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Tourism Destination Potential and Environmental Sustainability of Manila Bay Dolomite Beach

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Abstract

Since the country's tourism have a great impact on the economy, the Philippine government continues to develop and rehabilitate, if necessary, the tourist attractions in the country. One of the country's rehabilitation projects is at the Manila Bay (Adel, 2022) where the Dolomite Beach, a reclaimed shoreline, is part of the DENR's Rehabilitation program. Since its opening, it earned the potential to be a tourist destination in the Manila area. However, a number of individuals have raised concerns with regards to sustaining its clean environment given its location as a public destination spot. This prompted the researchers to study the tourism destination potential and environmental sustainability (perception of respondents)) of the Manila Bay Dolomite Beach. Utilizing convenience sampling, 121 respondents (comprising of government officials, residents, and business operators at the beach) were surveyed. Results indicated that Manila Bay Dolomite Beach has a potential to be a tourist attraction, with respondents expressing strong agreement towards its appeal, particularly its shoreline, white sandy beach, and sunsets. Furthermore, respondents demonstrated commitment to environmental protection, as evidenced by their agreement to adhere to rules, dispose of waste responsibly, and act as responsible tourists. Statistical analysis revealed a significant positive correlation (Pearson $r = 0.298$, $p < 0.001$) between the potential of the beach as a tourist destination and its environmental sustainability. Thus, the findings emphasized the importance of stakeholders' commitment to environmental conservation for the long-term success of tourism in the area.

Keywords: Tourism Destination, Environmental Sustainability, Dolomite, Manila Bay, Asian Institute of Maritime Studies

INTRODUCTION

During the 21st World Travel & Tourism Council (WTTC) Global Summit held last April 20, 2022, at the Marriott Hotel in Pasay City, the World Travel and Tourism Council President Julia Simpson stressed that the rise of tourism sector's contribution to the Philippine economy in 2021 helped the country rank as the world's fourth fastest-growing economy last year. Since the country's tourism have a great impact on the economy, the government continues to develop and rehabilitate, if necessary, the tourist attractions in the country. One of the rehabilitation projects of the country is the Manila Bay (Adel, 2022).

The Manila Bay area covers eight provinces, one hundred seventy-eight local government units in three regions of the country and there are 17 principal river systems draining it, with various developments taking place in and around the bay; yet it faced environmental problems throughout the years. Manila Bay is the country's major hub and international gateway to its political, economic, and social center that impact a natural environment threat from different factors: (1) over-population, (2) pollution from land and sea-based sources, (3) over and illegal fishing, uncontrolled development, (4) loss of habitats, and (5) decreasing resources (Partnerships in Environmental Management for the Seas of East Asia, 2006). Due to the growing problem of the bay, the Department of Environment and Natural Resources (DENR), as part of the 13 Mandamus agencies that the Supreme Court directed to render the order to clean up, rehabilitate and preserve Manila Bay in their different capacity, took their plan and action for the cleanliness, rehabilitation, and preservation of the Manila Bay (G.R. Nos. 171947-48, 2008).

The Dolomite Beach is part of the DENR's Rehabilitation program on the Manila Bay. It is part of an overall integrated coastal zone management aimed at the coastal defense of the Manila Bay Rehabilitation project. Adding to

the beautiful sunrise and sunset of the Manila Bay, the 900-meters span of the bay went through the beach nourishment process with the use of dolomite which is a common practice in the creation of beaches around the world. Upon the extraction of debris in the 500-meter (1,600 ft) portion of the bay walk from the Manila Yacht Club to the United States Embassy in Manila, the project dumped two layers of ordinary sand before overlaying it with crushed dolomite. The beach was first opened to the public last September 19, 2020 ("Dolomite Beach," 2021). Afterwards, it was closed for expansion. Last June 12, 2022, the Dolomite Beach officially re-opened to the public. Meanwhile, DENR takes delight in the collaborative efforts of all agencies and other groups to effectively restore the beauty of Manila Bay (Sevillano, 2022).

This study focused in determining the tourism destination potential and environmental sustainability of the Manila Bay Dolomite Beach.

