POTENTIAL FOR DEVELOPING TOURISM IN A SUB-REGIONAL GROWTH AREA (ROXAS-DUMARAN-TAYTAY) IN NORTHERN MAINLAND PALAWAN

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ABSTRACT

The majority of the tourism industry on mainland Palawan is located in the north of the province. El Nido and Puerto Princesa are the most visited tourist areas in Palawan. The municipalities between these areas are considered to be sub-regional growth areas (Roxas, Dumaran and Taytay) since they serve as transition areas from one tourist hot spot to another. This study explores the tourism potentials of the sub-regional groregionwth areas using a potential analysis. By exploring the cases of Roxas, Dumaran and Taytay, various potentials were identified that could contribute to the development of this region of the island. Characterization resulted in the identification of the competitive advantages of each municipality, which were used to develop this region in a way that assures a sustainable growth of this sub-region that complements that occurring in the tourist hot spots.

Keywords: potentials analysis; tourism development; tourism growth poles; tourism spatial strategy

Introduction

Palawan is the largest province in the Philippines, with a total land area of 1,703,705 hectares comprised of 1,708 islands and islets. It is dubbed as the "Last Ecological Frontier" in this country because of its unique and diverse flora and fauna (Sandalo and Baltazar 1997). Furthermore, this province is subdivided into three areas: northern Palawan, where the production of agricultural crops and tourism are important; southern Palawan, where agribusiness is most important; and in the middle is the lone city of Puerto Princesa, where most of the thriving industries (e.g. malls, call centres, factories, etc.) are located.

Palawan is one of the island provinces in the Philippines, where tourism and agriculture are important features of the economy. Based on data from the Palawan Tourism Promotions and Development Office (PTPDO), a total of 870, 478 tourists visited the area in 2013, which is 67.48% (587, 441) greater than in 2008. The majority of the tourism industries in Palawan are located in the northern part of the province in which the municipality of El Nido and Puerto Princesa city are situated. In the 2013 the ranking of Puerto Princesa City and the municipality of El Nido were, respectively, first and third of the most visited sites in Palawan (Salcedo 2015). These municipalities offer different tourism-related activities, such as accommodation, leisure, food, tours and sightseeing.

Due to that fact, this city and municipality are the primary tourist hot spots based on the growth pole theory formulated by Francois Perroux in the early 1950s, which emphasizes in particular the importance that economic growth in a region should be linked with a key industry that has interconnections with different industrial activities and affects the area by promoting economic development (e.g. increase in employment, high labor force, expansion of existing industries, etc.) (Wheeler et al. 1998). Based on this theory, the city of Puerto Princesa and municipality of El Nido were identified as growth center's since based on various planning documents such as the National Tourism Strategy of the Philippines, Regional Development Plan and Provincial Physical Framework Plan of Palawan, include these municipalities in the primary tourism hot spots.

Furthermore, a study was conducted at Coron and Busuanga, another part of the province, where new tourist areas were developed to complement the growth of the primary tourist hot spots. These tourist areas are expected to gradually develop their own market and attract more visitors into the region (Tomeldan 2009).

However, the presence of tourism hot spots also connotes disparity through the phenomenon called polarization in which the majority of the economic activity occurs in the center of the region resulting in regional disparity (Balisacan 2006). In the case of northern mainland Palawan, the municipalities of Roxas, Dumaran and Taytay are sub-regional areas. They are characterized by having a lower capacity for development than the tourist hot spots, in lacking an urban center, a need to improve transport and infrastructural facilities and diversify the local economy by utilizing the rich and varied environmental assets of the rural settlements (Government Office for the East Midlands 2005).

This study focuses on the identification and classification of the potentials for developing tourism in the municipalities of Roxas, Dumaran and Taytay as part of the established tourism hot spots. The development of tour-

ism in the sub-regional growth area (Roxas, Dumaran and Taytay) needs to be based on strategies that complement the development of tourism on the northern mainland, Palawan. This could result in more even growth in tourism in the province.

Methodology

This study included four municipalities and a city. At this scale it can be achieved by utilizing the primary and secondary data available (Johnston 2014) in different local government offices in each municipality and city and from the databases of provincial and national governments. The secondary data gathered was validated by a Key Informant Interviews (KII).

In terms of role clarification and assignment for the sub-regional area of growth, identifying its competitive advantages relative to those of the tourist hot spots sets the baseline for the competitive advantage of the tourist hot spots. The criteria for the identification were based on the Comprehensive Land Use Plan (CLUP) of the

Housing and Land Use Regulatory Board (HLURB) in the Philippines (Table 1).

These success factors emphasize the importance of competitive indicators such as natural environment, infrastructure, social services, etc., which affect the survival of the industry in the market (Thompson et al. 2012). By doing so, the ability of the sub-region to produce a unique industry that has the potential to become a regional development was highlighted. In addition, determination of strengths and weaknesses as assets of the sub-region unveils different potentials that contribute to the determination of competitive advantage (Blackwell and Eppler 2014).

