

## **SOCIO-ECONOMIC AND CULTURAL DETERMINANTS OF MANGROVE FOREST COMMUNITY AREAS AS POTENTIAL NATURAL TOURIST DESTINATIONS**

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**ABSTRACT:** The potential of mangrove forests to be developed as natural tourism was analyzed using a tabulation matrix and narrative descriptive analysis. Most of the respondents are female, ranging from the age bracket of 31-40 years old, high school graduate, married, most of them are students, have a monthly income of 11,000-20,000, and are affiliated as Roman Catholic. Planting mangroves along the river banks and surrounding areas create an aesthetic view habitat for wildlife organisms and ultimately gives additional income to people in the community. The mangrove ecosystem provides benefits to coastal communities since fishers are their primary source of living. According to the respondents, after seven years of mangroves planted, people realize the importance of explicitly enhancing the protection of natural and human structures, notably from erosion and flooding effects caused by typhoons. Mangroves offer both hard and soft bottom habitats for a diversity of invertebrate life. Mangrove sites, Pantar, Villa Hermosa, and Bia-o, Santa Maria, has the potential to be developed as natural tourism sites based on biophysical, social, and cultural aspects, and stronger and higher funding support from the government shall be established for the total development of the area to attract more tourists thereby establishing an alternative sustainable livelihood of the people to augment income so that people in the community will not depend on fishing inside the mangrove areas is recommended.

**Keywords:** potential, ecosystem, habitat, wildlife, community, participation

### **I. INTRODUCTION**

Mangrove forests provide critical ecosystem goods and services, support fisheries, protect the coastlines from storms and erosion, and contribute to a broad range of other significant socio-economic benefits to coastal communities. Many traditional communities living near the mangrove forests have maintained a symbiotic relationship to sustain and maintain the integral functioning and ecology of the mangrove ecosystem and the community. Still, in most places now, however, the establishment of commercial and high-intensity uses has changed the nature of the relationship. Unfortunately, many of these communities, once dependent on mangroves for valuable services, have ignored or overlooked the long-term benefits that mangroves can provide. (Hanneke Van Lavieren Mark Spalding)

Mangrove forests as natural resources have biodiversity that provides benefits for human life. Utilization of these products and services has provided additional earnings and has become a significant income in meeting the needs of people's lives. One of the services obtained from the benefits of mangrove forests is natural tourism services. (Kustanti A. 2011).

The development of mangrove ecotourism in the West Java province and surrounding areas, thereby attracts both local and foreign tourists.(Private etal.,2021).

Natural tourism can improve the community's welfare by sustainably reorganizing various potential natural resources supported ecologically, economically, and socially to the environment and surrounding communities (Satynaarayana et al., 2012). The principles of natural tourism are minimizing impact, fostering environmental and cultural awareness, providing positive experiences to tourists (visitors) and hosts, providing benefits, and empowering local communities. Natural tourism in environmental development is a mission of developing alternative tourism that does not cause any negative impacts on the environment and socio-cultural conditions. For example, Mangroove offers multiple wedding venues with various beach and forest views to ensure the right scenery for the destination ceremony(ruffledblog.com).

Two mangrove forest sites in Sta. Cruz and Sta. Maria, Ilocos Sur was established to become a potential natural tourist area since the worldwide Covid -19 pandemic was started. Local visitors discovered the scenic view of the two sites and were featured via Facebook and other social media. However, the two mangrove ecosystems have not been managed as a natural tourist destinations, though the Local Government Units initiated the conservation and management of the area. So, to assist the LGU in implementing their plans, research was conducted to determine the conditions of the various aspects related to socio-economic and cultural characteristics of the communities and analyze the potential of mangroves based on biophysical and social aspects to be developed as a natural tourism area.

## **II. OBJECTIVES OF THE STUDY**

This research aimed to assess the mangrove forests to determine the potential for ecotourism development. Specifically, it sought to:

1. Determine the socio-demographic/economic characteristics of the community respondents in the two mangrove sites of the 2<sup>nd</sup> District of Ilocos Sur in terms of:
  - a. Gender
  - b. Age
  - c. Educational Attainment
  - d. Civil Status
  - e. Occupation
  - f. Monthly income, and
  - g. Religion
2. Assess the mangrove forests based on the perception of the community respondents before and after mangrove was planted
3. Determine the socio-cultural characteristics of the community respondents around the mangrove forests
4. Identify the potential of mangrove sites based on biophysical, social, and infrastructure aspects.

