



## Asian Journal of Environment & Ecology

15(3): 27-37, 2021; Article no.AJEE.69460  
ISSN: 2456-690X

# Socio-Cultural, Economic and Environmental Impacts of Ecotourism in Birilarosa Protected Landscape and Seascape (BLPLS)

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### Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

### Article Information

DOI: 10.9734/AJEE/2021/v15i330229

#### Editor(s):

(1) Dr. Ravi Kant Chaturvedi, Chinese Academy of Sciences, P.R. China.

#### Reviewers:

(1) Mesele Admassu Mersha, Adama Science and Technology University, Ethiopia.

(2) Mohammed Seid, Mettu University, Ethiopia.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/69460>

Review Article

Received 10 April 2021  
Accepted 16 June 2021  
Published 24 June 2021

## ABSTRACT

Ecotourism is a melting pot of cultures and people. It is said that national and local pride can be created through the cultural appreciation of ecotourists, and local knowledge and the standard of living can be enhanced. The folklore or story about "Berbenota" the enchanted lady of Rock Formations have resulted to the protection and conservation who is believed to be the protector of the area. These activities provide special opportunities to understand the history and traditions of the community and to witness their cultural practices and daily living, including traditional rituals, rites and dances. For the positive side of ecotourism, it can generate environmental rehabilitation and natural or local tourism development by promoting environmental protection and the improvement of a specific tourist destination. The greatest contribution of ecotourism is the protection of biodiversity and a sustainable development plan is necessary. In terms of the negative side, when ecotourism is improperly managed, environmental degradation follows. These invasions often include deforestation, disruption of ecological lifestyle systems and various styles of pollutants, all of which make a contribution to environmental degradation. It is important to note that majority of the respondents were farmers which at the same time fishermen. It is also interesting that many of the employed people were also patronizing the local tourist's destination. It seems that common people were benefitted so much of the booming local ecotourism industry in the BLPLS areas as

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represented by the various stakeholders and key players in the tourism industry. At least One hundred respondents were interviewed using the systematic sampling approach. The results indicate that both the mainland and island communities benefits ecotourism in various ways but not to their level of satisfaction. Members of the community are allowed access to resources such as fish, food crops, firewood and water. Additionally, a range of job opportunities includes tour guiding; rendering service mobility vehicles for the tourists, and accommodations. Another key tourism related benefits include interaction with the tourists, sale of local crafts, fish processing, food vending and opportunities to profile cultural activities. However, there remains the need to improve beneficitation given the high poverty and unemployment rates in the locality.

*Keywords: Biri-Larosa; ecotourism; socio-economic; cultural; environmental impact.*

## 1. INTRODUCTION

The Biri Larosa Protected Landscape and Seascape (BLPLS) is a protected area located in Northern Samar, Philippines, 40 kilometers (25 mi) west of the provincial capital, Catarman. It is in the Balicuatro Islands, composed of the island municipality of Biri and associated smaller islands, off the northwestern coast of Samar in the San Bernardino Strait. It also includes the coastal areas of the adjacent municipalities from which it derives the second half of its name – a combination of the first two letters of the names of the municipalities of Lavezares, Rosario and San Jose [1,2].

The protected area spans 33,492 hectares of land and sea when it was gazetted in 2000 through Presidential Proclamation No. 291. It is famous for its natural rock formations, as well as beaches, coral reefs, sea grass beds and mangrove forests. The San Bernardino Strait, noted for its strong waves and currents, is also a popular surfing location in Samar [1,2].

Based on the Protected Area Management enhancement, Management Enhancement Tracking Tool (PAME-METT), 2013 survey, [3] the highest identified ecosystem services threats are: illegal fishing activities, urbanization, climate change, unregulated recreational and tourism activities, change in political leadership, gravel and sand extractions, improper waste management, land conversion, and lack of support fund for resource management program. Lack of awareness on the BLPLS protected area was also observed to contribute to these threats.

All these identified problems, issues and concerns which, directly and indirectly, contribute to the potential deterioration of these seascape/landscape ecosystem resources can no longer be ignored as the associated socio-economic setbacks brought about by these

identified threats are now being felt by the people in the community and the protected area stakeholders as well.

