Coastal and Mangrove Eco-Tourism in Catanduanes Island (Philippines): A Menace or a Bonus?

Minerva I. Morales¹, Jimmy T. Masagca², Aurora E. Araojo³, and Sonia R. Vargas⁴

Abstract—Coastal and mangrove eco-tourism in Catanduanes island in Luzon, Philippines (Lat 13.67°, Long 124.12°) is possible along the eastern, western and southern coasts. Yet, when it comes to developing coastal eco-tourism (ECT), the coastal areas that are mainly being considered happens to be Igang-Marilima-Magnesia (Virac); Bon-ot – Agojo–Manambag-Codon (San Andres); Batalay-Bote (Bato); Puraran (Baras), and so on. Catanduanes Island for that matter is closer to the cities of Tabaco, Legaspi, Irica, Naga and Masbate; and the Caramoan Peninsula in Camarines Sur has good coastlines with great potential for coastal ECT. Igang to Magnesia del Sur (MAGSUR) and nearby villages; and Puraran flaunt sea beaches with appreciable marine biodiversity, but appear to be of less easy access with the kind of roads available and the frequency of transport for the local and foreign tourists. In view of this, ECT has to gain momentum in these areas. Some beaches have already established themselves as popular tourist spots especially for weekend picnics and national/international surfing competitions. There are many nearby beaches and sea shores which have exotic marine flora (marine macro-algae) and fauna (variety of gastropods, bivalves, corals, sponges, etc.). Excessive tourism can pose a menace to these forms. Thus, there is a need to enhance ECT and still to be vigilant about the sustenance of marine life surrounding the island. Regulated tourism (ecotourism) can serve both the purposes. Economic status of the villagers should be elevated, at the same time and serious threat to marine life should be avoided. Finally, the paper ends with a discussion on the Science Meeting Agric-Eco (SAGE) Tourism in support for the annual Philippine National Biodiversity Meeting (BIOME) and the BIOISLANDCULTURES 2014 (Biodiversity, Islands, Culture and Society).

Keywords— Eco-tourism (ECT), coastal areas, mangroves, Catanduanes, Philippines, biodiversity.

I. INTRODUCTION

The Philippines in the Southeast Asian (SEA) region recognizes sustainable tourism development as integral to the national socio-economic development efforts to improve the quality of life of its citizenry. Supportive to this state policy, different ministries/agencies, higher education institutions (HEIs) like the Catanduanes State University (CSU) in Catanduanes island (Bicol Region, Luzon); and regional/international organizations, like the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) based in Los Baños, Laguna, have been giving attention for the growth and promotion of a tourism industry that is ecologically sustainable, participative, culturally sensitive, economically viable and socially equitable for local communities. Eco-tourism program in the country is directed for the conservation and sustainable use of natural resources in protected areas (e.g. mangroves), so that the necessity of understanding the potential and enhancing coastal eco-tourism (ECT) quality in the Philippine islands is of vital importance.

In line with sustainable development and expanding economic opportunities, inquiries on sustainable and community-based tourism have been numerous [1,2,3]. Worldwide, the number of international arrivals has shown a steady increase. By 2020, there will be 350 million tourists visiting the Mediterranean coastal region [4,6]. European holiday takers prefer seaside areas [5,6]. In the Southeast Asian (SEA) countries of Malaysia, Indonesia, Singapore, Thailand, Vietnam, including the Philippines there have been increases in tourists preferring the marine coastal regions. A substantial growth in coastal eco-tourism is observed as tourists demanded access to wildlife as in non-destructive fashion as possible [6].

The Philippines has been recognized as having one of the world’s mega-diversity centers for terrestrial and marine flora and fauna [7]. It lies at the center of marine biological diversity in the world. However, the marine resources and the mangroves are being destroyed, and the total mangrove area has decreased by almost half from 500,000 ha in 1918 [8,9]. A major driving force of mangrove forest loss is the rapid expansion of aquaculture development [10, 11,12,13,14]. With the concept of eco-tourism, these problems on coastal vegetation degradation may be addressed. In Catanduanes island (Bicol Region, Luzon, Philippines, the remaining areal coverage of mangroves is about 1,671.3 ha [15,16] about 0.65% of the total areal extent in the country. This must be conserved for ecological and economic reasons particularly for tourism in mitigating climate change. In line to this, coastal areas and mangroves have to be dealt with great concern for
ECT development. Interest in ecotourism can contribute to local economies and the demands of eco-tourism can create problems in the natural environment, but by establishing tourism parks and applying efficient management practices in these areas biodiversity can be protected whilst attracting more tourists [6]. Thus, this paper discusses the great potentials of eco-tourism in the coastal and mangroves of Catanduanes within the context of responsible ECT towards sustainable development.

