finding solutions to reduce tourism's environmental impacts. 15.64% feel the responsibility is on tourism operators, and 11.03% think tourists should be involved. Most people believe that the government should lead in finding solutions for the environmental impacts of tourism.

Inclination to visit the beach area if it was a cleaner environment

The respondents were asked if they thought they would be inclined to visit the beach area if it was cleaner. The result of respondents was more than half (81.61%) strongly agreed that they would be more inclined to visit the beach area if it was a cleaner environment. A clean environment is safer and, thus, attractive to many people.

Options regarding the environmental impact of tourism to encourage more visits to the beach area

The respondents were asked to indicate what they thought would encourage more visits to the beach. The results are presented in Fig3.

Which option with regard to environmental impact of tourism would encourage you most to visit the beach area?

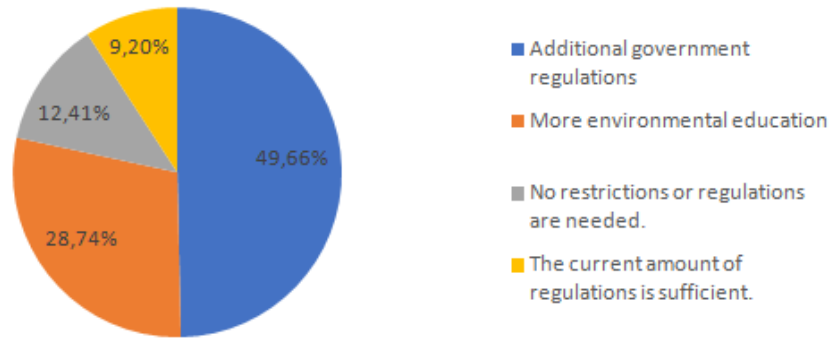


Fig3. Options regarding the environmental impact of tourism

Fig 3 shows that most respondents (49.66%) suggested that additional government regulations and strict enforcement to protect the environment would encourage more visits to the beach area. 28.74% of the respondents indicated that environmental education is needed to enable them to visit the beach more. 12.41% suggested that neither restrictions nor regulations are needed, while 9.20% indicated that the current regulations are sufficient. These significant recommendations could have a positive impact on preserving the environment in the area around the beach and attracting more environmentally conscious tourists.

Interventions to reduce the environmental impact of tourism in the beach area

The respondents were requested to provide recommendations on how the environmental impact of tourism can be reduced on the beach. The responses were grouped into various categories depending on their relationship, and the analyzed results are presented in Fig 4.

What do you think would help reduce environmental impact of tourism in the beach community area?

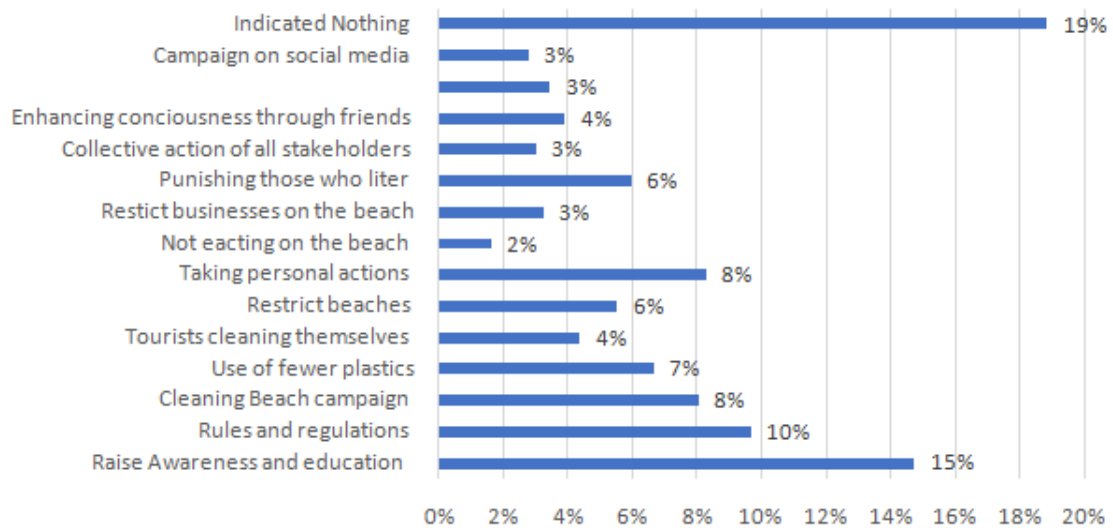


Fig4. Interventions to reduce the environmental impact of tourism in the beach area

Some of the common suggestions from the respondents to reduce pollution on the beach include raising awareness and providing environmental conservation education to the community members (15%), imposing

rules and regulations to control beach activities (10%), each individual taking personal action to avoid littering the environment (8%), and conducting the clean the beach campaigns (8%). Others suggested punishing the polluters (6%), passing environmental consciousness to peers (4%), and the tourists cleaning themselves (4%). A small number of respondents suggested social media campaigns (3%), promoting environmentally friendly cars and bikes (3%), restricting beach businesses to prevent littering (3%), collective action of stakeholders (3%), and banning eating on the beach (2%).