LITERATURES

Rehabilitation and Renewal for Tourism Development. Tourism could be defined as "the temporary movement of individuals to locations other than their typical places of employment and housing, the activities conducted during their stay in those destinations, and the facilities built to meet their demands" (Mathieson & Wall, 1982). Periodic sand replenishment is recognized as an environmentally acceptable method of coastal management and restoration for problems such as storm-induced erosion, structural erosion, and relative sea-level rise (Hanson et al., 2002). Many studies on beach nourishment concluded that it is only beneficial for beaches experiencing severe coastal erosion and that extensive case studies, research, and simulations are required prior to implementation; otherwise, it is not cost-effective and, in the long run, environmentally damaging, (Peterson & Bishop, 2005).

Tourism takes full account of its present and future economic, social, and environmental implications, meeting the requirements of tourists, the industry, the environment, and host communities. The environmental, economic, and socio-cultural components of tourist development are referred to as sustainability principles, and a sufficient balance must be maintained between these three dimensions to ensure long-term sustainability. As added by the organization, sustainable tourism respects the socio-cultural authenticity of host communities, preserves their built and live cultural heritage and traditional values, and contributes to intercultural understanding and tolerance (United Nations World Tourism Organization, 2005).

The social impacts of tourism include interaction and awareness that encourage people to respect local traditions, as well as an increase in faith and community attachment as people become closer through the sharing of respect and faith while providing services to visitors (Mathur, 2011). Thus, tourism spots needing restoration is worth extending an effort. For instance, rehabilitating beaches through beach nourishment can considerably boost their attraction to tourists. For example, communities have benefitted - economically and physically - from beach feeding in California, USA. One of the noted nourished beaches is Venice Beach in Santa Monica Bay, which began in 1925 and was the most visited beach in the United States in 2013, over 90 years later (Houston, 2013).

In Israel, the alternatives were investigated and evaluated the cost and efficiency; assessment of the possible environmental implications were also considered. Pebble nourishment is the best method for safeguarding the southern portion of Tel Ashkelon beach, primarily in terms of durability and cost. Using this material for nourishment absorbs storm wave impact better, preserves the archaeological Tel's foot from erosion, and needs less care than finer sand nutrition (Bitan, Galili, Spanier, & Zviely, 2020; Panzini, Anfuso, & Muñoz-Perez, 2018).

Beaches are precious pieces of property that people enjoy being around and that help to keep certain local communities operating, and nourished beaches are referred to economic engines (Douglass, 2003). Sporadic beach

nourishment is now regarded as an ecologically suitable process of littoral rehabilitation and renewal against the problems of coastal erosion (Hanson, et al., 2002).

The Role of Stakeholders. The distribution of tourist flows among different destinations varies and is influenced by a variety of factors such as attractiveness, accessibility, lodging, infrastructure, and supersaturation (Pearce, 1981).

An active, if not proactive, tourist policy is required because the demand for tourist products in various locations follows a clear life cycle: a new tourist destination is explored and discovered, it attracts adventurous tourism, followed by mass tourism, and then it shows signs of saturation and decline. The Dolomite Beach management issued regulations throughout the attraction's visitation hours, and tourist or visitor discipline is required to comply with the guidelines (Prosser,1994).

Beach nourishment and artificial beaches are widely used as environmentally acceptable methods for beach protection and recreational purposes, and this technology is expected to become more widely used in China in the future. Given the challenges that coastal engineers encountered during the project implementation, as well as the issues surrounding beach protection and management, prospects can be summarized as follows: the construction of more and larger nourishment projects. Soft engineering implies a new attitude toward nature, recognizing the value of natural systems and the natural mobility of beaches (Capobianco and Stive, 1997).

Analyzing the opinions of the stakeholders is advantageous in determining if tourism is sustainable or maintainable; nevertheless, stakeholders' perceptions are restricted and do not address other aspects of sustainability, such as impact reduction or minimization (Hardy & Beeton, 2001).

It has been acknowledged that the perception of the impact of tourism is critical in giving useful feedback for dealing with strategic managerial choices, marketing, and the operation of present and future programs and initiatives (Lankford, 2001).

The Manila Bay Dolomite Beach alone has an authorized project cost of 389 million pesos in 2019, making beach replenishment frequently startlingly pricey. Beach nourishment is essential in preserving waterfront appeal, and where white sandy beaches are the main draw for a tourism business, it is easy for the public dialogue to focus only on the economic development benefit of maintaining the beautiful beachfront, which has been proven to attract and excite Filipinos when the Dolomite Beach re-opened on June 12, 2022 (Thompson, 2010).