It is on this context that environmental protection and biodiversity conservation of the BIRILAROSA protected seascape/landscape must be given foremost attention. Furthermore, the area is now the center of eco-tourism in the province and among the tourist attraction in the Philippines. Thus, the need to assess economic value of the BLPLS environmental services with its corresponding impacts/ importance to the people in the community and to all stakeholders.

Biri-LAROSA as the center now of Ecotourism in the Philippines is in need of conservation efforts particularly in the implementation of a holistic approach since Protected Area stakeholders especially the Protected Area Management Board (PAMB) are required to sustain the BLPLS to a well-balanced ecosystem.

Community involvement is increasing in importance in relation to nature conservation and ecotourism which includes public participation in decision-making, access to biological resources and communities receipt of benefits from ecotourism. There is also an increasing attention on community involvement in relation to nature conservation and ecotourism in developing contexts, especially in the preservation of natural heritage and historical landmarks of the community.

Yet, research indicates that neighboring historically disadvantaged communities remain impoverished and have limited access to resources and benefits from conservation areas. BIRILAROSA Protected Landscape and Seascapes are some of the key conservation area and ecotourism destination in Northern Samar. This study examines the socio-economic impacts of ecotourism in the community. At least

One hundred respondents were interviewed using the systematic sampling approach. The results indicate that both the mainland and island communities benefits in various ways but not to their level of satisfaction. Members of the community are allowed access to resources such as fish, food crops, firewood and water. Additionally, a range of job opportunities includes tour guiding; rendering service mobility vehicles for the tourists, and accommodations. Another key tourism related benefits include interaction with the tourists, sale of local crafts, fish processing, food vending and opportunities to profile cultural activities. However, there remains the need to improve beneficiation given the high poverty and unemployment rates in the locality.

## 2. CHARACTERISTICS OF THE STUDY AREA

The Biri Larosa Protected Landscape and Seascape is located in the province of Northern Samar, Philippines. The combined land and marine reserve was established on 23 April 2000. It includes 18 islands, which Cabaungon Grande, Cabaungon Pequino, Tandang,

Pangilala, Puropangdan, Matungko and Maghungaw, and others, as well as parts of the northern coast of the island of Samar (Fig. 1).

The Balicutro Islands are a group of 18 small islands situated about 11 kilometres (6.8 mi) northeast of Balicutro Point, the northwestern tip of Samar Island. It is divided into two subgroups by the Biri Channel, with the main island of Biri on the west composed of 7 islands, and the group of Cabaungon Grande (Cabaongon) on the east. The islands border the San Bernardino Strait and Philippine Sea and are separated from Samar by the Bani Channel.

Biri is the largest and northernmost of the Balicutro Islands and is about 6.4 kilometres (4.0 mi) long northwest and southeast and 3.2 kilometres (2.0 mi) wide. It is generally high with a 200-foot (61 m) rocky perpendicular bluff on its northwestern side. Its coastline is covered with mangroves and has gravel beaches on its western side. It is surrounded by Macarite, Cagnipa, Talisay, Magasang and other smaller unnamed islands and is protected by fringing reefs [2,4].

