

BEST PRACTICES IN MARINE PROTECTED AREA (MPA'S) STEWARDSHIP IN THE CONTEXTS OF PARTICIPATORY ENVIRONMENTAL GOVERNANCE, EMPOWERED FISHING COMMUNITIES AND THE ECONOMICS OF ITS SUSTAINABILITY IN CORTES OF CARAGA REGION, PHILIPPINES: A DISCOURSE

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ABSTRACT

The study presented the socio-demographic profile of the fishers in Cortes, Surigao Del Sur, a coastal town in Surigao del Sur. It presented the Organizational Culture of the MPA's and the extent of support in MPA governance by the following agencies: Barangay, MLGU, Provincial Fishery and Aquatic Resources, Bureau of Fishery and Aquatic Resources, NGP Program of DENR and the NGO's which had worked in the site. It was found out that the program of Cortes LGU in MPA management/governance was "holistic" enough that it encompasses the economic, health, cultural, tourism, education, food security and was anchored on sustainable governance of the sites/MPA's. Further, Cortes MPA's aimed to harness people's empowerment and responsibility that's why MPA indicators in its monitoring were well in placed such: monitoring of coral covers, mangrove reforestation, providing economic interventions (livelihood projects) and extent of people's empowerment in the community level was widely manifested. The other approaches in MPA promotion can be rated as "Very Effective" such the use of radio program, bill boards, the utilization of the LGU Bus in MPA promotion. The trainings attended by the MPA members in MPA governance were sufficient enough. There was an active collaboration in capability/capacity building of the MPA members, NGO's, BLGU, MLGU, BFAR, PFAR, NGP of DENR and it can be deduced that the MPA's were powerful tool in coastal development and management. The awards received by the MLGU of Cortes were manifestations in its achievement in good management of the MPA's thus social preparation / preparedness of the community lead to effective campaign of community stewardship of the MPA's. In like manner the MLGU of Cortes enhances MPA governance by adopting participatory approaches and the same time community based hence empowered the said communities as co-stewards of the coastal environment. Hence, the best practices of Cortes MPA governance is worth narrating indeed.

Keywords: MPA's, Cortes LGU, Fishers, Governance, PO's.

RATIONALE AND LITERATURES REVIEWS

Marine Protected Area (MPA) is a typology /approach*h/stratagem of coastal/marine conservation which aims primordially for sustainable use of sea resources and is a village or community based in its panorama/ milieu. It explicitly refers to an environs of the sea/coastal area /area's which were agreed usually by a local legislation or ordinance as curbed and sheltered one. It is anchored or endeavors to have restitution/restoration of marine

habitat/species/environs. It is a protected area which welcomes cultural, recreational and research activities and fishing were discouraged / controlled or in full extent proscribed in the area for conservation intentions (Tomaquin and Senoc , 2008). The success of a MPA's (Marine Protected Area's) depends largely on the strong collaboration of the different stakeholders such the Barangay, Peoples Organization, LGU's (Local Government Units), NGA's (National Government Agencies) and the NGO's (Non Government Organization's). Hence, it is anchored on collaboration then so the MPA's advocates were considered as a community worker , empowering advocates , believer of participatory approaches and its sustainability and is a pressure group itself aiming for advancing sustainable use of coastal/marine resources and in creative /good MPA management.

Sustainable use of resources is the challenge of the times. With this the MPA's manifested how to have a sustainable use of resources (Tomaquin & Senoc, 2008). With the dwindling fishery resources conservation is the need of the times. This is an assessment study of the Marine Protected Areas of Cortes, Surigao Del Sur, Philippines. It covered /determined the demographic profile of the fisher folks, the extent of implementation of development projects to the fishing communities, the problems encountered, and the institutions which provided the said livelihood or development assistance, and the special contributions of the NGO's in the sites were covered in the study. Cheryl Joy Jardiolin Fernandez (2010) writes the situational /terrain of MPA management in North-Eastern Iloilo as :

"Marine Protected Area (MPA) as a fisheries management toll has been promoted by both national and local conservationist and has provided de facto illustrations of integrated coastal management (ICM) in the Philippines .However, conflict is inevitable in the implementation of public policy such as the MPA because of contrasting objectives and expectations from various stakeholders (Cheryl Joy Jardiolin Fernandez , 2010) "

Rebecca L. Austin (2003) discussed the relevance NGO's in environmental governance thus partnership of the people's Organization will lead to effective management of the MPA's. As she writes that:

"NGO's have maintained advocacy positions and activities while taking on project management roles. The fisher folk become empowered through relationships with the information learned from NGO's along with governmental agencies and will likely to maintain environmental and social justice movement (Rebecca L. Austin (2003)."