## **III. METHODOLOGY**

### **Research Design**

It is a descriptive-evaluative research design utilizing a survey instrument. A survey and interviews were conducted to the local communities through the online form for those respondents having internet access and focus group discussion to the barangay officials, particularly on the local ordinances concerning mangrove and management. The approach used to gather information on the extent of local community participation and their views on the state and governance of mangrove forests was made through a combination of structured and non-structured surveys (See Appendix).

### **Population and Sampling**

Thirty-four Pantar (34) and forty-one (41) Biao community residences are considered respondents of the study. The basis in the selection of the face-to-face interview was randomly selected when the survey was conducted. Other respondents were gathered through soliciting names from the barangays officials and were searched on Facebook as the guide in sending the questionnaire.

### **Data Gathering Procedure**

#### **Site Selection**

There were two identified mangrove sites considered in the conduct of the study. These were based on the potential ecotourism sites and are well known in the province that is now locally visited by some populace. The Pantar and Bio Mangrove Forests are located in the second district of Ilocos Sur. The forest area is situated along the

riverbank and extended both sides of the river with approximately three hectares each and is currently managed by the local communities led by the Local Government Units, Fisherfolk Associations, and Kababaihan Association.

#### **Courtesy Call and Floating of Questionnaires**

Courtesy calls to the Barangay LGUs were conducted prior to visiting the research sites, and a brief discussion on the purpose of conducting the research was made. These were attended by the barangay officials and other members of the women's organization and fishers' association. With the researchers involved in the study, face-to-face interviews and focus group discussions were done to ask further questions regarding their prospects and plans for the mangrove forest as potential natural tourism site. In addition, other respondents from the two mangrove sites were assessed via an online platform.

#### **Data Gathering Instrument**

Questionnaires used in the research are composed of three parts: Part 1 includes the personal information sheet used to elicit information on the demographic profile of the respondents. Part 2 consists of questions regarding the condition of the area before and after the mangrove were planted. It was used to evaluate information on the responses of the community respondents on the importance of mangroves. Part 3 elicits data on the socio-cultural characteristics of communities around the mangrove forests, and Part 4 was a set of questions to gather ideas regarding the potential of mangroves to be considered natural tourism sites. Questionnaire for Part 3 and 4 was adopted from the works of Kissinger et al., 2020 and was modified based on the study's objectives. The following norms for interpretation were used.

A.	Condition of the area before and after mangrove were planted		
	Numerical Value		Interpretation
	4.21 - 5.00		Very Effective
	3.41 - 4.20		Effective
	2.61 - 3.40		Moderately Effective
	1.81 - 2.60		Least Effective
	1.00 - 1.80		Not Effective
B.	Socio-cultural Characteristics of communities around Mangrove Areas		
	Numerical Value		Interpretation
	4.21 - 5.00		Very High
	3.41 - 4.20		High
	2.61 - 3.40		Moderate
	1.81 - 2.60		Fair
	1.00 - 1.80		Poor

#### **Statistical Treatment of Data**

The socio-demographic characteristics, assessment of the area before mangrove was planted, and the socio-cultural characteristics of the communities around the mangrove forests were determined using the weighted mean. Finally, the potential of mangrove forests to be developed as natural tourism was analyzed using a tabulation matrix and narrative descriptive analysis.

## **IV. RESULTS AND DISCUSSION**

### **Socio-Demographic/Economic Characteristics of the Respondents**

Below are the socio-demographic characteristics of the community respondents in the two mangrove sites of Sitio Pantar, Villa Hermosa, Sta. Cruz and Biao, Sta. Maria, Ilocos Sur.