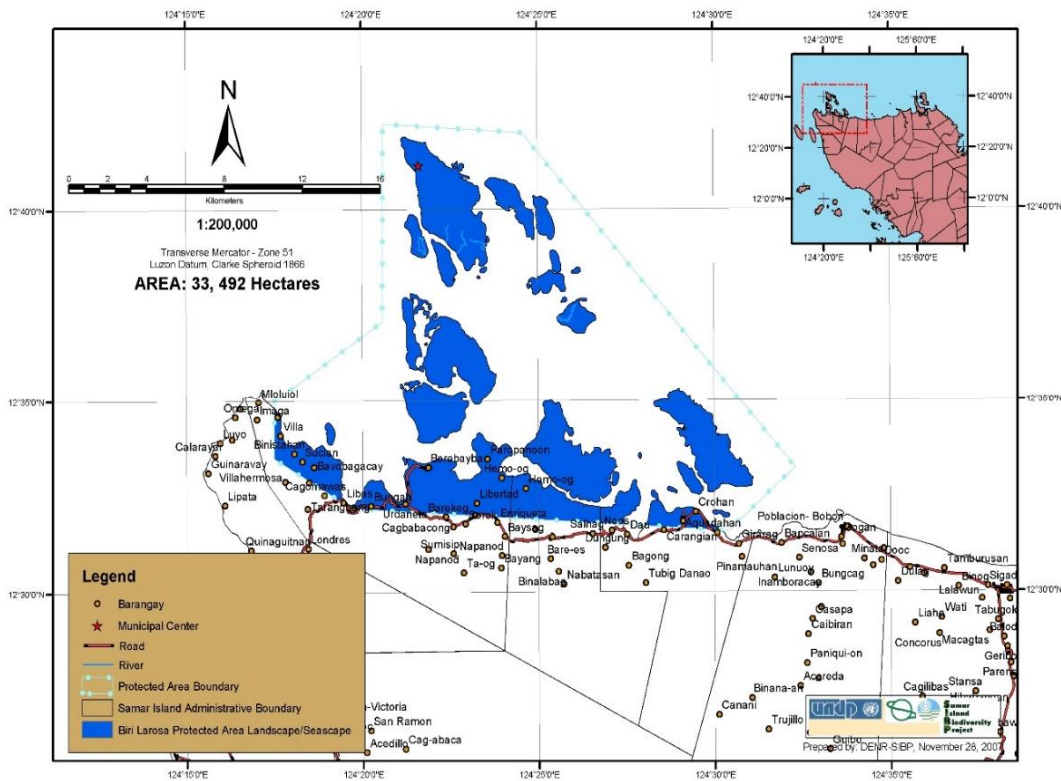


Fig. 1. Map showing the Biri-larosa protected landscape/seascape

As a typical laid back Philippine island, Biri is rural and quaint. It's homed to not more than 12,000 inhabitants; its coast is rugged yet scenic while its water is wild yet bountiful. Locals here live in a slow paced quiet life on the backdrop of the continuous roaring of waves of the Pacific.

It is located at the edge of Northern Samar, where home to the most spectacular rock formations in the Philippines, ones that will certainly drain the life out of your camera's batteries. Biri is one of the top hidden destinations in the country. The place is so beautiful that the Department of Environment and Natural Resources declared it as a protected seascape and landscape area in 2000 [1,2].

Situated off the coast of the towns of Lavezares and Rosario, it is the northernmost town and island not only of Samar Provinces but of the entire Visayan archipelago.

The island's main attraction is its seven gigantic limestone rocks at Magasang, Magsapad, Macadlaw, Puhunan, Bel-at, Caranas and Pinanahawan. These rock formations are a result of underwater tectonic plate movements and crashing waves over millions of years. Another unique feature of the island are the natural saltwater pools at Bel-at and Caranas where visitors can enjoy swimming in clear water. To the south of Biri Channel along the coast of Lavezares are San Juan, Bani and Maravilla islands where several other white sand beaches can be found. On the coast of San Jose and Rosario are the islands of Cabaongon, Gilbert and the rest of the subgroup.[5,4,6]

The predominant economic activities in the three protected areas are agriculture, fishery, and local tourism which contribute significantly to the total revenue of the respective Local Government Units (LGUs). Most of the people are engaged in agriculture and fishery related livelihood and trading, and agri-fishery based small and medium enterprises (SMEs).

### **3. SOCIO ECONOMIC SITUATIONS OF THE BIRILAROSA**

#### **3.1 Biri**

Biri, officially the Municipality of Biri, is a 5th class municipality in the province of Northern Samar, Philippines. According to the 2015 census, it has a population of 11,767 people.

The municipality is facing Pacific Ocean to the east and San Bernardino Strait to the west. It consists of several islands off the northern coast of Samar Island, the largest of which is Biri Island. Other larger islands are Talisay, Magasang, and Cagnipa. Biri Island is notable for a large number of unusual rock formations along the northern shore, facing the Philippine Sea. It is included in the marine protected area known as Biri Larosa Protected Landscape and Seascape.

#### **3.2 Mangrove Reforestation**

In 2007, the Community-Based Mangrove Protection and Management project was implemented in Biri, funded by the Philippine Tropical Forest Conservation Foundation (PTFCF). The project aimed to contribute to the regeneration of the mangrove ecosystem by establishing a community-based mangrove management system. The project covered protection of 546 hectares and enhancement planting in 39 hectares. As of 2013, it has been expanded to all eight barangays in Biri.

