

Socio Economic Assessment and Environmental Practices of Mangrove Area Settlers in Davao Gulf

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ABSTRACT

This research proceeded from the premise that population impacts on the environment and vice versa. The characteristics and behavior of the population living proximate to the mangrove areas, migration patterns and intentions as well as their economic activities in many ways affect the quality and state of the mangrove system. This study is a descriptive research. It utilized a standardized questionnaire for socio-economic survey. It used focus group discussion to establish a time line of historical events in the mangrove areas.

The results of the study found out that that the respondents are highly dependent on fishing as their livelihood. The respondents claimed that they have to augment their income through other means because of the degradation of the mangrove areas. The degradation of the mangrove areas is attributed to in-migration of the people coming from other regions and the upland and the conversion of the area because of economic development. The proper authority should enforce existing laws and policies and sustain programs on mangrove protection and conservation. Approaches to mangrove conservation should include information, education and communication (IEC) program.

Keywords: Mangrove, Environmental Practices

INTRODUCTION

This study had been conceptualized through the collaborative efforts of various academic institutions and four neighboring local government units along Davao Gulf. A participatory action research, this project is based on population and development encompassing strategic areas of development in Santa Cruz, Panabo City, Island Garden City of Samal (formerly known as Samal) and Davao City.

Environmental studies have long documented the effect of population characteristics, dynamics and development on the quality and state of the mangrove system. Depleted mangroves may affect people's decisions to stay in the area, the kind of economic prospects and activities they may engage in. A well-sustained mangrove system, on the other hand, may perpetuate the existence of the communities around the mangroves. Interventions have to be strategically implemented to stop the overexploitation of mangrove system.

In the coastal area of Davao Gulf, there exists a clear spatial distribution of socio economic activities and related land uses that specifically target to meet the economic and service demands of each area. These include urbanization and commercialization, agro-industrial investments, infrastructure developments, and agriculture/forestry/aquaculture and fisheries expansion. Thus, coastal settlers have to meet with the demands for a wide variety of services and goods that urbanization brings.

Improper waste management, profligate consumption of marine resources and inadequate local ordinances would result to the heightening of environmental pressures. These alter environmental processes affecting coastal ecosystem including mangroves and the coastal settlers. Environmental change transforms every ecological component in the coastal zones over time and space. Its effects could be reversible or irreversible and are often catastrophic to human health and devastating to the economic conditions.

RESEARCH OBJECTIVES

The research aimed to assess the socio economic and environmental practices of the selected coastal community of Davao Gulf. The specific objectives are::

1. To establish historical profiles of the study areas;
2. To determine coastal community activities in terms of socio-economic activities in and around the area, household practices, and, their awareness and participation in mangrove sustainability programs.

Conceptual Framework

The study is based on the concept that in order to establish a sustainable mangrove community, there has to be a balanced relationship among policy mechanisms, community activities and mangrove conditions. Policies affect the socio-economic activities of the coastal settlers. Policies may also serve to protect mangroves through legal classification as either for conservation or for preservation areas. Hence, policies were considered as the most important factor that directly affects people's activities and mangrove conditions. Coastal community activities also affect the condition of the mangrove (Figure1).

Significance of the Study

This study promotes the concept of three-part relationship among policy mechanism – community activities – mangrove condition concept. This study determines various

To coastal dwellers, mangroves provide opportunities for livelihood at no cost. Although the hidden benefits of the mangroves are difficult to quantify, they are appreciated. The settlers should realize that sustainable use of mangrove ecosystems provides a better use of the resource to their added advantage.

For national and local government units, results of the study would be useful in assessing the adequacy of national and local policies in recognizing

relationships between population, resources, environment and development for the utilization, conservation and protection of mangroves.

For non-government organizations, significant findings of the study may serve as advocacy points in their pursuit of sustainable use of resources, without disregard for the plight of communities dependent on these resources.

For research communities, this mangrove – human interaction research may pave the way for related or more in-depth studies on the impacts of human activities, coastal and inland, on mangrove ecosystems for subsequent mitigation of these impacts.