**On Gender.** Most of the respondents from the mangrove sites were more female, who dominated the male with 61.76% and 73.17%, respectively. It indicates that women were proven to be more initiative and effective in contributing to ecotourism purposes while helping their counterparts generate income for the families and contribute to better health care. Further, it is also implied that a gender integrative approach recognizes women not as passive project beneficiaries but as active drivers of change toward conservation and sustainable development of natural resources (Daupan, 2016). Simpson (2017) stated that in a 2015 analysis of employment in the EU, Eurostat found that compared with the total non-financial business economy, where 36 % of people employed are female, the tourism industries' labor force includes more females (58%) than male workers. The highest proportions are accommodation (60 %) and travel agencies and tour operators (64 %). Female employment accounts for less than 50% of tourism industry employment.

**On Age.** The highest frequency was obtained from the age bracket of 31-40 years old (12 or 35.29%), followed by the age bracket of 21-30 years old, and the lowest are those found in the age bracket 60 and above (2 or 5.88%). It was attributed to the fact that younger and middle-age levels were actively engaging in the community development

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projects and can implicitly acknowledge as viable and efficient members of the community and as potential partners of the LGUs in pursuing a deeper-rooted and more sustainable community change. Concerning the result, the young and middle age group of people of Pantar, Villa Hermosa, Santa Cruz, and Biao, Santa Maria could be more immersed in the Mangrove Forest Project or other community endeavors to make more changes as well as to become an active and feasible member of the community. It is necessary for those ages 41 and above to participate in the project activities but not undermine the older population that constitutes the leaders and elders of the clans/family whose words and decisions are respected and influential in the community. However, those of this age are not as active as the younger and middle age levels due to their weakening health. If more people participate in developing their area, more skills, experience, and knowledge will be gained and will be easily transferred to the new generation (Phologane, 2014).

**As to Educational Attainment.** The majority of the community respondents have achieved the secondary level of education in Biao with 60.98% and college level in Pantar with 52.94%. Others ranked last are those respondents who attained elementary level.

Table 1. Socio-Demographic Characteristics of the Respondents

Profile	PANTAR		BIAO	
	Frequency	Percentage	Frequency	Percentage
Gender				
Male	13	38.24	11	26.83
Female	21	61.76	30	73.17
Total	34	100.00	41	100.00
Age				
60-above	2	5.88	-	
51-60	5	14.71	7	29.27
41-50	4	11.76	7	17.07
31-40	12	35.29	10	24.39
21-30	7	20.60	12	17.07
Below 20	4	11.76	5	12.20
Total	34	100.00	41	100.00
Educational Attainment				
College	18	52.94	12	29.27
High School	12	35.29	25	60.98
Elementary	4	11.76	4	9.75
Total	34	100.00	41	100.00
Civil Status				
Widow/Widower	2	5.88	7	17.07
Married	13	38.24	24	58.54
Single	19	55.88	10	24.39
Total	34	100.00	41	100.00
Occupation				
Vendor	1	2.94	2	4.88
Laborer	2	5.88	3	7.31
Nurse	1	2.94	1	2.44
Saleslady	1	2.94	2	4.88
Barangay Official	3	8.82	2	4.88
Housekeeper	8	23.53	11	26.83
Farmer/Fishermen	7	20.59	10	24.39
Teacher	3	8.82	-	-
None (Students)	8	23.53	10	24.39
Total	34	100.00	41	100.00
Monthly Income				
21,000- above	-	-	1	2.44
11,000-20,000	17	50.00	8	19.51
5,000- 10,000	4	11.76	13	31.71

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Below 5,000	6	17.65	2	4.88
None	7	20.59	17	41.46
Total	34	100.00	41	100.00
Religion				
Roman Catholic	31	91.18	38	c
Iglesiani Cristo	2	5.88	2	4.88
Born Again Christian	1	2.94	1	2.44
Total	34	100.00	41	100.00

**Based on Civil Status.** Most of the respondents in Pantar mangrove sites are married, while Biao mangrove sites are primarily single. It indicates that married people are more responsive than single.

**As to occupation,** most of them are housekeepers and have no occupation at all. The same is true with respondents in Biao; they are primarily housekeepers/farmers and have no occupation at all. For those with no occupation, students are included here. As a result, the involvement and knowledge of mangrove projects in the community have ample opportunities to participate, whether it is in the form of discussion/interaction or group work as proven by their nature to support community activities. Rosenfeld (2008) states that tourism is widely recognized for its tangible outcomes (job creation, tax revenues) as well as its less tangible outcomes (quality of life). It may be built upon various attractions, including agritourism, arts tourism, cultural and heritage tourism, destination tourism, fairs, events and conferences, sports teams, recreation, and more.