#### **3.3 Biri Initiative Organization**

In 2012, a non-profit organization, Biri Initiative Org., was registered with the Philippine Securities and Exchange Commission. Its main objectives are to restore areas of coral reef damaged by illegal fishing methods, promote sustainable and environment-friendly methods of fishing, and encourage opportunities for alternative livelihoods, particularly for women.

#### **3.4 Lavezares**

The municipality of Lavezares is now classified as 4<sup>th</sup> class municipality with the agriculture as its base. The primary source of income are farming and fishing. Copra, abaca and palay are its basic agriculture industry and boost off its marine products as competitive in the local market. Local trade and service industry take a share in the income and practice profession also help generate revenues.

#### **3.5 Rosario**

Rosario, officially the Municipality of Rosario, is a 5th class municipality in the province of Northern Samar, Philippines. According to the 2015 census, it has a population of 10,520 people.

It is bordered in the west by Lavezares and Victoria to the south. Its coastal area is protected

as part of the Biri Larosa Protected Landscape and Seascape.

### 3.6 San Jose

San Jose, officially the Municipality of San Jose, is a 5th class municipality in the province of Northern Samar, Philippines. According to the 2015 census, it has a population of 17,561 people.

It is located at the north central part of the province, about 19 kilometers (12 mi) west of Catarman, the provincial capital, and about 30 kilometers (19 mi) east of Allen, where the ferry terminal is which connects the islands of Luzon, Samar, Leyte, and Mindanao via the Pan-Philippine Highway (formerly the Maharlika Highway). It is approximately 150 kilometres (93 mi) north-north-east of Tacloban City, the Regional Center of the Eastern Visayas.

Politically, the municipality is bounded on the north by the Philippine Sea, on the east by the Municipality of Bobon, on the south by the Municipality of Victoria and on the west by the Municipality of Rosario.

### 3.7 Biodiversity

BIRILAROSA protected areas is well known for biodiversity conservation. The Biri Larosa Protected Landscape and Seascape (BLPLS) is the site where the Biri Rock Formations are found. These are composed of an Early Miocene sedimentary unit and an andesitic complex comprised of shallow intrusions and agglomerates [5]. Tourist go to the area for these rock formations which was formed by wave action of the Pacific Ocean. The BLPLS is also identified as a key Biodiversity Area with two coral species considered to be the trigger species of the PA as listed by Conservation International (CI) ([www.conservation.org](http://www.conservation.org)):

*Anacropora puertogalerae* and *Gonioporacellulosa*. During the site visit, birds and bats were found roosting in the rock crevices.

Coral reefs comprise of 81.53 hectares (201.5 acres) of the Biri Larosa protected area which supports 23 different reef fish species such as the siganid. It also contains 443 hectares (1,090 acres) of mangrove forests with 15 different mangrove species with *Rhizophoraceae* being dominant. They provide habitat to different local and migratory bird species such as the bridled tern, black-naped tern, greater crested tern and frigatebird, as well as several species of shellfish. Seagrasses cover about 284 hectares (700 acres) consisting of five species, including *Cymodocea rotundata*, *Thalassia hemprichii*, and *Enhalus acoroides*.

**Flora:** Thirty (35) species classified as agronomic crops having economic importance and medicinal value were recorded during their study, belonging to 17 families and dominated by Cyperaceae, Amaranthaceae, Poaceae, and Asteraceae families. There are also seventeen (17) species recorded which are classified as horticultural crops.

On the other hand, mangrove species prevalent in the area are the following: *Rhizophoramucronata*, *Rhizophoraapiculata*, *Sonneratiacaseolaris* and *Ceriopstangal* of the Family Rhizophoraceae; *Avicennia marina* and *Avicenniaofficinalis* of the Family Avicenniaceae; *Aegecerascorniculatum* of the Family Mysinaceae, and; *Xylocarpusgranatum* of the Family Meliaceae. Using of the measurable computations of basic ecological parameters such as diversity and abundance, *Rhizophora* species appeared to be more diverse and dominates the area, while *Avecinnea* species co-dominates and was found along mangrove forest edges [5,4,6].