II. METHODOLOGY

A. Identification of the eco-tourism locations with satellite imageries and topographic maps

Satellite imageries from the Philippine National Mapping (NAMRIA) and Google Maps were used in identifying the locations, limits, shorelines and water approach to the land where human coastal dwelling units are located. In describing the potential eco-tourism sites of the island, 6 ecological divisions of Catanduanes [15] was applied and analysis was carried out in understanding tourism links/connection with the rest of the Bicol region provinces based on 78 tourism development areas (TDAs) of the National Tourism Development Plan (NTDP). Moreover, additional areas identified in the island were compared to international criteria and experience in Sundarbans mangroves [6].

B. Secondary data from previous studies/reports

The secondary materials from this paper were culled from various published and unpublished works of the authors [10,14,15,16,17,18] and a paper on climate impacts on coastal and mangrove communities for the Third (2015) International Symposium on the Effects of Climate Change in the World Oceans [19]. Documentary materials were gathered from the Philippine Department of Tourism (DOT) reports, websites and newspaper news and feature articles.

C. Tourist counting and Interviews

For the purpose of this paper interviewees among domestic tourists and stakeholders of community-based MPAs were enquired on their perspectives on the effects of ECT and what actions can give menace to ECT in the rural coastal, MPAs (reserves), fish sanctuaries and the beaches of tourist destinations in the island. To complete the number of respondents, residents in two coastal nature reserves (Agojo, San Andres and Marlima-Magnesia-Batag (Virac)) were used for data sampling. Visitor counting estimates for the two beach resorts as popular destinations (Twin Rocks and Puraran Resort) were done weekly. Interviews were done from October to December in 2013 by students enrolled in Aquatic Biology and hired research assistants enumerators in other funded programs of CSU (CSTIFDP, CIRDEP and PNP); and from January to March, 2014 but extended to April, 2014 due to the Holy Week–Easter Sunday tourists (during a Philippine long vacation weekend “economics of holiday” strategy) who were among 1,000 island-based and external (local and international) tourists. Local government officials, businessmen/investors, academics and other individuals involved in the tourism industry were also included to complete the target number for the elicitation of answers on impacts on coastal and mangroves tourism.

III. RESULTS AND DISCUSSION

A. Coastal and mangrove areas of Catanduanes Island for Eco-Tourism (ECT)

Based on the satellite imageries, almost all zones of the island have potentials for ECT except for the municipality of San Miguel (in upland areas). Table 1 shows the island zones with the coastal areas having potentials for ECT using international and criteria and experience. When it comes to developing coastal and mangrove ECT the areas that are mainly being considered happens to be Igang-Marilima-Magnesia-in Virac; Bon-ot – Agojo – Manambrag-Codon in San Andres; Batalay-Bote (Bato); Puraran in Baras; Loran in Bagamanoc; Panay in Panganiban; and so on. These coasts are nearer to the provinces of Albay, Masbate and Sorsogon (ALMASOR). Catanduanes island for that matter is closer to the cities of Tabaco, Legaspi, Iriga, Naga and Masbate; and the Caramoan Peninsula in Camarines Sur-Camarines Norte (Triple C, to include Catanduanes) have good coastlines with great potential for coastal ECT. The listing of the Department of Tourism (DOT) TDAs (Tourism Development Areas) includes ALMASOR (Albay, Masbate and Sorsogon) and Triple C tourism connections or destinations (Catanduanes, Camarines Sur and Camarines Norte) [20]. These areas are currently included in the eco-tourism promotion for synchronizing and connectivity. The Triple C is now being finalized that will include the operational sub-connection of Caramoan-Catanduanes Link which includes the Codon port. The mangrove eco-tourism park being developed at the Agoho Point in San Andres is being suggested for inclusion in the link previously introduced by the organizers/conveners of the first and only annual national scientific meeting of the Catanduanes Island called BIOME. The coastal village of Igang and nearby areas in the capital municipality of Virac flapnt sea beaches with appreciable marine biodiversity, but appears to be of less easy access with the kind of roads available and the frequency of transport for the local and foreign tourists. In view of this, ECT has to gain momentum in these areas. Some beaches like Puraran in the municipality of Baras have already established themselves as popular tourist spots especially for weekend picnics and national/international surfing competitions. As planned, Triple C (with Catanduanes) could be synchronized with surfing and other water sports activities in Puraran Beach in Baras, Catanduanes, with the wakeboarding at the Camarines Sur Waster sports Complex (CWC) and another surfing off the Bagasbas Beach in Camarines Norte [20] (adjacent to Catanduanes island).