Cynthia P. Sajot, Pantaleon V.L., Ravina M.E. (2005). Discussed the relevance Marine Protected Areas (MPA's) in conservation as they writes:

" The aim of community based coastal resource management is to reduce harvest pressures on coastal waters while resource base is being allowed to generate (Cynthia P. Sajot, Pantaleon V.L., Ravina M.E., 2005). "

The study of Wilson R. Valle (2005) recommended the following:

" Strengthen the implementation on policies to sustain Integrative Coastal Management (ICM) and coastal resources management programs in Lianga Bay. Design programs for bay wide unified management and development through multisectoral approach to address multiple fisheries issues (Wilson R. Valle , 2005) "

The setting of the study is the municipality of Cortes known by its rich coral reefs and long coastline and bestowed with mountainous terrain which has the potential to attain economic growth and social equity within the context of well balanced ecology (Malicse, 2005). It has 12 barangays of which 8 are coastal. The study sites of the study were the seven coastal Barangays namely: *Balibadon, Burgos, Tigao, Mabahin, Uba, Capangdan, and Taganongan*. The study bent on purposive sampling with 237 respondents.

Objectives of the Study

The study covered the following inquiry/objectives:

1. Determine the demographics of the fishers in term of:
 - 1.1 Sex;
 - 1.2 Age;
 - 1.3 Civil Status;
 - 1.4 Educational Attainment ;
 - 1.5 Monthly income;
 - 1.6 Number of years in Cortes;
 - 1.7 Related occupation;
 - 1.8 Fishery Related trainings;
 - 1.9 Membership in MPA Organization;
 - 1.10 Fishing Boat Used;
 - 1.11 Marketing Strategies;
 - 1.12 Livelihood Assistance received.
2. Present the Organizational Culture in the seven 7 MPA's/study sites;
3. Determine the support of the following government agencies in MPA governance/management:
 - 3.1 Barangay;
 - 3.2 LGU;
 - 3.3 Provincial Fishery and Aquatic Resources;
 - 3.4 BFAR;
 - 3.5 NGP of DENR .
4. Find out the problems encountered by the fisher Folks in MPA governance/management;
5. Propose intervention scheme based on the findings of the study;
6. Determine the support/assistance of the following NGO's in MPA governance: Green, Mindanao; Haribon; Rare Pride; Fish Project as perceived by the fisher folks.
7. To have a construct of its work culture a voluntary but quasi - bureaucratic intended organizations.
8. Determine if there is a significant distinction of the challenges encountered of the 7 MPA's.

METHODOLOGY

Time Limitation/Delimitation:

The study was conducted from January 2012 to September 2012 . A total of 9 months of field work (Please refer to end note # 1 for further discussion on time limitation of this study).



Plate Number 1 ."The researcher employing observation method as one of the approach in this study.

Place Limitation/ Delimitation

It covered in 7 MPA's as its study sites namely:

Balibadon ; Mabahin ; Tigao ; Tag-anongan ; Burgos; Uba; Capandan.

Scope Limitation /Delimitation

The study was limited only to impact assessment, governance/management of the MPA 's , stakeholders collaboration as perceived by the fishers for their contribution to the MPA's. Other approaches such sites observation, planned focus group interview , participant observations , intensive FGD's was conducted.

Design Used

The study used the descriptive- survey and ethnographic designs to yield the important points of the study .These methods were intended to be harmonizing the field situation. Both ways could deliver what the other is deficient to be proficient in the field work situation and draw together much as possible the needed information of the study. The emphasis on ethnographic research is on recording or documenting the everyday experience of respondents/key informants by observing, participating in their work, interviewing and living with them. The study used in-depth interview and frequent, continuing fishing village immersion/field work or what social researchers /development workers called FGD's .



Plate No. 2 . Dr. Retsy Tomaquin-Malong on courtesy call with the Mayor of Cortes : Hon. Peter Trinidad. Photo Credit Retsy Tomaquin-Malong, DPA.