**Table 1. Profile of the municipalities covered by BIRILAROSA protected areas**

Municipality	Land Area (sq. km)	2015 Population (PSA 2016)		Number of Barangays		
		Number	Density (person/km)	Urban	Rural	Total
Biri	24.62 km <sup>2</sup>	11,767	480/km <sup>2</sup>	1	7	8
Lavezares	119.50 km <sup>2</sup>	28,770	240/km <sup>2</sup>	6	20	26
Rosario	31.60 km <sup>2</sup>	10,520	330/km <sup>2</sup>	3	8	11
San Jose	29.85 km <sup>2</sup>	17,561	590/km <sup>2</sup>	9	7	16
Total						

Source: PSA 2015, MPDC of respective LGUs

**The Fauna:** The islands are believed to have harbored herpetofauna species but there are no available scientific accounts yet about their abundance and diversity. Nevertheless, according to the UEP Environmental Study a total of 19 avian species were identified through visual observation and ethnobiological accounts. Regardless of their biodiversity and richness, these bird species are presented below, [7].

The protected area faces threats from coral quarrying, blast fishing, and illegal cutting of mangroves. With this scenario, massive campaign and advocacy on coastal and marine ecosystems protection and management shall be mainstreamed at LGUs level from barangay up to provincial.

### 3.8 Economic Impacts

Results indicate that both the mainland and island communities benefits ecotourism in various ways but not to their level of satisfaction.

Members of the community are allowed access to resources such as fish, food crops, firewood and water. Additionally, a range of job opportunities includes tour guiding; rendering service mobility vehicles for the tourists, and accommodations. Another key tourism related benefits include interaction with the tourists, sale of local crafts, fish processing, food vending and opportunities to profile cultural activities. However, there remains the need to improve beneficiation given the high poverty and unemployment rates in the locality.

It is important to note that majority of the respondents were farmers which at the same time fishermen. It is also interesting that many of the employed people were also patronizing the local tourist's destination. It seems that common people were benefitted so much of the booming local ecotourism industry in the BLPLS areas as represented by the various stakeholders and key players in the tourism industry.

**Table 2. Identified Birds Species in Barangay Progress, Biri**

Common Name	Local Name	Scientific Name
Cattle egret	Talabong	<i>Bubulcus ibis</i>
Reef egret	Kobo	<i>Egretta sacra</i>
Wandering whistling duck	Tamaw-tamaw	<i>Denrocygnaarcuata</i>
Philippine mallard	Agak-aktamaw	<i>Anasluzonica</i>
Brahminy kite	Sikop	<i>Haliastur Indus</i>
Philippine falconet	Milopiko	<i>Microhieraxerythrogenys</i>
White-eared brown dove	Agbaan	<i>Phapitreronleucotis</i>
Reddish cuckoo-dove	Kurokuro	<i>Macropygiaphasianella</i>
Blue-crowned racquet-tail	Kanawian	<i>Prioniturusdiscurus</i>
Colasisi	Kusi	<i>Luriculusphilippensis</i>
Philippine scops owl	Bukaw	<i>Otusmegalotis</i>
Philippine frog mouth	Tagkaro	<i>Batrachostomusseptimus</i>
Glossy swiftlet	Balinsasayaw	<i>Collocaliaesculenta</i>
Philippine dwarf kingfisher	Saliksik	<i>Ceyxmelanurus</i>
Silvery kingfisher	Takray	<i>Alcedoargentatus</i>
Pacific swallow	Milopiko	<i>Hirundiotahitica</i>
Common lora	Siwit	<i>Aegithinatiphia</i>
Large-billed crow	Uwak	<i>Corvusmacrohynchos</i>
Olive-backed sunbird	Siwit	<i>Nectariniajugularis</i>

Source: Ogoc, et al. UEP Environmental Scanning, [7]

**Table 3. Distribution of respondents based on occupations**

Municipality	Livelihood Activities/Occupation (n=respondents)							
	Farming	Fishing	Boat operators	Drivers	Gov't Employee	Private Employee	Business	Total
Biri	29	45	12	16	30	10	18	160
Lavezares	15	25	7	8	15	25	10	105
Rosario	15	35	5	15	20	10	10	110
San Jose	30	30	0	12	22	0	13	107
Total	89	135	24	51	87	45	51	482

Results showed that the distribution of economic benefits is unequal among the rural residents inside the protected areas. Most rural people that benefit from ecotourism are located near the main road, shorelines, and those who have higher access to economic opportunities. This distribution gap is likely to discourage conservation support from the people. It is suggested that the unequal distribution of the benefits from ecotourism can be lessened by enhancing local participation, increasing the use of local goods, and encouraging relocation of rural households closer to ecotourism facilities. The local legislation body should also consider how to operationalize and sustain improved tourism industry that is eco-friendly, culturally sensitive and holistic approach.