Such data were combined and used in a tool called Potentials analysis. Potentials analysis is a planning and decision making tool that allows the creative and self-reflective analysis of the actual (already developed) and latent (existing but yet to be developed) resources within an area or community under study. This determines various potentials of a certain region resulting in a context based planning that is not dependent on external sources. This tool, utilizes different characteristics of an area,

Table 1 Criteria for evaluating tourism competitiveness (HLURB, 2014).

Group heading	Criteria	Weight	Considerations
Lodging and Food	Lodging facilities	12%	Hotels, inns, resorts, private homes
	Food facilities	6%	Restaurants, drive in inns
Recreation and Shopping	Shopping facilities	3%	Handicraft stores, gift shops, department stores
	Night time recreation	2%	Nightclubs, discotheques, theatres, cinema
	Facilities conducive of health and relaxation	2%	Hot springs, mineral water springs, picnic grounds, hiking trails, parks
	Education facilities	2%	Zoos, botanical gardens, aquariums, museums
	Sports facilities	2%	Hunting, fishing, scuba diving, swimming, golf, Tennis, Pelotas, horseback riding
Infrastructure and Utilities	Accessibility	6%	Highways, roads, airports, bridges, piers
	Transportation facilities	6%	Land, sea, air facilities
	Communication facilities	4%	Radio, TV, telephone, Telegram
Natural factors	Natural beauty	15%	General topography of the area, flora and fauna, lakes and river, sea, island, springs, waterfalls
	Climate	5%	Amount of sunshine, temperature, fresh air
Peace and order	Security for tourists	10%	
Social and Cultural factors	Artistic and architectural features	2%	Local architecture – mosques, monuments, old buildings, forts
	Festivals	4%	Religious, sports, music/dance festivals
	Distinctively local	2%	Folk dances, costumes, music, souvenirs
	Fairs and exhibits	2%	Commercial/non-commercial
	Attitude towards tourists	2%	Local congeniality and treatment of tourists
Historical	Ruins	4%	Condition and accessibility
	Monuments, memorials, religious and historical landmarks	4%	The extent to which a site may be well known due to important historical events
Rating: Score in terms of points Descriptive Rating 91–100 3.1–4 Excellent 80–90 2.1–3 Very Satisfactory 66–79 1.1–2 Satisfactory 65–below 0.1–1 Unsatisfactory			

such as existing human resources and infrastructure to reveal the different potentials of a region.

Application for development in tourism is new and limited to unpublished manuscripts, however, this tool is widely used as it can elicit endogenous landscape characters that can be directly tapped and used to achieve the local or regional goals. Such purposes were similarly applied to the identified sub-regional growth centers in Northern Mainland Palawan. Consisting of simple potentials (e.g. mountains, rivers, etc.), this could become a more complex idea by combining two simple potentials that could result in first level potentials (e.g. mountain + river as source of water = timber production), and combining a simple potential with a first level potential could result in a second level potential (e.g. humans as workers + timber production = timber exportation). After this, the results from the first level potential and second level potential can be combined and analyzed in order to formulate a potential tourism development strategy for certain sub-regional growth areas. This resulted in the development of unique potentials that could be used to enhance regional development. Below is the step-by-step process for formulating a tourism development strategy using potentials analysis (Fig. 1).

Results and Discussion

Analyzing the existing roles of the sub-regional growth area (Roxas-Dumaran-Taytay)

The identified growth poles with the characters of Francois Perroux growth poles of 1988 indicate that a propulsive industry in one location can encourage growth outward from that location. Such industry, which in this case is tourism on the Northern-Mainland, Palawan. The thriving tourism in the area is generally coupled with a concentration of population and centralization of economic activities and services. The following are the observable characteristics of both the growth poles and growth centers in the regional analysis.