A.Framework



Treatment of Data

The following statistical techniques were used in the study:

1. In determining the profile of the respondents the frequency distribution with simple percentage was used.
2. Weighted Arithmetic Mean was used in determining the problem encountered by the fisher folks and the extent of support both by the NGO’s and GO’s (BLGU, MLGU, NA’s).
3. In determining the significance difference in the problems encountered between and among the communities the analysis of Variance was used.

Scale

| <u>Range</u> | <u>Wt.</u> | <u>Description</u> |
|--------------|-------------|----------------------------|
| <u>4</u> | 3.41 – 4.00 | Highly Supportive (HI) |
| <u>3</u> | 2.51 – 3.25 | Moderately Supportive (MS) |
| <u>2</u> | 1.76 – 2.50 | Less Supportive (LS) |
| <u>1</u> | 1.00 – 1.75 | Not Supportive (NS) |

N.B. /Please Note : Based/Patterned on the Likert Scale (<https://www.surveymonkey.com/mp/likert-scale/>)



Plate Number 3. Going to the site

RESULT AND DISCUSSION

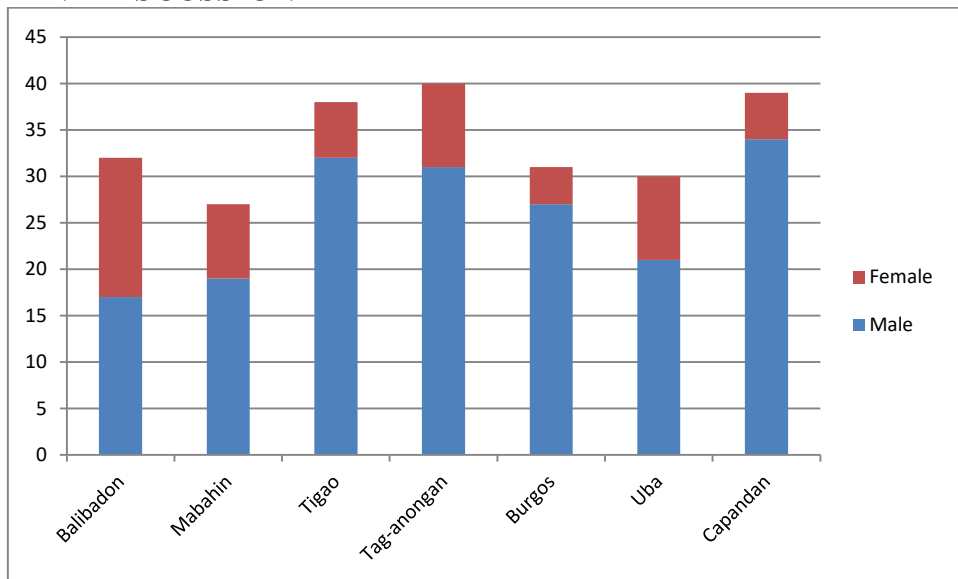


Figure 1 – Graph Distribution of Respondents in every Sites/MPA According to Sex (N = 237)

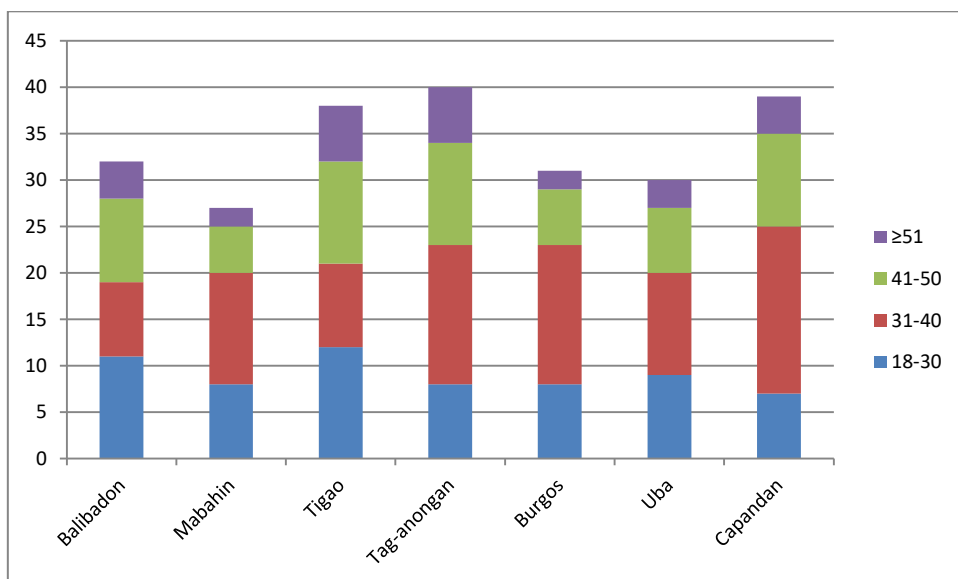


Figure 2- Graph Distribution Respondents According to Age (N = 237)