The result of the survey showed that tourism activities vary all across different length of residency. Anyone at any age could be a tourist regardless of the number of years they spent residing in the community. Local folks were at the same time local tourist and key players of the existing local ecotourism dynamic of the community. Without these people working for tourism industry, the economic activities would be more active and sustaining. It is therefore an opportunity for the local policy making body, the Protected Area Management board or PAMB to develop mechanism of livelihood support system to improve the emerging economic activities of the rural people who spend more years living in their respective communities.

Tourism revenues can make an extensive contribution to meet the costs of running the tourism destination and provide economic opportunities and inclusive growth.

### 3.9 Social and Cultural Impacts (Ethical Issues)

For the positive side, ecotourism is a melting pot of cultures and people in Biri-Larosa Protected Landscape and Seascape. It is said that national and local pride can be created through the

cultural appreciation of ecotourists, and local knowledge and the standard of living can be enhanced. Table below shows the list of potential and emerging tourist attractions in the BLPLS sites.

These are all the potential ecotourist destinations in the area that helped the stakeholders especially when ecotourism activities take place in a specific destination, it provides employment opportunities for local people, and thus creates income and multiplier effects throughout society. If it is managed well, with a minimum of leakages, the money earned needs to be reinvested in the stakeholder society. This could go to create a better lifestyle for the local population through schools, motorways and hospitals.

In the municipality of Biri the folklore or story about “*Berbenota*” the enchanted lady of Rock Formations has resulted to the protection and conservation in respect to the enchanted lady who is believed to be the protector of the area. These activities provide special opportunities to understand the history and traditions of the community and to witness their cultural practices and daily living, including traditional rituals, rites and dances.

### 3.10 Cultural, Historical, Archaeological Sites

There were two of the well-known historical sites in the Biri group of Island that also projected potential eco-tourism namely; (1) The Bomb-made Lagoon was said to have traces of WWII and had once been carved out by American-bomb and also served as ammunition depot and watchtower of the Japanese Imperial Army. (2) The San Bernardino Lighthouse, It said to be a navigational landmark of sailing vessels from and to the Philippine territory and also believed to have relics of sunken galleon and ships during WWII. Other historical and archaeological sites were the Century Old Bell and Ancestral House of Dato and Delomen Family found in San Jose.

**Table 4. Distribution of respondent based on the number of years living in the community**

Municipality	Length of Residency (n=respondents)								Total
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	
Biri	5	10	10	10	20	10	15	20	100
Lavezares	15	25	10	5	15	20	10	5	105
Rosario	15	20	5	10	15	20	10	5	100
San Jose	5	15	20	5	10	15	20	10	100
Total	40	70	45	30	60	65	55	40	405