Population character

The an annual population growth rate of 4.51% and 3.32%, for Puerto Princesa city and El Nido, respectively, clearly indicates that these municipalities are the growth centres in northern mainland Palawan, where the majority of the economic activity, especially tourism and other industries, are situated (Table 2). Unlike Roxas (2.59%) and Dumaran (2.67%), Taytay has a higher growth rate (3.10%) because this municipality has more established
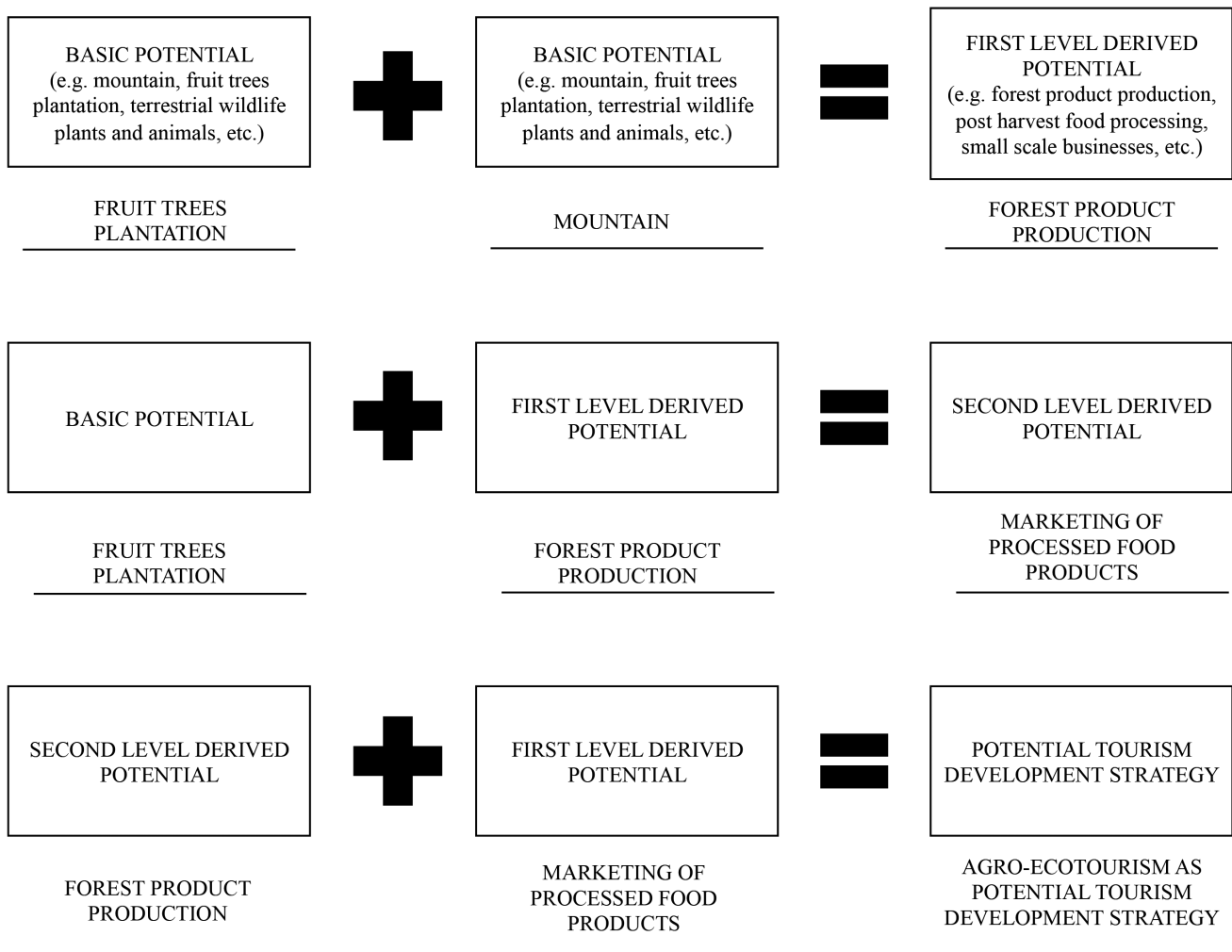
Fig. 1 Step-by-step process of Potentials analysis.

Table 2 Historical population growth in the sub-regional growth area and tourism growth poles.

Municipality	Population					Average Annual Growth Rate
	1990	1995	2000	2005	2010	
Roxas	36,604	44,370	47, 242	51,084	61,058	2.59%
Dumaran	12,624	13,980	16, 616	18,737	21,397	2.67%
Taytay	38,435	47,095	53,657	61,991	70,837	3.10%
El Nido	18,832	21,948	27,029	30,249	36,191	3.32%
Puerto Princesa	92,147	129,577	161,912	210,508	222,673	4.51%

economic characteristics as it was once the provincial capital of Palawan. Clearly, the population growth over the last two decades (1990s) in El Nido and Puerto Princesa has been higher and coincides with when tourism became important in Palawan.

Population density

Population distribution in the municipalities in this sub-regional growth area indicates that there are a few places where the population is dense enough to affect the level of productivity (Parr 1999). Taytay has a total population density of 55 persons/km^2 and the largest land area (1,265.24 km^2), and a total population of 70,837, followed by Roxas with a population density of 49 persons/km^2 in an area of 1,225.50 km^2. Comparatively, there is only a slight difference between the characteristics of Roxas and Taytay. Lastly, Dumaran has the lowest population density of the municipalities with a total of 38 persons/km^2, which is lower than Roxas and Taytay, but its land area of 553.27 km^2 is considerably less and as a consequence the population density there is much higher than in the other two municipalities (Dacumos 2015).