**Terms of monthly income.** Based on the table, the majority of the Pantar respondents have monthly earnings of 11,000-20,000, while the Biao respondents have no specific amount indicated/ no earning. Tourism in the Philippines helped the Filipino economy rise by giving jobs to the unemployed. These tourism activities give opportunities for the country to have investments that could help the Philippines' economy in terms of giving jobs to the jobless Filipinos here in the country. We see the economy's effects on numbers and physical living, like having money to buy essential commodities.

**As to religion,** primarily, the respondents are Roman Catholic.

**Condition of the Area Before and After Mangrove Planted  
Pantar Mangrove Area**

The table shows the respondent's perception regarding the area's condition before the mangrove was planted. As indicated, it reflects that the area when mangrove was not yet planted, all the parameters are "Least Effective" with an overall mean of 2.48. Taken singly, the creation of additional income within the bodies of water is described as "Moderately Effective," and the rest of the parameters are "Least Effective." The community noted a lesser fish catch before mangrove has not yet been planted, and fishes slowly decrease in abundance. However, the mangroves, coral reefs, and seagrass beds in the Bluefields Bay Fish Sanctuary are home to much young fish, endangered juvenile turtles, and marine animals (Bluefields bay fishers, 2013). Furthermore, Pride, DJ. et al., (2018) Ecotourism includes community involvement to protect, maintain, and manage the mangrove ecosystem.

After seven years of planting mangroves, all the parameters found in the table are "Very Effective," with an overall mean of 4.79 as assessed by the community respondents. The importance of mangroves, according to them as compared before, enhances protection to natural and human structures, notably from erosion and flooding effects caused by typhoons. Therefore, with the presence of the mangrove forests ecosystem, the local communities started to realize the importance of mangroves. Mangroves offer both hard and soft bottom habitats for a diversity of invertebrate life. The extensive root systems, muddy bottoms, and open waters are all home to invertebrates that are well adapted to the temperature and salinity variations and tidal influences common to mangroves. These invertebrates feed on leaf litter, detritus, plankton, and small animals. Snails, barnacles, bryozoans, tunicates, mollusks, sponges, Polychaeta worms, isopods, amphipods, shrimps, crabs, and jellyfish all live either on or close to mangrove root systems (Florida museum 2020).

Table 2. Assessment of the Area before and after Mangrove was Planted in Pantar

Condition of the Area		Before		After	
		Mean	Description	Mean	Description
1.	Soil erosion along the riverine area	2.35	Least Effective	4.76	Very Effective
2.	Contribute to soil formation and help	2.47	Least	4.56	Very Effective

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stabilize coastlines/riverside		Effective		
3. Act as filters for upland runoff	2.50	Least Effective	4.76	Very Effective
4. Serve as habitat for many organisms such as fish, crabs, seashells, and other invertebrates	2.47	Least Effective	4.91	Very Effective
5. Serve as habitat for wildlife organisms	2.59	Least Effective	4.82	Very Effective
6. Create additional income within the bodies of the water	2.76	Moderately Effective	4.88	Very Effective
7. Nursery and breeding ground for aquatic organisms	2.53	Least Effective	4.85	Very Effective
8. Protection for coastal communities	2.56	Least Effective	4.74	Very Effective
9. Create aesthetic view	2.06	Least Effective	4.85	Very Effective
Mean	2.48	Least Effective	4.79	Very Effective

**Biao Mangrove Area**

Assessed by the respondents, the condition of the Biao Mangrove area appeared an overall mean of 1.99 and was described as "Least Effective ." Individually, it was noticed that before mangroves have not been planted, soil erosion was taken place, no aesthetic view of the riverwas observed, no soil formation, continuous upland runoff happened due to typhoons. According to Geier (2017) in her research entitled Beach form, change, and Mangrove interactions,along with galleon fish sanctuary, South Coast Jamaica. Erosion rates for Galleon for 2012-2016 were determined using historical aerial photograph analysis and averaged +0.23 m/yr, ranging from -3.0 to 2.6 m/yr. It was found that 32% of the shoreline in the sanctuary was stable, 44% of the shoreline was accreting, and 24% was eroding.