Regardless of their engagement, stakeholders may express their concerns and contribute to the attainment of sustainable tourism (Ellis and Sheridan, 2014).

For example, the Cameroon tourism has the potential to become a strong global brand when the country receives the combined attention of all the stakeholders. The importance of destination image is widely acknowledged, an important factor in successful tourism management and destination marketing. Information about a specific destination is important because tourism industry promotion has influence on destination image. Because tourism services are intangible, images are becoming increasingly important. Some destinations are perceived to be prestigious, and these are established based on the product's perceived value (Abam, 2016).

Moreover, according to a preliminary report on tourism development from the Master Plan of North Halmahera Regency for 2008, the vision of tourism development is to (1) increase income, (2) develop the human resources attributes, (3) uphold fairness between the middle and lower social classes, (4) promote regional entrepreneurship between regions, the public and private sector, (5) enhancement of the secondary economy, (6) boost autonomy and lawfulness, and (7) ensures the balance of relationships. The tourism policy planning and

development, therefore, prioritized three major aspects: financial feasibility, societal approval, and ecological sustainability (Singgalen, Sasongko, & Wiloso, 2018). "Thus, the observable existence of North Halmahera tourism manifests efforts toward sustainable ecotourism, marine-based history, and culture" (Singgalen, Sasongko, & Wiloso, 2018). Basically, the stakeholders have a huge role and responsibility in the development of sustainable tourism.

Individuals, groups, and organizations such as visitors, tourism, and local communities are considered stakeholders (Ratna et al, 2020).

Beaches are wonderful places to visit, which is why people care about conserving them and, as a result, are interested in refining the beach nourishment process (Cooney et.al).

Tourism's survival and long-term success are dependent not only on the management of cultural resources, man-made attractions, and infrastructure, but also on the conservation and protection of the natural environment in which visitor experiences take place (Uysal et.al).

Sustainable Tourism on Display in the Manila Bay. According to Alampay (2005) since the 1980s, national and municipal governments in the Philippines have worked to promote sustainable tourism projects, with different degrees of success. He also added that sustainable tourism development attempts to produce revenue while also including environmental sustainability, equality, and respect for local people and cultures. Many destination operators are primarily motivated by the predicted economic gains from tourism (Alumapay, 2005).

In the case of the windfarm in Ilocos Norte, the general enthusiasm of the people to upgrade their rooms with a view on the windmills meant possible additional revenue as well for the other sectors in the tourism industry there. Besides the possible increase in the demand for accommodation, the other sectors that would positively benefit are the (1) transportation, (2) food and beverage and (3) connected industries. Furthermore, the increased proceeds would definitely benefit the locality (Barrera, 2017).

Former President Duterte allocated 42.95 billion for the three-year Manila Bay restoration project, which was carried out by at least 13 government organizations. The government focused on the cause of water contamination in an endeavor to rehabilitate, restore, and preserve the historic bay to swimming standards, as decreed by the Supreme Court in 2008 (San Juan, 2020).

According to the Environment Secretary that the beach nourishment project, which is part of a larger restoration effort the initiative, which began in 2019 on the President's instruction, was an attempt to preserve the bay from pollution and return it to its former state of tropical splendor before urban degradation The existence of a white beach, according to the Duterte Administration, will discourage individuals from tossing rubbish carelessly and will enhance the mental health of city dwellers. Now has a greater opportunity to enjoy the fresh air and observe the world-famous sunset over Manila Bay (Aguilar, 2020).

According to the DENR website, the Manila Bay Rehabilitation was divided into three phases: clean-up/water quality improvement, rehabilitation and resettlement, and education and sustainability. The Dolomite Beach was part of Phase 2 of the DENR's Manila Bay Rehabilitation Project. The government granted permission to Philippine Mining Service Corporation in August 2020 to transport crushed dolomite from Alcoy, Cebu, to Manila. Dolomite mining activities were halted in September 2020. The project's proponents deposited two layers of regular sand before covering it with crushed dolomite after extracting debris along the 500-meter (1,600 ft) section of the bay promenade from the Manila Yacht Club to the United States Embassy in Manila. From September 19 to 20, 2020, the beach was available to the public for the first time, and it was closed again for expansion. The beach was strewn with rubbish after Typhoon Vamco (Ulysses) hit in November, with the DENR rejecting allegations that the dolomite