**Table 5. List of potential and emerging tourist attractions**

<b>Tourist Attraction</b>	<b>Location</b>	<b>Significant Features</b>	<b>Potential Uses</b>
Punta Point	Biri	The northern tip of Biri visible from ships navigating along San Bernardino Strait. Offers fine view of fragmented Biri Islands	Sunset watching, Sightseeing and picnicking
Sitio Cogon	Biri	Ideal for wind surfing anywhere between months of November and February	Wind Surfing, Wave Surfing, Towing
Liyang Rock	Brgy. San Antonio, Biri	Natural rock- shelter with frontage to scenic views ideal for picnickers	Resting, swimming and picnicking
San Bernardino Isles	Biri	Presence of avian or migratory birds, wild ducks during summertime	Birding/Bird watching and research
Bomb-made Lagoon	School Campus, Biri Central School	Traces of WWII and had once been carved out by American- bomb. An ammunition depot and watchtower of the Japanese Imperial Army.	Historical and commemorative activities
San Bernardino Lighthouse	At the middle of San Bernardino Strait	Navigational landmark of sailing vessels from and to the Philippine territory. Believed to have relics of sunken galleon and ships during WWII	Snorkeling, deep sea diving, sailing
Medicina Hot Spring	Rosario, N. Samar	Therapeutic water ideal for possible relief from illness by bathing and drinking	Water therapy and bathing
Binalabag Busay Falls	Brgy. San Lorenzo, Rosario	Scenic Attraction	Sightseeing, Picnicking, Swimming
Catholic Retreat Facility	Urdaneta, Lavezares	Ideal for prayer and meditation away from normal tour activities	Religious and Cultural Tour
Gilbert Island		With some fish farms and mangrove forests potential for nature interpretation	Mangrove hopping and nature interpretation
No-os Busay Falls	Offshore of Rosario		
Aswang Beach	Brgy. Salhag, Rosario	Scenic Attraction	Sightseeing, Picnicking, Swimming
Binuga Cave and Rock Formations	Brgy. Bantolinao, Rosario	No description	Swimming, Picnicking
Lalaguna Mangrove Forest	Brgy. Ligaya, Rosario	No description	No description
Marsons/Tabok Beach	Brgy. San Isidro, Lavezares	Mangrove Park	Boating/Kayaking, Birding/Wildlife Watching, Swimming
Bankawan Beach	Brgy. Bani, Lavezares		Camping, Swimming, Scuba diving
Urdaneta Beach	Brgy. Villa, Lavezares	Beach Resorts	Swimming, Scuba Diving
Shrine of the Risen Christ	Brgy. Urdaneta, Lavezares		Swimming
Our Lady of Salvation Marine Park	Brgy. Balicuatro, Lavezares	Shrine	Religious
Chansvilla Falls	Lavezares Bay Brgy. Chansvilla, Lavezares	Natural waterfalls	Swimming



<b>Tourist Attraction</b>	<b>Location</b>	<b>Significant Features</b>	<b>Potential Uses</b>
Toog Falls	Brgy. Toog, Lavezares		
Pagol Rock Formation	Brgy. San Agustin, Lavezares	Natural Rock Formation	Swimming, Scuba Diving
Balicutro Rock Formations	Brgy. Balicutro, Lavezares		Swimming
Torotangbo Beach	Brgy. Geratag, San Jose	No description	No description
Small Island Resort	Brgy. Pangilala, Brgy. Matungko, Brgy. Tandang Islands, &Cabaungon Grande, San Jose	Haven of Birds and Mangrove Forests	Bird watching, swimming, mangrove tour, camping, snorkelling, scuba diving, relaxation
Small Island Resort			
Seafood Center	Brgy. Da-o, San Jose	No description	No description
Magasang Rock Formations			
Magsapad Rock Formations			
Macadlaw Rock Formations			Adventure, Natural Environment Beauty, Sunrise and Sunset Watching Services,
Puhonan Rock Formations	Brgy. Progress, Biri	Natural Rock Formation	
Bel-at Rock Formations			
Caranas Rock Formations		Natural Rock Formation	
Tinimpagan Rock Formation	Brgy. San Pedro, Biri		Adventure, Natural Environment Beauty Rock Climbing
Hinablan Rock Formation			
Kalulyangan Rock Formation	Brgy. San Antonio, Biri		Adventure, Natural Environment Beauty
Cogon Surfing Area	Brgy. Mac Arthur, Biri	Surfing	Water Sports
Basud Mangrove Forest	Brgy. Kauswagan, Biri	Watching Mangrove plantation and Sea food basket of Biri	Sea Forest and Kayaking
Magtotoka Dive Site	Brgy. Poblacion, Biri	Watching coral reef, fish sanctuary and defferent	Snorkeling/Scuba
Macaret Dive Site	Brgy. Pio Del Pilar, Biri		
Biri Church Sanctuary/Altar	Brgy. Poblacion, Biri	Well -crafted meticulously sculptured Altar	Sightseeing
St. Vincent Ferrer Shrine		Patron Saint of Gigantic and towering Statue	Cultural/Religious tour
Geron Cliff		Natural Rock Formation	Adventure, Natural Environment Beauty
Lebanon Cliff	Brgy. Mac Arthur		