After the mangrove was planted seven years back, the respondents assessed that the condition of the mangrove in the area hasan overage mean of 4.76 and rated it as "Very Effective ."Generally, the community respondents claimed at present seen that mangroves' use as regulatory and support in controlling soil erosion, strong waves, and as a shelter for fishes that are food and livelihood sources. In addition, the aesthetic view of the mangrove forests now has potential for ecotourism development.As cited bySpaldin,M. (2019),Sanderman et al. (2018),Carter, H.N.92015),Hutchison,J. et al.,(2013), and Donato D.C.(2012) thatthe mangrove ecosystem renders one of the world's most relevant ecosystem services in fisheries, carbon storage regulation and offers recovery services.

Table 3. Assessment of the Area before and after Mangrove was Planted in Biao

Condition of the Area	Before		After	
	Mean	Description	Mean	Description
1. Soil erosion along the riverine area	1.59	Not Effective	4.73	Very Effective
2. Contribute to soil formation and help stabilize coastlines/riverside	1.78	Not Effective	4.61	Very Effective
3. Act as filters for upland runoff	1.73	Not Effective	4.37	Very Effective
4. Serve as habitat for many organisms such as fish, crabs, seashells, and other invertebrates	2.56	Least Effective	4.80	Very Effective
5. Serve as habitat for wildlife organisms	2.12	Least Effective	4.90	Very Effective
6. Create additional income within the bodies of the water	2.59	Least Effective	4.88	Very Effective
7. Nursery and breeding ground for aquatic organisms	2.15	Least Effective	4.85	Very Effective

8.	Protection for coastal communities	2.02	Least Effective	4.85	Very Effective
9.	Create aesthetic view	1.54	Not Effective	4.87	Very Effective
Average Mean		1.99	Least Effective	4.76	Very Effective

**Socio-Cultural Characteristics of the Communities Around the Mangrove Forest**

It is also interesting to note the differences in mangrove perception per site. The community in Pantar and Biao almost have similar observations and assessments as indicated in the table based on the overall mean as "High."

Taken singly, the level of community awareness in Pantar and Biao with regards to the importance of mangroves in the area is "High." Formal and informal organizations, both men and women, showed that the organization's activities went well as "Moderate" for Biao and "High" at Pantar. Mutual cooperative activities are usually carried out, such as cleaning the area near the mangrove forest to improve the condition of the community, which will be used to preserve the mangrove area from moderate to high. The rest of the parameters were practiced from high to very high and moderate to highly practiced. Hussain(2020) revealed that of all the stakeholders consulted, 63% of the species were categorized as vulnerable, including 48% less available and 15% rarely available. The main reasons for vulnerability identified by local stakeholders included) heavy growth of aquatic weeds, such as water hyacinth, lily, lotus. Inside the beel area; ii) siltation and sedimentation causing drastically reduced water level during the dry season; iii) an insufficient number of brush shelters inside the beel; iv) undesirable poaching of fish during that season (although the water body is a sanctuary), and v) dysfunction of RMOs to properly manage the wetland sanctuary. These factors hinder fish breeding and impact spawning habitat, prohibiting the recruitment of enough indigenous fish species in BaikkaBeel and other adjacent wetlands of the Hail Haor area.

Generally, the livelihood of Pantar and Biao people is fishermen as "Very High ."Mangrove ecosystem, on the other hand, has also been providing benefits to the community as the fishing ground from "high" to "very high ."It was noticed that mangroves used as firewood are fairly practiced, while in Biao, respondents claimed as poorly practiced. Seary(2017) diversification of occupations within the region from what was once solely a fishing village to the increasing popularity of small-scale green mussel culture and a shift towards non- marine resource-dependent occupations in younger generations.