was washed away, instead claiming that black sand was swept in. The DENR refilled the beach with a new supply of crushed dolomite rock following a series of typhoons in late 2020. In April 2021, the beach was resurfaced with dolomite sand. The beach was opened to the public without warning on July 18, 2021. By September 2021, an entry arch carrying the site's name the "Manila Bay Stroll Dolomite Beach" had been built and on October 17, 2021, the beach reopened. The closure followed an event on October 24, 2021, in which officials failed to regulate the flood of beachgoers. Nine days following its soft reopening, 121,744 people visited the Dolomite beach. Because the county was still under COVID-19, overcrowding and basic health requirements were neglected, which may result in a super spreader incident. The DENR allowed 1,500 to 3,000 people at a time inside the 500-meter stretch of Dolomite Beach to guarantee that the minimal health protocol was carefully followed. The Dolomite Beach reopening was just for strolling and sunset viewing, not for swimming, because the water quality was still below the 100 most probable number per 100 milliliters (MPN/100mL) standard fecal coliform limit. The DENR imposed online registration for those planning to visit the beach at least one day in advance. And to protect the cleanliness and attractiveness of the beach, tourists were asked to obey the following basic beach visitation regulations: no bringing food or drinks inside the beach area, no dogs permitted, no swimming, no vaping or smoking, and no littering. Furthermore, tourists and visitors were encouraged to provide a vaccination card, always wear a face mask, maintain physical distance, and children aged 11 and under were not permitted to attend. As the DENR considered the Manila Bay Dolomite Beach as a tourist attraction, it hopes that the project would revitalize local businesses. Reviving enterprises creates new prospects for revenue generation.

On December 18, 2008, the Supreme Court issued an order directing the fourteen government entities to clean, repair, and conserve the Manila Bay in their various roles (G.R Nos. 171947-48).

Section 19 of RA 9275 established the DENR as the principal government entity responsible for the enforcement and execution of Manila Bay Rehabilitation. The Metropolitan Waterworks and Sewerage System (MWSS) is directed by Section 8 of RA 9275 to provide, build, manage, and maintain suitable wastewater treatment facilities in Metro Manila, Rizal, and Cavite in collaboration with the DENR.

Sustainable Tourism Development is defined in R.A. 9593 as the management of all resources that meet the needs of tourists and host regions while protecting future opportunities, in such a way that economic, social, and aesthetic needs can be met while maintaining cultural integrity, essential ecological processes, biological diversity, and life support systems.

The Marine Geological Survey Division (2020) claimed that the project will improve tourism, business, and the environment. Beach replenishment projects are chosen over hard beach stabilizing structures because they safeguard coastal properties from erosion and storm surges (such as seawalls and groins). Moreover, the Department of Health (DOH) states that the usage of dolomite has no recognized health risks.

METHODOLOGY

Population and Sampling. Convenience sampling was used in selecting the samples of the study. A total of 121 respondents were conveniently outsourced onsite at the Dolomite Beach to partake in the survey. A combination of Government Officials, Tourists/Visitors, Residents, and Business Operators comprise the respondents.

Instrumentation. Anchored from the various literatures reflected in the study, a 16-item self-made data gathering instrument was developed. The first part of the questionnaire sought to find the potential of the Manila Bay Dolomite as a tourism destination, while the second part intended to know how the stakeholders sustain the environmental protection of Manila Bay Dolomite Beach. To

measure the variables, a 5-point Likert scale was employed. Please refer on Table 1 on the description of the scale:

Table 1
Likert scale used in measuring the tourism destination potential and environmental sustainability

Scale	Range	Description
5	4.21 – 5.00	Strongly Agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Neutral
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly Disagree

The validation process was done by three experts: Statistician, Hospitality Management Faculty, and the Thesis Adviser/Language Specialist. Improvement of the instrument was undertaken based on the comments and remarks given by the validators.

Reliability test was also done to determine the internal consistency of each item in the instrument. A pilot test was conducted with 16 respondents (not included in the survey proper) with similar qualifications from that of the final respondents. The responses were treated using Statistical Package for Social Science (SPSS) version 20. Based on the results, the Cronbach's Alpha was .817 with a p-value of 0.001. This indicated an excellent internal consistency of the survey tool.