Discussion

The results of the collective body of research showed that tourism promotes environmental pollution and degradation of coastal communities globally and regionally. Although tourism is a significant contributor to the economy, it is a key promoter of ecological degradation in the coastal community of Bangsaen Beach. The study results showed that respondents' perception is that tourists contribute to sea pollution, traffic congestion, and air pollution in the coastal region. Respondents mostly agreed that tourism operators, the private sector, and the local government are the lead beneficiaries of tourism. These results coincide with Rath and Gupta (2017) and Sánchez del Río-Vázquez et al. (2019). They presented similar findings that tourism contributes to environmental pollution and resource depletion, affecting the local community and future generations. However, there is a need to create sustainable tourism by reducing pollution in the coastal areas to protect the environment and maintain the benefits in the long run. Additionally, a majority of respondents displayed a willingness and requirement for more government regulation. Thus a possible mitigating solution to the air pollution problem is ensuring that the government imposes restrictions on all licensed tour operators and that they adhere to strict emissions control inspections on all vehicles used by them annually to keep their tour licenses valid. Sánchez del Río-Vázquez et al. (2019) support the adoption of zero-waste tourism practices that ensure stakeholders in the industry cooperate in activities that conserve the environment. The tourism industry should speed up the transition to renewable energy sources as an efficient alternative to reduce air pollution from fossil fuels.

The study revealed different public perceptions and attitudes towards the environmental impacts of tourism. Sea pollution has the most robust support as an implication of tourism, followed by traffic congestion and air pollution. Essentially, the public views stakeholders such as governments as the main frontiers who should be responsible for providing solutions for pollution by imposing regulations and supporting the environment for sustainable tourism. The public also views plastic bags as a contributor to beach pollution and would support their ban to create sustainable tourism. The rationale corresponds with Candia and Pirlone's (2021) study outcomes, which emphasized the importance of creating quality awareness, especially among the youth, to promote sustainable tourism. The public is willing and ready to participate in programs that ensure environmental conservation for sustainable tourism, such as closing the beach and cleaning, providing a supportive environment in terms of awareness, and special cleaning events on the beach. It would help them combine efforts to promote sustainable tourism, especially since the majority of the population is youth.

From the study analysis, several recommendations can be implemented, from the private sector to government programs, to reduce the environmental impacts of tourism. Certainly, government solutions are welcomed in solving the environmental impact of tourism. Most of these respondents who supported governmental solutions were women, youths below 30 years, and well-educated; thus, they are aware of the impact of tourism on the environment, and the damage that plastic bags contribute.

Possible government interventions that could be effective for this demographic would be providing alternative environmentally friendly carrier bags while banning plastic bags. The respondents were willing to comply with these regulations; thus, the solution would be practical for the community. The local government can comfortably create responsible programs and policies that could help reduce pollution in the coastal areas. More participants supported additional government regulations and more educational programs on environmental conservation from the study. An investment in education and creating awareness through mainstream media would be highly effective in controlling tourists' behavior through their conscience. The private sector has a role to play in reducing the environmental impact of tourism such as participating in creating awareness among the public and tourists about the importance of personal responsibility for environmental conservation and sustainability. The government should also regulate the businesses on beaches to ensure their waste does not affect the environment. Imposing regulations that further ban all plastics on coastal areas and holding tourists who dispose of waste improperly on beaches accountable for their actions is another effective option for relevant authorities to protect the environment. These findings align with Islam et al.'s (2019) study results which emphasized the need for government involvement to oversee natural resources and preserve local culture and tradition. Stukalo et al. (2018) suggested three programs- anthropogenic tourism, elite tourism, and mild tourism- sustainable developments that can be adopted to improve this sector. Similarly, Shahzad et al. (2020) add that the private sector can mobilize the public to participate and be involved in cleaning programs such as offering education on their social media and beach cleaning equipment as part of their corporate responsibility. Investing in personal intervention programs for the public and tourists, such as education for charge master most supported intervention for sustainable tourism and should be considered a priority approach

for conserving the environment in the coastal areas. However, these programs are not ideal for controlling environmental impact solely; thus, they must be supplemented through government regulations that punish nonconformists.

4. Conclusion

The bulk of the respondents were women, according to the findings. The youth, who are the most active element of the population, were also heavily involved in the research. A well-educated group was also included in the study. The findings demonstrate that beach visitors contribute significantly to sea pollution, traffic congestion, and air pollution. Special events on the beach also lead to increased beach pollution, according to the respondents, though it is unclear whether adding the events would attract more tourists. The tourism operators who benefit the most from beach tourism are the ones who make the most money. Most respondents also stated that the local government is responsible for resolving the underlying pollution issue. Implementing regulations such as banning plastics on the beach, educating tourists, closing the beach for cleaning, and enforcing cleaners on the beach are some of the suggested remedies. The majority of them also stated that they would participate in beach cleanups.

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