**Table 4. Socio-Cultural Characteristics of Communities Around Mangrove Forest**

Socio-Cultural Characteristics	Painter		Biao	
	Mean	Description	Mean	Description
1. Level of community awareness with regards to the importance of mangroves in the area	4.03	High	3.68	High
2. Formal and informal activities are practiced in the community	3.62	High	3.34	Moderate
3. Mutual cooperative activities are usually carried out, such as cleaning the beach/mangrove area	3.79	High	3.34	Moderate
4. Building tourist infrastructure to improve the welfare of the community	3.18	Moderate	3.12	Moderate
5. Fishers as the main livelihood of the people in the community	4.32	Very High	4.44	Very High
6. Mangrove ecosystem has been providing benefits to the community as a fishing ground	4.62	Very High	4.12	High
7. Make mangroves as firewood sources	2.44	Fair	1.63	Poor
8. The participation of surrounding community groups can carry out natural tourist activities	3.56	High	3.44	High
9. Fostering community participation as the basis on the importance of preserving mangrove	4.18	High	4.10	High

ecosystems				
Overall Mean	3.75	High	3.88	High

**Potentials of Mangroves as Natural Tourist Site**

**A. On Biophysical Aspects**

When the Pantar community respondents asked about the biophysical aspects of the diversity of plant species, the areas were rich with varied kinds of plants, various foods such as grasses and algae are found, which are common foods for herbivorous species. Other plants such ascoconut, bamboo, mangrove, and other mangrove-like species are also found. The same is true to Biao, and as observed, plant species seen in the area are as follows: "nipa," "kandaruma," bamboo, and the majority are mangrove species which now serve as hiding places for fishes, invertebrates, snakes, birds and other insects attached to mangrove trees. Habitat Connectivity is an essential concept in the field of ecology. Habitat connectivity refers to how and to what extent patches or fragments of a particular habitat are connected, influencing the distribution, genetic diversity, and health of various animal and plant populations. For animals that undergo several life stages and utilize a variety of habitats, protecting only a particular patch may not offer the conservation benefits to ensure long-term species survivalPuglese and Sarkis(2021).

The mangrove area in Biao is relatively broad and is concentrated in approximately 6 hectares. These mangroves are planted along one side of the river, running upstream until the boundary point of Biao and Danuman West, Sta. Maria, Ilocos Sur. The mangrove growth for seven years is promising, thus bearing fruits ready for planting again in other areas. In Pantar Mangrove Forest, the area is wide as this was extended on both sides of the river. However, the mangrove trees are very tall, spaces between plants are too short, thus causing the trees not to bear fruits.

The mangrove forest is a preferred habitat for various fish species to find food, nesting place, and live. Most of the fish that live in mangroves are also found in the sea around the coast. The fishes live in mangroves at certain times, for example, when young and mating season. Food availability and protection are important factors that cause fish to migrate in and out of the mangrove environment. According to the community respondents, fish species diversity was observed in the mangrove areas and collected, as evidenced by the fishers caught during fishing. Several species of fish were found based on observations, and other fish species were obtained based on information from the surrounding community. Fish species found in both sites were shrimp, crabs, siganids, Lates calcalifer (Buta-buta), (kapigid), Chanoschanos (milkfish), goby, sisiaw, purong, Tilapia spp., and other seashells (unnok, kappo, luslusi, tirem, native tahong). Other terrestrial animals like birds, butterflies, snakes, and many more are included here.The results collaborate with the statement of Alligators head foundations (2021). As one of Jamaica’s best examples of community-led participatory management approaches, the East Portland Fish Sanctuary is a 6km2 no-take zone comprised of critical and ecologically sensitive coastal resources, including coral reef and seagrass mangrove, and deep reef habitats. It harbors both terrestrial and marine ecosystems with biodiversity of international significance and supports vibrant fishing communities and substantial spawning grounds with strategic national value.

Regarding the beauty of the river flow and the scenery around the mangrove area in Pantar, the respondents claimed it as a nice, clean, quiet, and peaceful place to go around using Banca or raft. It is refreshing to the eye because it is also near the seashore. In Biao Mangrove Forests, a Bahay Kubo and small pond were constructed near the area with a wooden bridge installed connecting to the small channel at the center of the mangrove park wherein visitors used to see the view inside the mangrove area. It is where visitors take pictures during the visit.