Scope and Limitation of the Study

This study covered the municipality of Santa Cruz in Davao del Sur and the cities: Panabo City, Island Garden City of Samal (IGaCoS), and Davao City. Two coastal barangays of each of the four study areas were considered. One barangay was home to a good mangrove area with immediate resident communities; the other, to a high risk mangrove area. A total of eight barangays were covered. The areas under studied were identified by the local government units.

METHOD

To meet the objectives of the study, mangrove surveys in eight coastal barangays were carried out. Field surveys involving interview of households living proximate to the selected mangrove areas were also conducted. Focus group discussions were facilitated in the surveyed communities to establish the historical events and validated the results of the field surveys and laboratory analysis for water quality. Action planning workshops, attended by collaborating LGU and academic researchers, were conducted to consolidate significant findings and recommend mitigating measures.

RESULTS AND DISCUSSION

Historical evolution

Most of the communities started with just a few households prior to the 1970s. The population composition of the communities during the 1970s and 1980s was mainly migrants from the Visayas region. Migration from the displaced upland communities in conflict areas was also experienced by communities in Panabo City and Davao City in the 1980s.

Rapid population increases were experienced by majority of the communities during the 1990s and 2000s as a result of fast paced urbanization. Agriculture lands of the communities located near the poblacion were converted to residential and industrial areas adding to the immigration of people into the barangays.

The deterioration of the size of mangrove stands within the study areas occurred between the 1970s to mid 1990s. It was in Panabo City that large areas of mangroves were cleared to give way to fishponds and for the commercial

firewood. Resulted to the deforestation from more than 180 hectares prior to 1970s down to 5 hectares in the 1990s. However, in some areas of Sta.Cruz and IGACOS, although the mangrove areas were small (less than 5 hectares), these remained in throughout the decades. Mangrove areas started to increase only starting in the late 1990 due to the reforestation activities and the strict implementation of environmental laws.

In the past, products derived from the mangroves were firewood, furniture, posts for their houses and fences. Some communities used the young branches and leaves as feeds for goats and swine. Household purposes of mangroves did not result to the extensive cutting down of trees.

It was upon the entry of outside consumers in the 1970s that large-scale cutting of trees was carried out. Commercial bakeshops and salt makers, and lumber yards mostly located in Davao City created a demand for firewood. The communities of Panabo City and IGACOS reported that outsiders would usually enter the mangrove areas and then cut the trees to sell these to Davao City.

Common disasters among the communities were the occurrence of typhoons whose strong waves battered the mangrove stands. The destruction was further magnified by the presence of log ponds in the areas of Sta. Cruz and Panabo wherein logs were washed to shore by the strong waves thus destroying the mangrove trees. Development projects in the 1990s like coastal roads cleared portions of mangrove stands in the areas of IGACOS. The establishment of economic enterprises like sawmills within the area of Panabo City and bakeries in Davao City affected the mangroves since it created a demand for firewood.

Socio-economic activities in and around the mangrove area

Table 1 shows that majority of the respondents earn less that Php 3,000.00 a month. Half of the respondents were not able to obtain a high school education. Fishing (56.12%) is where they derive most of their income. Most of their houses are made of light materials (82.2%). Majority of the mangrove trees are not use for household purposes. The results imply that the respondents are poor with low educational attainment however they do not depend on the mangrove trees as their source of income.

Table 1. Socio –economic Profile of Selected Davao Gulf Mangrove Area Settlers

Average Monthly Income	
Range	Percentage (%)
Less than Php 3,000.00	52.53
Php 3000 - Php 5,999.00	39.87
Php 6,000- Php 8,999.00	6.96
More than Php9,000	6.4
Educational Attainment	
	Percentage (%)

Have not attended any schooling	0.31
Elementary	50
High School	40.99
College	8.38
Vocational	0.31
Means of Livelihood	
	Percentage (%)
Fishing	56.12
Carpentry	9.18
Firewood Gathering	2.04
Shellfish Harvesting	6.12
Farming	3.4
Others	23.14
House Construction Material	
	Percentage (%)
Light materials	82.2
Semi-Concrete	11.36
Concrete	6.44
Uses of the mangroves trees	
	Percentage (%)
Firewood	10.79
Housing materials	11.62
Charcoal Making	0.41
Medicine	4.98
Others	72.20

Household practices

Table 2 shows that most of the respondents have water sealed toilets (57.14%). Though 52.81% claimed that the water from household waste are thrown directly to the earth 42.32 percent are directed to the sea. The water from cleaning animal waste is primarily thrown directly to the land (52.28%) and some (42.74%) are directing it to the sea. Though most of the liquid waste is directed to the land, there is a possibility that some of this amount can reach the sea since the communities are located near the mangrove areas. The respondents claimed that the most of the solid waste are burn (56.5%). The results imply that the communities have poor waste management habits.