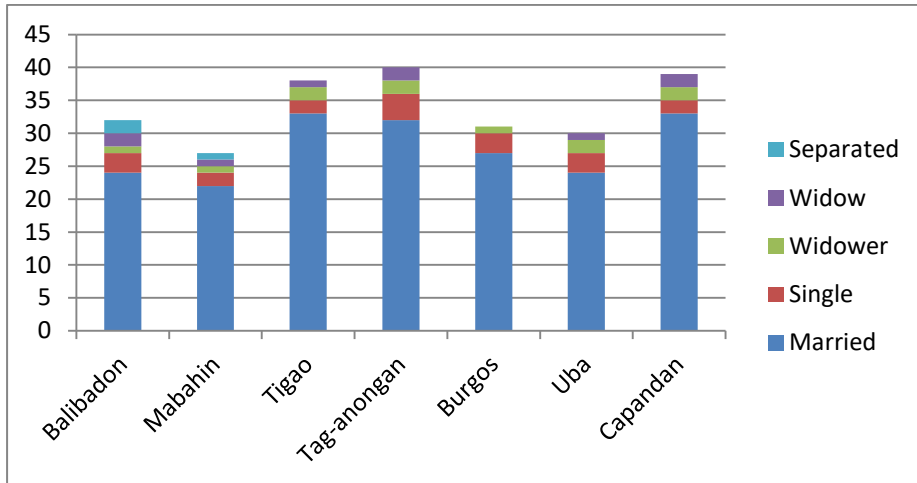


Figure 3 - Graph Distribution of Respondents According to Civil Status (N= 237)

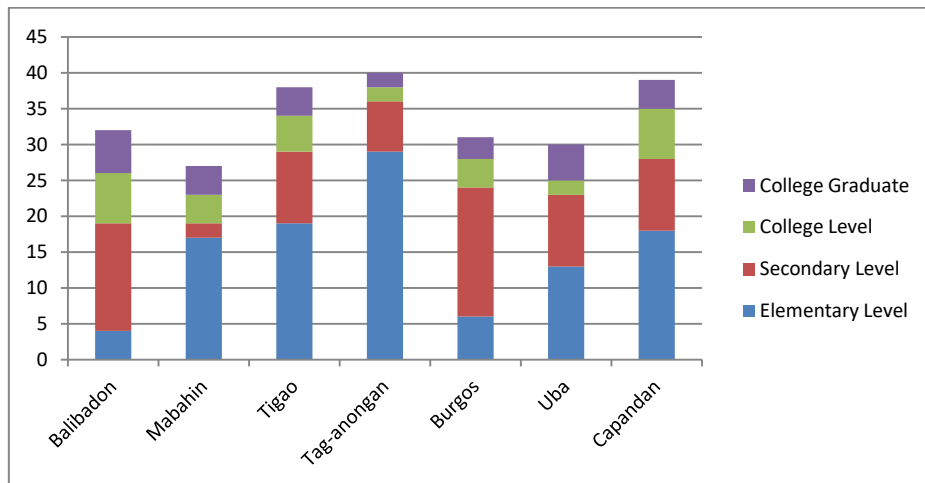


Figure 4 - Graph Distribution of Respondents According to Educational Attainment (N = 237)