TABLE I

<table>
<thead>
<tr>
<th>Zone No.</th>
<th>Name of Zone</th>
<th>Municipality &amp; Barangay*</th>
<th>Tourism Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Areas</td>
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http://dx.doi.org/10.17758/IAAST.A0714028
B. Biodiversity status in the coastal and mangrove areas

Tropical countries such as Philippines and other SEA countries look at mangrove vegetation in muddy swamps and estuarine areas (also classified as wetlands) as another opportunity to develop ecotourism in their respective countries. There are many nearby beaches and sea shores which have exotic marine flora (marine macro-algae) and fauna (variety of gastropods, bivalves, corals, sponges, etc.). Previous studies mangroves, mollusks, MPAs and other papers on biodiversity are yet to be compiled in a publication about the rich flora and fauna of Catanduanes including birds and reptiles.

C. Threats of developing eco-tourism of coastal and mangrove areas in Catanduanes

Excessive tourism can pose a menace to these floral and faunal forms, which are usually collected by local tourists who frequent these coastal and mangrove areas of Catanduanes. The threats to coastal and mangrove areas in the island will depend on the volume of tourists visiting these tourist destinations of the island aside from other developmental and urbanization ventures. Tourist counting exercises were carried out in two seaports (Virac and San Andres), the Virac Domestic Airport; and two (2) tourist destinations, Puraran Beach in Baras (Zone V) and Twin Rock Beach Resort in Igang, Virac (Zone IV). Tourist counting data covering October to December 2013 resulted to the accumulation of an unofficial number 4,489 tourist counts; and January to April 2014 with 7,876 counts, for a total of 12,362 tourists counted by research assistants enumerators, volunteers and students, wherein 17% or 2,012 are foreign tourists (for a period of 7 months), 83% or 10,353 are local tourists composed of those living within the island province (professionals, students, etc) and outside the island (professionals, government officials, vacationists, including attendants of the regional sports competition in February 2014. Out of the 83% an estimated 12% or 1,242 counted tourists are staying and working within Manila and the rest are the relatives or siblings of the foreigners. If these percentages (17% and 12%) are to be added as foreign tourists, there will be a total of 29%. This percent is close to the proportion of foreign reservations in two beach resorts ranging from 30% to 35% of those who have total reservations from March to April of 2014 (actual occupancy of the reserved accommodations are expected to be lower due to cancellations).

Perspectives of 1,000 tourists (local and foreign) including stakeholders and beach operators/personnel on the reasons or activities that (i) could affect eco-tourism, (ii) can be affected, and (iii) can damage coastal and mangroves when eco-tourism will be developed or be fully-operational in the different ecological divisions or zones of the island province (see Table 1) were solicited from January to April 2014. From the different responses, the following are the top 10 most frequent responses: (1) construction of infrastructure to support tourism activities tops among the menace, this is followed by (2) unplanned and illegal construction of facilities for the opening of new beach resorts, cottages/buildings and pools, (3) new roads, bridges and other civil works in the coastal areas which are directly or indirectly connected to tourism development, (4) that uncontrolled collection, extraction and uprooting of plant materials of local tourists for business-use or for commercial purposes, (5) surfing and diving session and expeditions could harm the unique flora and fauna in the continental shelf of which are actually excessively used by divers, boating operators and surfers for navigation and as “parking” or docking zones of boats, (6) threats to the local morality of coastal and mangrove eco-tourism will be camouflaged by “sex-tourism” sometimes hidden under the group tourism approach, (7) pressures on supporting industries on food production and supply for the tourists that will eventually abandon other food producing industries for the local people; (8) graft and corruption can affect the implementation of eco-tourism programs; (9) typhoons and other natural calamities can hamper the implementation of eco-tourism; and (10) the increase of local prices of food commodities needed by the local people for daily consumption.