Socio-economic character

Puerto Princesa city and El Nido have higher annual population growth rates than that of the sub-region, which is a result of the agglomeration there of economies. This leads to the availability of social services geared towards accommodating the larger population and the influx of tourists. Also, being the centre of tourism (Puerto Princesa city and El Nido), the economic investment increases, which further increases the density of the population (Syez 2013). For instance, records of unemployment in Roxas and Taytay in 2010 are 56.97% and 73.28%, respectively (SEP 2010), which are very high.

Spatial stratification

Based on the Provincial Development and Physical Framework Plan (HLURB 2014), municipalities in this sub-region are designated as agriculture – based economies, which produce major crops, livestock, poultry and fisheries. On the other hand, given the potential for an agriculture-based economy, the majority of the growth is in tourism and urban development. This is an example of spatial discrimination in which the potential role of a certain region is overridden by economic activity (Parr 1999).

Market orientation

Agricultural production of this sub-region mainly goes to centres of tourism in the province. Roxas' and Dumaran's cashew production goes directly to Puerto Princesa and is used to produce the booming cashew souvenir goods. Dumaran's livestock and Taytay's fish products, respectively, go mainly to hotels and restaurants in Puerto Princesa. This is also true of some High-Value Commercial Crops (HVCCs) and other vegetables produced only for the tourism industry.

These municipalities, by virtue of the growth pole strategy, are inevitable recipients of the "spillover" economic benefits (and possible negative effects) and services found in the growth centres since they have the services and investments for further development.

Implications of the tourism growth poles

The Spread and associated effects, as outlined by economists Myrdal and Hirschman,are among the general categories predicted by the growth pole theory. In the simplest sense, the spread effects are the positive effects of urban proximity for communities, and associated effects are the negative consequences of proximity. Several studies have revealed a variety of results if this theory is used as a guiding principle in explaining certain economic phenomena in the region.

Provided with such conditions, the northern mainland Palawan region was analyzed using the spread and associated effects predicted by the growth pole theory. In summary, the spread and associated effects can be measured by either a change in population or change in income as a function of distance to the nearest city (Ganning, n.d). Results show similarities in the effects of tourism growth poles in the region of Northern Mainland Palawan.

Vibrant generation of employment in the growth poles

Man-power coming from the sub region is employed in Puerto Princesa. Benefits from manual labour do not go to the municipality but the growth poles, as the demand is there. As for the case of Dumaran, all the vocational school graduates funded by the national government are employed in either Puerto Princesa or El Nido. Business and industry struggle to survive because they lack effective manpower, financial resources and

investment, which mainly go to the more profitable areas (Puerto Princesa and El Nido), this unfavorable socio-economic context may also determine the level of entrepreneurship in an area (Chouinard et al. 2002).

Population composition

Employment associated with tourism attracts much of the local population to the growth poles and they also choose to reside near their place of work. Other aspects of this sub-regional population migration account for the services that only Puerto Princesa provides.

Agricultural productivity

Attraction is evident since the growth poles offer a larger market. Also, some areas in the sub-region, especially Dumaran, are the exclusive supplier of livestock and vegetables for Puerto Princesa for their booming tourism industry, even if there is a demand for similar products in the same municipality. Agriculture is important in Dumaran, Roxas and Taytay, accounting for 70%, 70% and 72.36% of their economies, respectively (SEP 2010). This implies a strong dependence of the sub-regions on agriculture. In addition, the agricultural produce of the sub-region are raw materials devoid of added value, from which Puerto Princesa mainly profits.

Poverty threshold

The incidence of poverty is high in the sub-regional growth area because tourism attracts industries to northern mainland Palawan, which attracts workers. These movements of people are further stimulated by privatization and deregulation of public areas such as islands, forestland and agricultural land, which among other factors have considerably reduced the number of jobs for the locals (Gant 2006). The majority (68.07%) of the households in the sub-regional growth area classified as *below poverty threshold,* with a total number of 29,918 (ERMP 2015). Taytay has the highest percentage of households in this classification with 13,264 (76.54%), followed by Roxas with 12,993 (66.49%) and Dumaran with 3,661 (43.02%). In addition, there are a great number of households classified as below the food threshold level in Taytay, Roxas and Dumaran, with 60.87%, 52.69% and 27.40%, respectively.

Critical disruption of ecosystem

In the case of the sub-regional growth area, there is a conflict between environmental conservation and economic development. Resources from the marine ecosystem, such as fish are decreasing, in particular coral reefs in Dumaran are no longer highly productive due to over fishing, privately owned pearl farms limiting the access to coastal waters, the conversion of mangrove and forest lands to residential areas and the unsustainable practice of the *Kaingin system* (slash and burn), which is evident particularly in Taytay and Dumaran. These activities are centered mostly on producing goods for the growth centers.