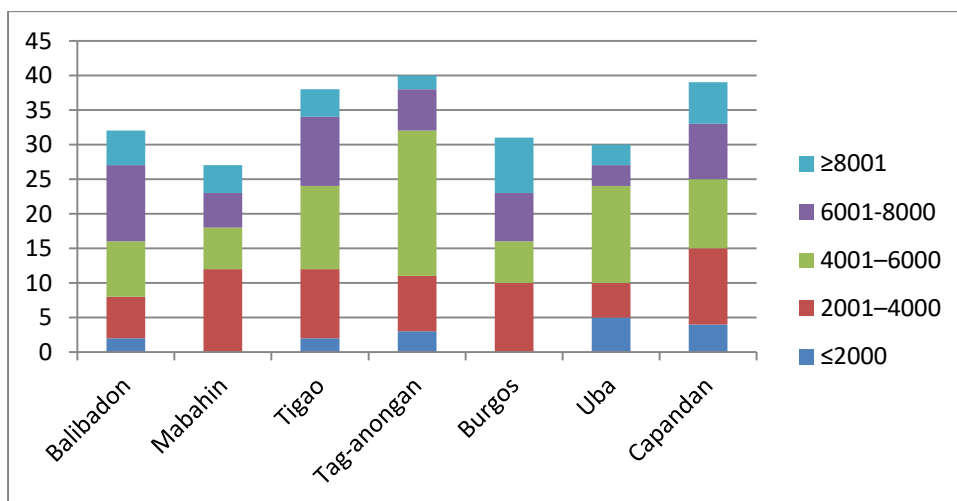


Figure 5 – Graph Distribution of Respondents According to Monthly Income (N = 237)

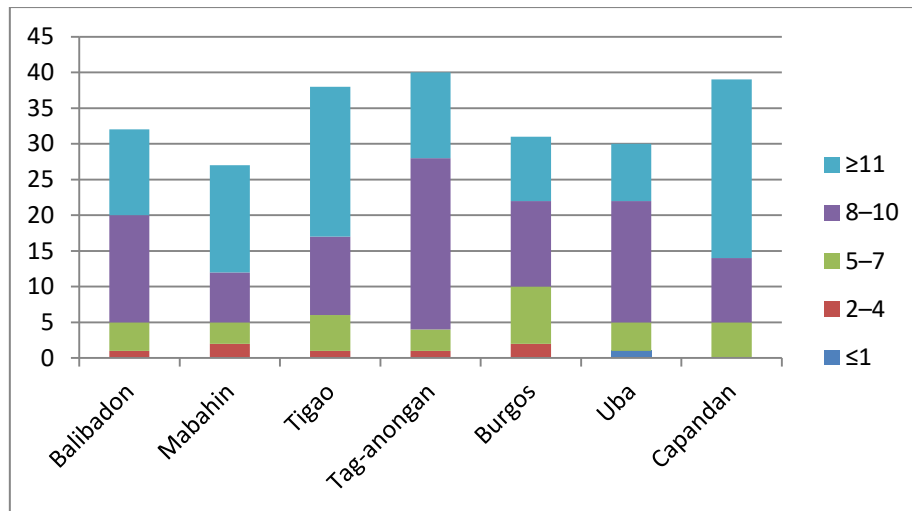


Figure 6- Graph Distribution of Respondents According to the Number of Years of Stay in Cortes (N = 237)

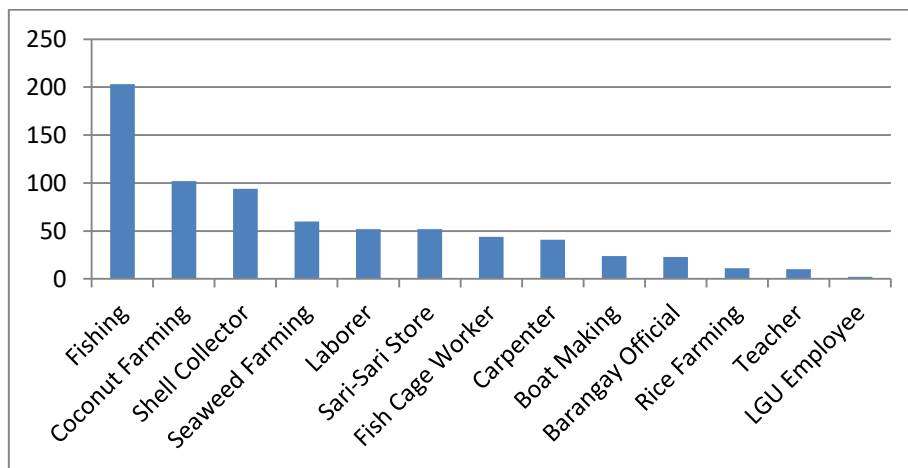


Figure 7 – Graph Distribution of Respondents According to Sources of Income (multiple answers, N = 237)