Table 2. Household Practices of Selected Davao Gulf Mangrove Area Settlers

Type of Toilet	Percentage (%)
Antipolo	3.49
Grass fields	6.98
Bury	8.25
Throw directly to the sea	21.26
Wrap and throw anywhere	2.86
Water Seal	57.14
Household Waste from washing and bathing directly go to:	
	Percentage (%)
Sea	42.32
Land	52.81
Septic Tank	4.49
Waste water from cleaning farm animals directly go to:	
	Percentage (%)
Sea	42.74
Land	52.28
Septic Tank	4.98
Solid Waste Management	
	Percentage (%)
Burning	56.5
Burying	13.6
Using compost pit	4.83
Throw anywhere	8.76
Being collected	12.99
Throw directly to the sea	3.32

Environmental practices

Many of the respondents claimed that they are aware that there is an organization that spearheads programs for the mangrove areas. They also claimed that they are concern and interested in the programs that addressed the preservation, protection and conservation of the mangrove areas. Moreover, they claimed that they are aware that there are laws that will support these programs. Their concern and interest is reflected in the high percentage (79.11%) of participation in the different programs (Table 3). The respondents believe that these program should be spearheaded by the NGO's (29.5%) and the LGU's (24.5 %) . The results imply that the communities are willing to participate actively on the programs that will protect and conserve the mangrove areas.

Table 3. Awareness, Participation and Implementation on Mangrove Sustainability Programs

Awareness		
	Percentage(%)	
	Yes	No
Is there an organization that spearheads the manangement of the mangrove areas?	71.5	28.5
Did you show concern/interest in the activities for the protection, preservation and conservationof the mangrove area?	92.09	7.91
Do you know of any laws and ordinances for the protection and preservation of mangrove areas?	83.28	16.72
Participation		
	Percentage(%)	
	Yes	No
Do you participate in the activities for the protection, preservation and conservation of the mangrove area?	79.11	20.89
Implementation		
<i>Programs</i>	Percentage(%)	
Tree planting	65.5	
Coastal Clean-up	24.02	
Alternative livelihood	2.18	
Information & Education Communication	8.29	
<i>Who will spearhead this programs?</i>	Percentage(%)	
DENR	14.5	
Barangay officials	12.5	
Purok Officials	18.5	
LGU's	24.5	
NGO's	29.5	

CONCLUSIONS

In the light of the findings of the study, the following conclusions are drawn:

1. The continued migration of urban population to coastal areas had resulted to competition of space with the mangrove population and created open access to the mangrove area resulting to environmental

- stress and consequent mangrove resource depletion.
2. Fishing near the mangrove area destroys the fish breeding ground while gleaning activities degrade mangrove diversity and optimum productivity.
 3. Most of the mangrove settlers are poor and have poor waste management.
 4. There are programs for the protection and conservation of the mangrove areas.
 5. The implementation of the policies and laws concerning the activities in the mangrove areas is low.

RECOMMENDATIONS

Based on the foregoing findings and conclusions, the following recommendations are offered:

1. Authorities should limit urban migration to the coastal areas and develop eco-friendly development programs or projects taking into consideration the costs and benefits of development and environment.
2. There should be provisions of additional sustainable alternative livelihood programs apart from fishing to reduce natural resource stress on coastal areas and enhance food security measures. Alternative livelihood programs should be produced in both areas to diverge its economic concentration from fisheries. Vocational schools may be established in order to generate skills needed to augment the income of the settlers.
3. Intensify the implementation of the Information , Education and Communication Program of the coastal and mangrove resource management.
4. Program implementers should source-out strategies through people's initiative and empowerment on resource management
5. Authorities should objectively implement existing laws and policies on development and mangrove protection.and programs on population, development, and mangrove protection.

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