Competitive advantage of tourism in the sub-regional growth area

The figures in Table 3 provide an assessment of the competitive advantage of tourism in the sub-regional growth area (Roxas-Dumaran-Taytay). This is based on the capability of each sub-regional center to attract tourists to their area. Overall, of the three centers Taytay has the highest rating for tourism competitiveness although

Table 3 Researcher's evaluation of the tourism competitiveness in the sub-regional growth area.

Municipality	Weight																				Total	Rating*
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
Roxas	10	5	3	2	1	1	2	5	4	4	15	5	10	0	4	2	0	2	0	0	75	VS
Dumaran	5	3	1	1	1	1	0	3	4	3	15	5	10	2	4	0	0	2	4	4	68	US
Taytay	12	6	3	2	2	2	2	5	6	4	15	5	10	2	4	1	0	2	4	4	91	E
The scoring for the municipalities are based on the data gathered by the researcher and secondary data.																						
* VS-Very Satisfactory; S-Satisfactory; US-Unsatisfactory; E-Excellent																						

Legend	Criteria	Legend	Criteria
A	Lodging and facilities	K	Natural beauty
B	Food facilities	L	Climate
C	Shopping facilities	M	Security of tourists
D	Night-time recreation	N	Artistic and architectural feature
E	Facilities conducive to health, rest	O	Festivals
F	Education facilities	P	Distinctive locals
G	Sports facilities	Q	Fairs and exhibits
H	Accessibility	R	Attitude towards tourists
I	Transport facilities	S	Ruins
J	Communication facilities	T	Monuments, memorials, religious and historical landmarks

Roxas has also a high rating, but its competiveness is limited by lacking a plan for tourism and the necessary infrastructure. Lastly, the competiveness of Dumaran is the lowest, since it is just starting its tourism industry.

Potential for developing tourism in the sub-regional growth area

The table below shows the results of the Potentials Analysis of the municipality of Roxas, one of the sub-re-

gional growth centres. The results for the other two municipalities (Dumaran and Taytay which were not shown on the table below) were also used to determine the regional strategy for the development of tourism. Using this process, the potential for tourism of each municipality was revealed and used in the development of tourism strategies that could be implemented.

In the case of the municipality of Roxas, the strategy focused on developing its agriculture sector and ecological aspects (islands, falls and wildlife). Other municipalities were similarly assessed and the results used to de-

Table 4 Basic potentials of the municipality of Roxas, Palawan.

	Code	Basic Potentials	Code	Basic Potentials
Natural potentials	A1	Mountains	A8	Sand and other minerals
	A2	Forest products (herbal plants, honey, forest litter, hard wood)	A9	Sea grass beds
	A3	Terrestrial wildlife and plants	A10	Marine protected areas
	A4	Endemic and endangered species	A11	Aquatic wildlife and plants
	A5	Waterfalls	A12	Agricultural lands
	A6	Rivers	A13	Islands and islets
	A7	Beach fronts	A14	Seaweed
			A15	Cave
Economic potentials	B1	Agricultural production (rice, corn, etc.)	B8	Seaweed production
	B2	Cashew production	B9	Fish and aquaculture production
	B3	Fruit tree plantations	B10	Van and bus transport
	B4	Livestock production	B11	Private businesses
	B5	Small scale fishing activity	B12	Money transfer facilities and pawnshop
	B6	Lodges and pension houses	B13	Medium-to-large scale live fish trading
	B7	Poultry production		
Infrastructure potentials	C1	Bridge	C8	Communication infrastructures
	C2	Ports	C9	Government buildings and offices
	C3	Road networks	C10	Agricultural facilites (mills, dryers, etc.)
	C4	Water supply system	C11	Telecommunication facilities
	C5	Irrigation system	C12	Reserved relocation site
	C6	Public facilities (halls, courts, etc.)	C13	Airstrip
	C7	Social infrastructures (church, schools, etc.)		
Socio-cultural potentials	D1	Peoples organizations	D4	Traditional values, beliefs and practices
	D2	Sense of Ccommunity	D5	Local language
	D3	Festivals and traditional social celebrations		
Institutional potentials	E1	LGU livelihood support	E5	Responsive line agencies
	E2	Development funds	E6	Peace and order maintenance and support
	E3	Collaborative academic institutions	E7	Provincial government support
	E4	NGOs and volunteers		

velop their respective tourism strategies and to promote complementary growth based on their competitive advantages.

The determination of the basic potentials led to the formulation of derived potentials. These potentials were combinations of various basic potentials. These first level derived potentials were then combined with basic potentials, which resulted in second level derived potentials of the municipality of Roxas, Palawan. This was also done for the other two municipalities (Dumaran and Taytay).