Data Gathering. The survey proper was held on September 2022. The research group agreed in the division of survey work. Thus, each member of the group was scheduled to visit the Dolomite Beach for the survey proper. As a standard procedure, each member gave courtesy and ask approval from the officer-in-charge of the beach. And, as Covid-19 protocol is still enforced, the researchers followed the directive to wear mask. Upon approval, the survey took place. For ethical consideration, each respondent was asked to voluntarily participate in the study. Upon acquiring their consent, the pen-and-paper survey commenced. For documentation purposes, some respondents were voluntarily asked to participate in the picture-taking. As a gesture of gratitude, the researchers extended thanks to each of the respondent for participating in the study. Upon arriving with an ample number of samples, the retrieved questionnaires were subjected to review and tabulation in preparation for statistical treatment.

Data Analysis. Using SPSS (version 20), the data gathered were subjected to statistical treatment in order to ensure the reliability of results. Thus, the following statistical tools were used. Weighted Mean was used to describe the tourism destination potential of Manila Bay Dolomite Beach as well as in determining its environmental sustainability. Pearson r, on the other hand, was used to determine the relationship between the tourism destination potential and the environmental sustainability.

RESULTS

This section presents the numerical results of the study as presented in tabular and/or graphical forms. Corresponding analysis and interpretation are also presented to give meaning and value to the results.

Table 1
Mean Distribution of Tourism Destination Potential of the Manila Bay Dolomite Beach (N=121)

Statements	Mean	Descriptive Interpretation
The shoreline of the Manila Bay Dolomite Beach is beautiful.	4.55	Strongly Agree
I think that the sunset at Manila Bay Dolomite Beach can attract more tourists.	4.62	Strongly Agree
The white sandy beach of Manila Bay are the main draw for tourism business that can attract tourist.	4.49	Strongly Agree
Manila Bay Dolomite Beach can be a relaxation for everyone.	4.63	Strongly Agree
The artificial sand at the Dolomite Beach in Manila bay is soothing and gentle to the feet and can attract tourists and visitors.	4.26	Strongly Agree
The water in the Manila Bay Dolomite Beach is crystal clear.	3.50	Agree
The number of different kinds of fish living around Dolomite Beach Manila Bay are increasing.	3.81	Agree
The view in the Manila Bay Dolomite Beach is Instagramable.	4.42	Strongly Agree
Average Weighed Mean	**4.29**	**Strongly Agree**

Table 1 presents the potential of the Manila Bay Dolomite Beach as a tourism destination. It can be seen from the table that 6 out of the 8 statements were marked “strongly agree” by the respondents, which include the statement “Manila Bay Dolomite Beach can be a relaxation for everyone” with the highest weighted mean of 4.63, followed by the statement “I think that the sunset at Manila Bay Dolomite Beach can attract more tourist” with a weighted mean of 4.62. On the other hand, the statements “The number of different kinds of fish living around

Dolomite Beach Manila Bay are increasing" and "The water in the Manila Bay Dolomite Beach is crystal clear" were marked "agree", with weighted means of 3.81 and 3.50, respectively. These results conform with the initial objective of the Department of Environment and Natural Resources (DENR) to establish Manila Bay's so-called dolomite beach as a "tourist spot" (Galvez, 2021). Barison (2023) articulated that Dolomite Beach is a hidden gem that offers a serene escape from the bustling city life. With its picturesque views, pristine white sand, and crystal-clear waters, this urban beach has become a popular destination for locals and tourists alike.

Overall, the respondents "strongly agree" on the potential of Manila Bay Dolomite Beach as tourism destination as reflected by the average weighted mean of 4.29 (strongly agree).