**B.Social Aspects**

In terms of the community behavior and norms, it is known that a strong community bonding existed “Bayanihan spirit” within the barangay. Mutual cooperative activities are usually carried out, such as cleaning the beach to improve the community's welfare and will help preserve the surrounding area.Coordination within and between the local communities and the government offices is necessary to promote community participation.

Formal and informal organizations are actively evolving/existing: women's organizations, balikatan/ RIC, and other youth organizations. In terms of religious affiliation, most community people belong to Roman Catholic, and only a few are Iglesiasni Cristo and Born Again Christian.

Based on the interviews with the community and some barangay officials, they strongly agree that mangrovesareas can be used as tourist sites.The Local Government Units, bothPantar and Biao, have already planned to develop the mangrove forest as a tourist destination. The idea allows increasing community incomes as part of the multiplier effect of developing natural tourism areas. Another critical point is that people also believe that the existence of the mangrove ecosystem is one of the tourism objects that will have a positive impact on the



economy of the surrounding community and help contribute to local income (Utami, 2017). The social characteristics of the people familiar with the management of the two sites have become a substantial social capital in the development of mangrove forest nature tourism. Nature tourist projects can be successful if stakeholders carry out their role in tourism management and mangrove forest conservation. (Satyanarayana et al. 2012). According to Dennis (2019) that as measured by the share of Tourism Direct Gross Value Added (TDGVA) to the Gross Domestic Product (GDP), the contribution of tourism industries to the Philippine economy was estimated at 12.7 percent in 2018. TDGVA serves as the indicator to measure the value-added of different industries concerning the tourism activities of both inbound and domestic visitors. The TDGVA amounted to Php 2.2 trillion in 2018, higher by 14.3 percent compared to the previous year's record of Php 1.9 trillion.

### **C. Infrastructure Aspects**

Sitio Pantar, Villa Hermosa, and Biao have the same mangrove vegetation beside the river; the condition is still natural, has an access road going to the mangrove area but not yet cemented, and is near the beach, approximately 50 meters. However, no infrastructure like business establishment was constructed. This scenario capitulates that the mangrove area can be developed as an ecotourism park. Management of mangrove ecosystems as a tourist destination has not yet become an alternative priority for the LGU's/coastal communities. However, the local tourist has started visiting the two places. According to Gumede (2019), Architecture is another driver of heritage tourism that receives considerable attention. In essence, whenever people travel into a particular destination, they gaze at its surroundings, and architectural structures are no exception.

### **Summary and Conclusion**

This research aimed to assess the community respondents on their socio-economic and cultural determinants in the two mangroves forests areas to determine the potential for ecotourism development. A descriptive-evaluative research design utilizing an online survey instrument and focus group discussion to the 75 community respondents and barangay officials, particularly on the local ordinances concerning mangroves and management. The socio-demographic characteristics, assessment of the area before and mangrove planted, and socio-cultural characteristics of the communities around the mangrove forests were determined using the weighted mean. The potential of mangrove forests to be developed as natural tourism was analyzed using a tabulation matrix and narrative descriptive analysis. Most of the respondents are female, ranging from the age bracket of 31-40 years old, high school graduate, married; most of them are students, have a monthly income of 11,000-20,000, and are affiliated as Roman Catholic. Planting mangroves along the river banks and surrounding areas create an aesthetic view habitat for wildlife organisms and ultimately gives additional income to people in the community. Mangrove ecosystem provides benefits to coastal communities since fishers are their primary source of living. The two mangrove sites can be developed as natural tourism sites based on biophysical, social, and cultural aspects. More muscular and higher funding support from the government, an alternative sustainable livelihood of the people to augment income, thereby lessening dependence on fishing inside the mangrove areas, is recommended.

## **V. CONCLUSION**

Based on the result of the study, the following are concluded: Most of the respondents in the two mangrove sites are female, ranges from the age bracket of 31-40 years old, high school graduate, married, most of them are students, with a monthly income of 11,000-20,000 and they are Roman Catholic. Planting mangroves along the river banks and surrounding areas create an aesthetic view habitat for wildlife organisms and ultimately gives additional income to people in the community. Mangrove ecosystem provides benefits to coastal communities since fishers are their primary source of living. The two mangrove sites can be developed as natural tourism sites based on biophysical, social, and cultural aspects.

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