Conclusion

The municipalities of Dumaran, Roxas and Taytay have the characteristics of peripheral areas associated with tourism growth poles on the northern mainland Palawan. Indicators such as population growth, population density, socio- economic character, spatial stratification and market orientation indicate that the municipalities of Roxas, Dumaran and Taytay are sub-regional growth

areas as the growth in these municipalities is lower than in the growth poles.

All three municipalities in the sub-region studied suffered similarly (e.g. the greater employment prospects and standard of living in tourism hot spots were greater than locally, which resulted in a migration of people to the hot spots, over exportation of primary products and ecosystem disruption by supporting the continuous growth of the centres of tourism. Such implications include the positive economic gains for Puerto Princesa and El Nido in terms of their vibrant tourism industries, but more significantly, the inevitable negative effects on the established relationships in the sub-regional area (Dumaran-Roxas-Taytay), which resulted in economic losses from decrease in employment and a reduction in population and investments.

The continuous providing of agricultural and other primary products to Puerto Princesa and El Nido, resulted in the ecosystem in the sub-region (Dumaran-Roxas-Taytay) being severely damaged due to a demand-driven conversion and use of natural resources to augment the increasing demand for ecotourism services.

Table 5 First level derived potentials based on combinations of various basic potentials of Roxas, Palawan.

Code	First level derived potentials	Combination of basic potentials to form first level derived potentials	Code	First level derived potentials	Combination of basic potentials to form first level derived potentials
F1	Processing of cashew into butter	A3, B2, D1, E1, E5	F14	Establishment of private business groups	B6, B7, B11, B12, B13
F2	Improved farm-to-market roads	A8, C3, C4, D1, E2, E7	F15	Establishment of tourism information center	A8, C6, C7, C8, E2, E4, E5, E7
F3	Improved management of MPAs	A4, A10, D1, E3, E4, E7	F16	Development of small scale business enterprises	E5, E7, B11
F4	Inventory of wildlife species (flora and fauna)	A3, A4, A10, A11, D1, D3, E3, D4, E6, E7	F17	Biodiversity Showcase	A3, A4, A8, A9, A10, A12, A13, A14, E3, E4, E5, E7
F5	Active, diversified, empowered and well organized community groups	D1, D2, D3, E3, E4, E5, E7	F18	Nursery/ mass propagation of economic plants	A2, A3, A4, E3, E4, E5, E7
F6	Forest products production (honey, forest litter, rattan, etc.)	A2, A14, D1, D2, E1	F19	Integration of municipal plans	E2, E3, E7
F7	Crop producers' cooperative	B1, B2, B3, D1, D2, E2, E4	F20	Active research on identification of other possible tourism sites	B6, B9, D2, D3, D4, D6, E3, E4, E5, E7
F8	Fish community cooperative	B5, B7, B8, D1, D2, E2, E4	F21	Development of marketing strategies for local products	B1, B2, B3, B5, B7, B8, B10, B12, C7, D1, E1, E3, E4, E5, E7
F9	Livestock producers' cooperative	B4, D1, D2, E2, E4	F22	Improvement and exploration of sustainable sources of electricity	A5, A6, B1, D1, E2, E3, E5, E7
F10	Post-harvest food processing	B1, B2, B3, B4, D1, E1, E5	F23	Improve quality of water	C4, E1, E2, E3, E4, E5, E7
F11	Improved water supply and irrigation system	C4, D1, E2, E7			
F12	Establishment of conservation sites	A3, A4, A8, A9, A10, A12, A13, A14, E3, E4, E6, E7			
F13	Research collaboration for tourism development	E3, E4, E5, E7			

Table 6 Second level derived potentials based on the combination of basic potentials and the first level derived potentials of Roxas, Palawan.