Table 2
Mean Distribution of Environmental Sustainability of the Manila Bay Dolomite Beach (N=121)

Statement	Mean	Descriptive Interpretation
I will throw my garbage in the garbage bin to protect Manila Bay Dolomite Beach.	4.71	Strongly Agree
I will express my idea to contribute in the sustainable protection of Manila Bay.	4.48	Strongly Agree
I will abide the rules and regulations of the Manila Bay Dolomite Beach when I visit there.	4.82	Strongly Agree
I will help the Dolomite Beach Management by reminding tourist not to litter in the beach area.	4.69	Strongly Agree
I will be part of an advocacy group that aims to clean the shoreline and vicinity of the Dolomite Beach in order to maintain its cleanliness.	4.58	Strongly Agree
I will bring my own trash bag in-case i don't see a trash can so that i will put my trash in my trash bag and throw away outside the Manila Bay Dolomite Beach	4.60	Strongly Agree
I will voluntarily join every clean-up drive program of Manila Bay Dolomite Beach can so that can sustain the cleanliness of the bay area.	4,41	Strongly Agree
I will be a responsible tourist when I visits the Manila Bay.	4.86	Strongly Agree
Average Weighted Mean	***4.64***	***Strongly Agree***

Legend: 1.00-1.20 (Strongly Disagree), 1.21-2.20 (Disagree), 2.21-3.20 (Moderately Agree), 3.21-4.20 (Agree), 4.21-5.00 (Strongly Agree)

Table 2 above presents the Environmental Sustainability of Manila Bay Dolomite Beach. It can be seen from the table that all 8 statements were marked "strongly agree" by the respondents. Highest earning indicator was the statement "I will be a responsible tourist when I visit Manila Bay" with a weighted mean of 4.86, followed by the statement "I will abide the rules and regulations of the Manila Bay Dolomite Beach when I visit there" with a weighted mean of 4.82. The environmental attitude of the tourists will cause tourism's survival and long-term success. This is supported in the study of Uysal et.al (1994) where personal efforts to conserve and protect the natural environment takes place. The result also conforms the claim of former DENR Secretary, Roy Cimatu, stating that the controversial Dolomite Beach project will inspire positive environmental behavior among Filipinos (Mayuga, 2021).

On a general note, the survey shows tourists strongly agree on their willingness to abide by the policy in maintaining the beauty alongside protecting the environment of Manila Bay Dolomite Beach.

Table 3
Relationship of the Tourism Potential and Sustainability of the Manila Bay Dolomite Beach

Variables	Pearson r	P-value	Interpretation
Potential vs Sustainability	0.298	0.001	Significant

The table above (Table 3) presents the relationship between the Tourism Potential and Sustainability of Manila Bay Dolomite Beach. The result shows that the computed Pearson r between potential and sustainability is 0.298 with a p-value of 0.001. Since the p-value is less than 0.05, the relationship is said to be "significant". This implies that while the potential is high, the environmental sustainability is also high. Hence, there is a significant relationship between the Tourism Potential and Sustainability Manila Bay Dolomite Beach. According to Alampay (2005), since the 1980s, the Philippines' national and municipal governments have worked to promote sustainable tourism projects, with different degrees of success. He also added that sustainable tourism development attempts to produce revenue while also including environmental sustainability, equality, and respect for local people and cultures. Many destination operators are primarily motivated by the predicted economic gains from tourism.

DISCUSSION

Manila Bay Dolomite Beach is a potential tourist destination in Manila as tourists shown a positive response in the conducted survey. The beautiful shoreline, white sandy beach, and beautiful sunset are some of the factors to

attract tourists to visit the beach. More so, the local residents and tourists agreed for the environmental protection in the area. The stakeholders' attitudes to environmental protection and conservation will cause tourism's survival and long-term success.

Though this study has indicated favorable responses, it is worth considering other aspects of the Manila Bay Dolomite Beach such as its deeper implication. In the technical analysis on Manila Bay Dolomite Beach Reclamation Project, a coastal hazard mapping was undertaken. Based on the result, Roxas Boulevard, where the dolomite beach is located (Figure3), is particularly vulnerable to coastal erosion and storm surges (Montesa et al. 2017; Partnerships in Environmental Management for the Seas of East Asia 2005; as cited in Bucay et al., 2022). Meanwhile, the National Mapping and Resource Information Authority (NAMRIA), an attached agency of the DENR, stated that the sea level rise in Manila Bay is 13.2 millimeters per year, which is four times higher than the global average (Ng, 2020; as cited in Bucay et al., 2022). All of these climate and coastal hazards, as reported by the DENR's own attached agencies, warrant a comprehensive and transparent review of the project's (Dolomite Beach) sustainability.

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