**Table 6. List of Festivals and Events in BLPLS**

<b>Festival or Event Name</b>	<b>Location</b>	<b>When</b>	<b>Description</b>
Kinis Festival	Rosario	Founding Anniversary	To promote the unique taste of local mud crabs
Carang Festival	San Jose	Every last week of January	No description
Kalag-Kalag/Undas Festival	San Jose	Every last week of October	A Halloween Special Event
Feast of Sto. Niño	Biri	Every last Sunday of January	In celebration for Senior Sto. Niño
Pinonayan Festival	Lavezares	Annual	No description
Kaway Festival	Biri	Every 23rd to 24th of June	to showcase a certain cultural asset distinct to the locality
Eco Sport Run	San Jose	Every September	
Bankaton	Lavesarez	Annual	No description
Carangian Mountain Summit	San Jose	TBS	
Carang Run	San Jose	Foundation Day (June 25 <sup>th</sup> )	No description

**3.11 Festivals and Events**

Besides from celebrating their annual fiestas, the Biri-Larosa also spearheads variety of festivals and events. One of the most famous events are the festivals is the Kinis Festival that happens annually in Rosario [2,4,8].

Other celebrated festivals and events were presented in Table 6 [4,8].

**3.12 Environmental Impacts**

For the positive side of ecotourism, it can generate environmental rehabilitation and natural or local tourism development by promoting environmental protection and the improvement of a specific tourist destination. The greatest contribution of ecotourism is the protection of biodiversity and a sustainable development plan is necessary.

In terms of the negative side, when ecotourism is improperly managed, environmental degradation follows. These invasions often include deforestation, mangrove cutting for fuelwood and housing, small mining or quarrying activities for small and large infrastructure projects, waste disposal, illegal and other destructive exploitative activities particularly in coastal and marine environment, disruption of ecological lifestyle systems and various styles of pollutants, all of which make a contribution to environmental degradation.

Sand and Coral Extraction are the most common Environmental exploitation in the BLPLS sites particularly the municipality of Biri. Adverse environmental consequences can be projected in the future especially the rapid infrastructure development in the area. Coastal intrusion

coupled with infrastructure development and unregulated mass tourism activities are the possible threats and issues that the Protected Area is experiencing. Solid waste management in island municipalities are also one of the major problems that the Local Government is facing. Water pollution management and strict implementation of PAMB Policies and NIPAS Law implementation can be a good mitigating tool to mitigate and control adverse impacts in the future. The Protected Area Management Board (PAMB) are strong enough to implement the NIPAS Law together with the Blue Brigade Volunteers and PAMB enforcement Team in combating these challenges in protected area.

**4. CONCLUSION AND RECOMMENDATIONS**

The challenge of local ecotourism management is about how to employ the concept of triple bottom line concept—the economic, ethical, and ecological dimensions. Ecotourism may be sustainable or unsustainable to some extent, but it is not going to be successful without powerful control over these fragile resources. The cooperation between several stakeholders is also addressed through sustainable tourism management. The main goal of sustainable tourism is to ensure the maximization of positive impacts while minimizing the negative impacts, in terms of economic, sociocultural, and environmental dimensions. Ecotourism is considered to be niche type of tourism which generally has a low impact and involves with the conservation of natural resources. However, it can sometimes generate bad consequences for the area. Then improvement of high-quality relationships between people, resources and tourism will not occur without the implementation

of powerful guidelines, management strategies, and the involvement of a wide range of government agencies, together with local NGOs and Peoples Organizations. There must be cooperation between national, regional and local regulatory board, the Protected Area Management Board (PAMB) which could assist in the implementation of sensible strategies, with the involvement of numerous groups, which include governments, hotels, excursion operators, tour dealers, local coastal dwellers, local authorities, conservation companies, and non-governmental businesses. Another way to make certain the success of ecotourism is to establish ecotourism monitoring and evaluation services. There should be tools to evaluate the possible negative impacts to the environment as environmental impacts assessment and carrying capacity assessments in order to support, manage and control ecotourism activities. Furthermore, ecotourism development should promote long-term development and establish a cooperative network of several stakeholders, such as national, regional, and local government organizations, tourism enterprises, and tourists to make sure the development has reachable and sustainable tourism goals.

### COMPETING INTERESTS

Author has declared that no competing interests exist.

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