	Code	Second level derived potentials	Combination of basic potentials and first level derived potentials to form second level derived potentials		Code	Second level derived potentials	Combination of basic potentials and first level derived potentials to form second level derived potentials
Natural resources and biodiversity related ecotourism potentials	G1	Museum of wildlife	A1, A4, A13, C6, C7, C9, D1, D2, D3, D6, D7, E1, E2, E3, E4. E5, E7, F3, F4, F5, F12	Coastal and Marine Ecosystem-Related Eco-tourism Potentials	G9	Island/islets adventure tour packages	A4, A9, A11, A12, A13, A14, A15, A18, B13, C2, D3, E2, E5, F5, F8, F12, F13, F15, F16, F20
	G2	Wildlife encounter package	A1, A3, A4, A11, B10, B11, C3, C6, C7, C8, C9, C11, D1, E1, E2, E3, E4, E5, E7, F4, F5, F12, F13, F14, F15, F16		G10	Island living experience	A4, A9, A11, A12, A13, A14, A15, A18, D2, D3, E1, E4, E6, F5, F8, F12, F13, F15, F19
	G3	Falls tour package	A1, A5, A6, B10, B11, B13, C3, C6, C7, C8, C9, C11, D1, E1, E2, E3, E4, E5, E7, F4, F5, F12, F13, F14, F15, F16		G11	Kayaking and boating	A4, A9, A11, A12, A13, A14, A15, A18, B13, E2, E7, F5, F8, F12, F13, F16
	G4	Bat watching	A1, A13, A15, B10, B11, B13, C3, C6, C7, C8, C9, C11, D1, E1, E2, E3, E4, E5, E7, F4, F5, F12, F13, F14, F15, F16		G12	Coral reef snorkeling and diving	A4, A9, A11, A12, A13, A14, A15, A18, B13, D3, E2, E5, F5, F8, F12, F13, F15, F16, F20
Agriculture-related ecotourism potentials	G5	Improvement and diversi-fication of poultry and live-stock industry	A2, A6, A10, A11, A12, A14, B1, B2, B3, B4, B5, B7, B8, B9, B11, B13, C1, C2, C3, C4, C5, C10, D1, E1, E2, E3, E4, E5, E7, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F16		G13	Countryside resort living experience	A4, A9, A11, A12, A13, A14, A15, A18, B13, C2, D2, D3, E2, E5, F5, F8, F12, F13, F15, F16, F20, F22
	G6	Marketing of processed food products	B11, B12, B13, C11, E1, E2, E3, E4, E5, E7, F14, F16, F18				
	G7	Marketing of agri-cultural crops	B11, B12, B13, C11, E1, E2, E3, E4, E5, E7, F14, F16, F18				
	G8	Promotion of cashew festival	B2, D1, D2, D3, D4, D5, E1, E2, E3, E4, E5, E7				

Recommendations

The creation of multiple tourism hot spots definitely promotes rural development as explained by the growth pole strategy (Parr 1999). The multiple tourism hot spots will keep up with the increasing needs of the existing tourism centres (Puerto Princesa city and El Nido) in terms of agricultural production while simultaneously creating complementary centres of tourism in the municipalities of Dumaran, Roxas and Taytay. The multiple centres of tourism growth in the sub-region will mimic the "One town one product" approach. The One Town, One Product (OTOP-Philippines) is a priority program of the government to promote entrepreneurship and create jobs (DTI 2011).

However, this strategy needs to be more radical in terms in creating an exemplary tourism service in the municipalities that is well-coordinated so that tourism in the sub-region is beneficial for all the participants. One such success involved a case where regional development was based on the expansion of recreational or tourist activity (Harper et al. 1966).

Although the sub-region has a competitive advantage over the growth poles there is an opportunity cost associated with it. This could be further utilized through a division of labor and specialization. Below are the advantages of the sub region in relation to growth poles (Table 7). Since the municipalities in the sub-region focus on agriculture, most of their competitive advantage is associated with agriculture. In addition, differences in their endemic species, historical sites and local products were also included in their competitive advantage.

In essence, the development of many centers of tourism may lead to sustained strong economic growth (Lin 2010). Since the sub-region has a competitive advantage over the growth poles, prioritization and strengthening of the potential could further reduce the gap between developments in the two regions.

Forest and marine fisheries will help the municipality of Dumaran to highlight its competitive advantage as it is endowed with rich and diverse forest and marine resources.

Roxas, as a largely agricultural economy and must focus on its flourishing agro-industry, promoting agro-ecotourism as its competitive advantage and add value and diversify its agricultural products.

Taytay on the other hand, must continue to supply fish to the province and also develop a fishing village industry. Also, its heritage potential undoubtedly could be an attraction for tourists.

These developments in the tourism industry will only be possible if the current state of their ecosystems is

Table 7 Competitive advantages of the municipalities in the sub-regional growth area (Roxas-Dumaran-Taytay).

Sub-regional Municipalities	Competitive advantage	Ecotourism potential
Dumaran	Philippine cockatoo (Katala), WW-II ruins (shipwrecks), mangrove forest, Katala festival	Forest and mariculture
Roxas	Cashew nuts, bat island, sand bar, fresh water turtle, cashew festival, falls	Agro-ecotourism
Taytay	Spanish fort, malampaya sound, irrawaddy dolphin, balinsasayaw cave, lagoons, limestone formations, island formations, Spanish ruins, Spanish light house, Pasinggatan festival, white squirrel, white sand beaches, lake, coral reefs, wildlife species, giant flying fox	Agro-marine ecotourism

Proposed Ecotourism Zoning Strategy of the Sub-Regional Growth Area of Northern Mainland, Palawan

Prepared by: Ralphael P. Gonzales | November 22, 2015 | Source: www.philgis.org
This is a proposed ecotourism zoning plan of the sub-regional growth area in Northern Mainland, Palawan. This has not undergone any validation nor ground truthing activities.