D. A Green university in the island and visions for responsible eco-tourism

In the 5-Year (2014-2018) Strategic Development Plan of CSU [21], the sub-goals on protecting island environment and biodiversity; and the improving productivity and livelihood in coastal and island communities necessitate the strategic implementation eco-tourism development programs towards sustainability. At present, a Multi-Species Fish Hatchery Project with the mangrove-Ecotourism Park, with the boardwalk for nature picnics, photography, bird watching and other environmental education and introducing eco-tourism in mangroves for children have been developed starting December 2013 with the mangrove rehabilitation project. Plans are now underway on the provisions for entrance fee collection to subsidize the maintenance of the mangrove eco-park facilities. Moreover, the university has been working with the stakeholders of Agjo Point Marine Reserve and Fish Sanctuary (APMRFS) in San Andres, Catanduanes or its re-development by introducing marketing model in MPA management. Likewise, the local government unit of the municipality of Baras (Zone V) has been working with the

<table>
<thead>
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<th>Municipality &amp; Barangay</th>
<th>Tourism Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Northern</td>
<td>Pandan (Canubi, Palumbanes)</td>
<td>Dinahit Festival, Parangpong island</td>
</tr>
<tr>
<td>II</td>
<td>Northwester n</td>
<td>Caramoran</td>
<td>Coastal &amp; Mangroves</td>
</tr>
<tr>
<td>III</td>
<td>Northeastern</td>
<td>Panganiban, Viga, Bagamanoc</td>
<td>Coastal &amp; Mangroves</td>
</tr>
<tr>
<td>IV</td>
<td>Southern</td>
<td>Virac (Igang, Bale, Marilima, Batag, Magnesia)</td>
<td>Twin Rock Beach Resort in Igang, Marine Protected Areas and University Mangrove Eco-Park</td>
</tr>
<tr>
<td>V</td>
<td>Southeastern</td>
<td>Baras (Puraran, Bato (San Roque)</td>
<td>Puraran Beach Resort, Minabalay Island</td>
</tr>
<tr>
<td>VI</td>
<td>Southwester n</td>
<td>San Andres (Agjo, Catagbakan)</td>
<td>Agjo Point Marine Reserve and Fish Sanctuary</td>
</tr>
</tbody>
</table>

(a) Known as Barangay (basic political unit in the Philippines)
university in the implementation of MPA in Kalapadan Bay and the design of mangrove planting activities. This municipality has the internationally recognized tourist destination (the Pacific Majestic Resort) for swimming, snorkeling and surfing.

E. BIOME, BIOISLANDCULTURES Symposium I and SAGE tourism

SAGE (Science-Agriculture & Ecological) tourism was conceptualized during the annual BIOME in 2010 and the upcoming BIOISLANDCULTURES Symposium I are supporting initiatives to the development of coastal and mangrove eco-tourism in this island. In 2010, when the 1st BIOME [18,22] was held in the island gathered teachers, researchers, scientists, environmentalists, local/national government leaders, biodiversity experts, conservationists, women, youth and students. In 2014, BIOME4 with BIOISLANDCULTURES Symposium during the Catandungan Festival are to be held. SAGE Tourism integrates agricultural eco-tourism with the scientific meeting during a Biodiversity Consultative Meeting with local government officials and the attendees of the scientific meeting.

F. Poverty alleviation, pro-poor tourism and agriculture-tourism linkage programs

The development of sustainable and responsible eco-tourism in many parts of the Philippines is now in vogue. For instance, in Calapan City in the island of Mindoro, Luzon) established the Silonay Mangrove Conservation and Eco-tourism Park to address both biodiversity and eco-tourism development [23]. However, questions about the whether these are for poverty alleviation and pro-poor based are yet to be addressed. The potential for synergistic relation between tourism and agriculture has been widely recognized by development planners, policy makers and academics [24]. Forging closer linkages between local agriculture (we refer to aquaculitivation in mangrove areas) and tourism is an “important potential mechanism through which to achieve pro-poor tourism objectives” [25]. It was argued [26] that the “food supply chain to the tourist sector be an important source of pro-poor impact”. Investigations confirm the sourcing of local agriculture products represents one of the key development impacts the tourism sector can offer particularly in the developing world [27, 28]. Aquaculture foods (as agric-products), such as crabs, shrimps, tunas and mackerels are important food for tourists. As such, from the existing international experience in developing aquatic food stuffs from these high valued food items can be focused in developing the local aquaculitivation - tourism linkage within the coastal and mangrove ecotourism program. A recent study [17] on pro-poor support programs in this island reveal that on livelihood, only 20% of the households (HH) systemically sampled have animal production (mostly chicken and swine) activities, while a quarter (25%) of the HH had crop production. Very scant number of HHs is involved in aquaculture/aquasilviculture which can be enhanced by diversifying livelihood in support of the eco-tourism industry. As recommended in said study [17] pro-poor support programs can include livelihood diversification (LD) scheme, income generation and employment opportunities considering the unique bio-economic and socio-economic circumstances in the coastal communities. Diversified livelihood programs in the coastal villages could include ECT in coastal and mangrove areas to help boost local economies. Results of interviews made among owners, managers and beach personnel in the island expressed a very strong willingness of the local government officials to be engaged in tourism ventures in their villages but mostly are reluctant where to get their funding. If willing, they must follow the South African experience in tourism on Responsible Tourism Guidelines that call upon private sector tourism businesses to ‘buy local’ wherever, quality, quantity and consistency permits [29]. Its major cities are pursuing initiatives for expanding local food sourcing procurement as part of their wider adoption of ‘green’ or ‘responsible’ business practices. On the academic or tourism scholarship in the island, the need to analyze patterns of food sourcing in coastal hotels, resorts and restaurants in support of coastal and mangrove ecotourism. Within the ecotourism plan of the island, pro-poor tourism and aquaculture or aquasilviculture and mariculture food production must be developed with the key tourism assets of the island province that relate to traditional “sea sun and sand” [30] forms of ecotourism. Based on documentary analysis, the tourism economy of Catanduanes coastal areas started from ecotourism products derived from beach products and services for local and domestic tourists. The island is now included in the nation’s TDA’s leisure tourism destination with surfing and diving. In recent years, and the rapidly increasing ecotourism fashion, a major shift in the tourism market is now experienced with the surfing, diving, sea bottom viewing and few marine archaeological activities are becoming popular in the island. The challenge to re-invent the local eco-tourism is now a challenge and the local state university has to be a leader in ecotourism scholarship that will have a good blend of coastal and mangrove ecotourism, responsible eco-tourism with local aquatic food products, and the pro-poor high impact poverty alleviation ecotourism model in the island.

IV. CONCLUSION

This paper identified coastal areas and mangroves in river-estuarine areas of eastern and western coasts of Catanduanes island’s strategic ecological tourism sites. Identification of the sites was based on available satellite imagery and topographic maps of the shoreline and estimates of the water approach into the land where local peoples’ coastal dwelling units are located. Some beaches have already established themselves as popular tourist spots especially for weekend/summer vacation picnics, swimming, diving and national/international surfing competitions. There are many nearby beaches and sea shores which have exotic marine flora (marine macro-algae) and fauna (variety of gastropods, bivalves, corals, sponges, etc.). Excessive tourism can pose a menace to these forms and different perspectives on developing coastal and mangrove eco-tourism were known and also in support to pro-poor
programs. Thus, there is a need to enhance eco-tourism and still to be vigilant about the sustenance of marine life surrounding the island. Regulated ecotourism can serve both the purposes. Economic status of the poor villagers should be elevated at the same time and serious threat to marine life should be avoided through responsible eco-tourism.

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