Legend

- Agriculture-Related Ecotourism Zone
- Mangrove-Related Ecotourism Zone
- Wildlife-Related Ecotourism Zone
- Heritage-Related Ecotourism Zone
- Coastal-Related Ecotourism Zone
- Municipalities
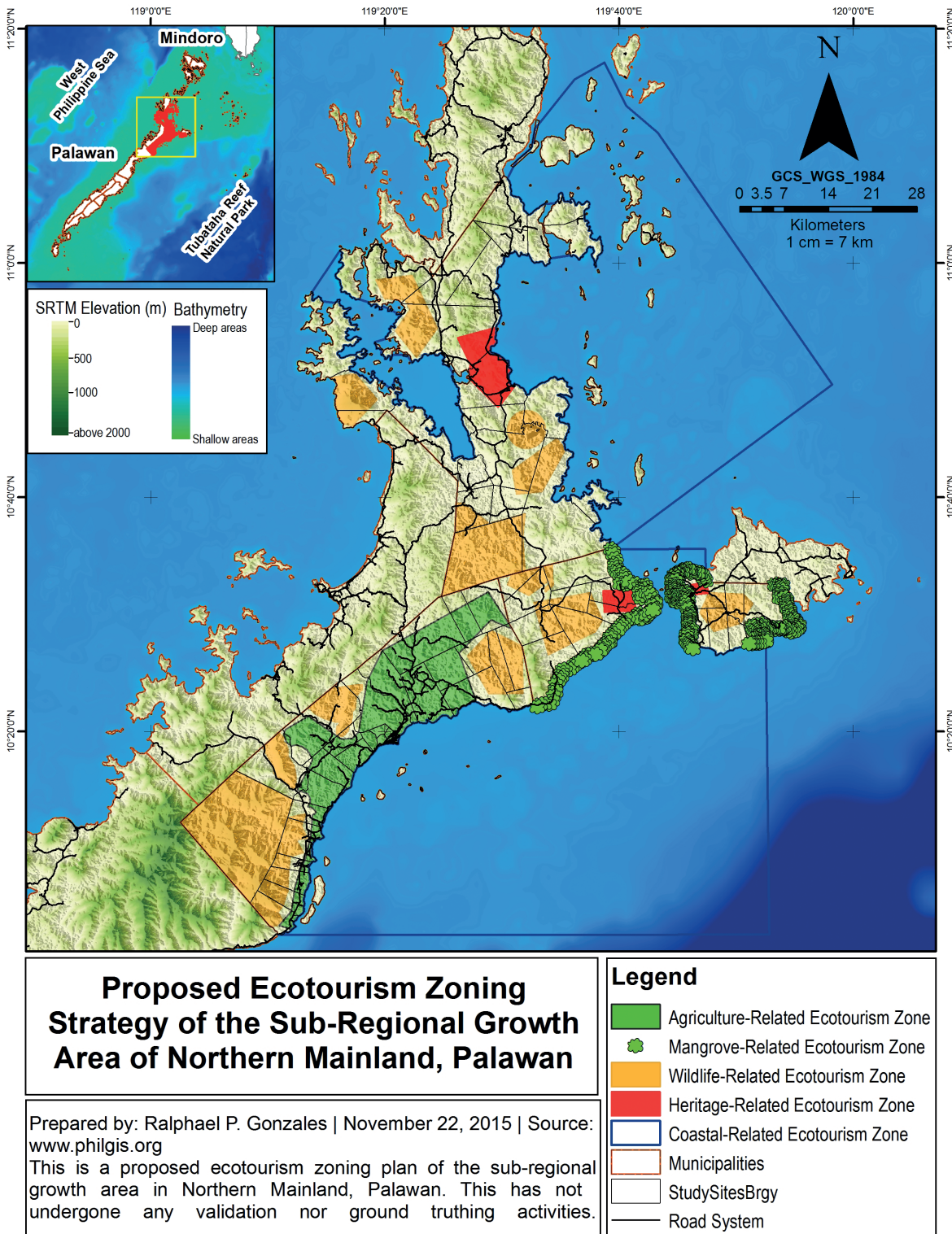- StudySitesBrgy
- Road System

Fig. 2 Proposed development of tourism in the province of Palawan based on the results of the Potentials analysis.

taken into consideration and proper community-based guidelines are established. In addition, to integrate the developments in Dumaran into this region's ecotourism.

For Roxas and Taytay, a specific regional level working group must be formed in order to coordinate their activities in relation also to the existing ecotourism industry of the whole northern Palawan region.

Regional tourism as a strategy is proposed in order to limit the increasingly negative effects of polarization of tourism associated with the developments in Puerto Princesa and El Nido. This strategy emanates from the growth pole concept, but to create multiple ecotourism growth poles that include the unique potential contributions of Dumaran, Roxas and Taytay will greatly complement the already existing tourism industry.

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