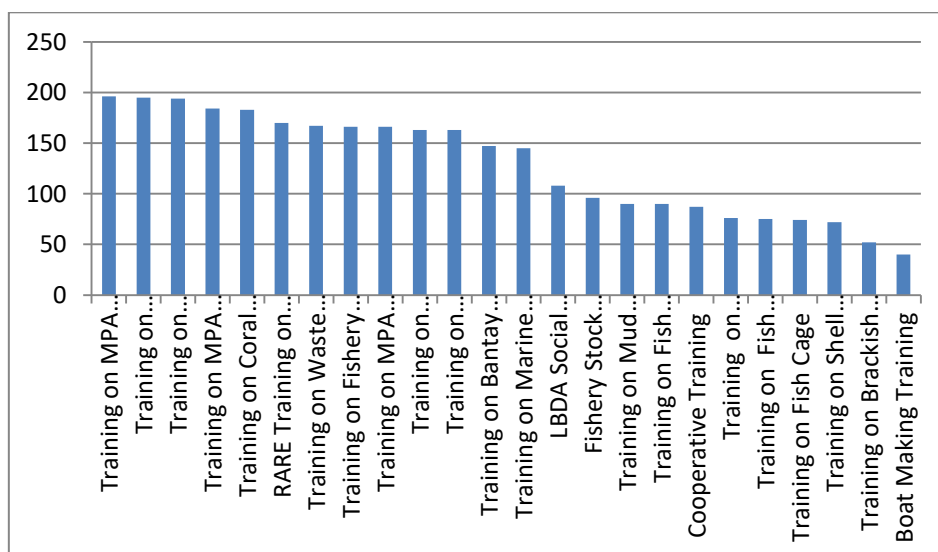


Figure 8– Distribution of Respondents According to Fishery-Related Training (multiple answers, N = 237)

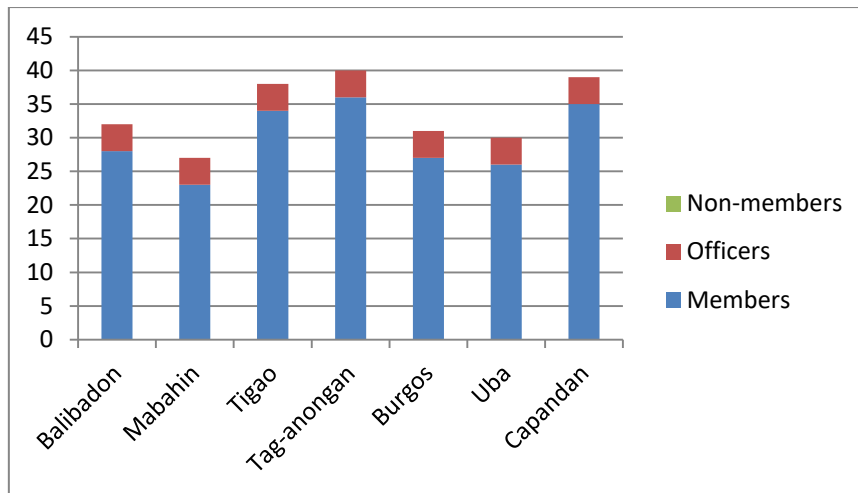


Fig. 9 - Graph Distribution of Respondents According to Membership in MPA Organization (N = 237)

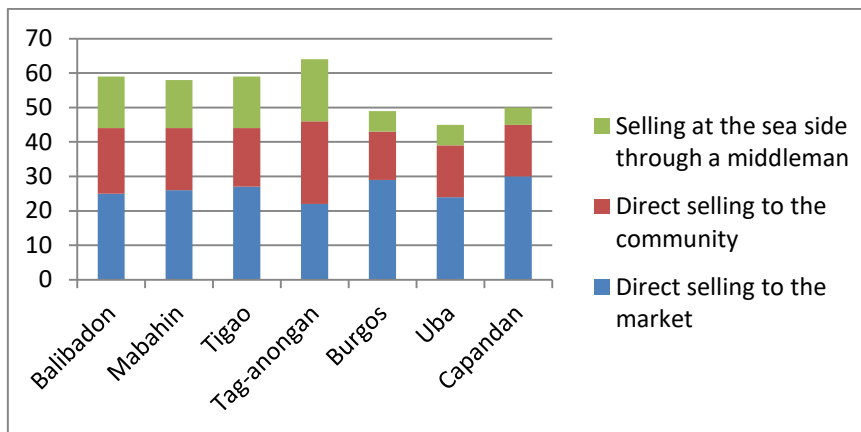


Fig. 10 - Graph Distribution of Respondents According to Marketing Strategies (multiple answers, N = 237)

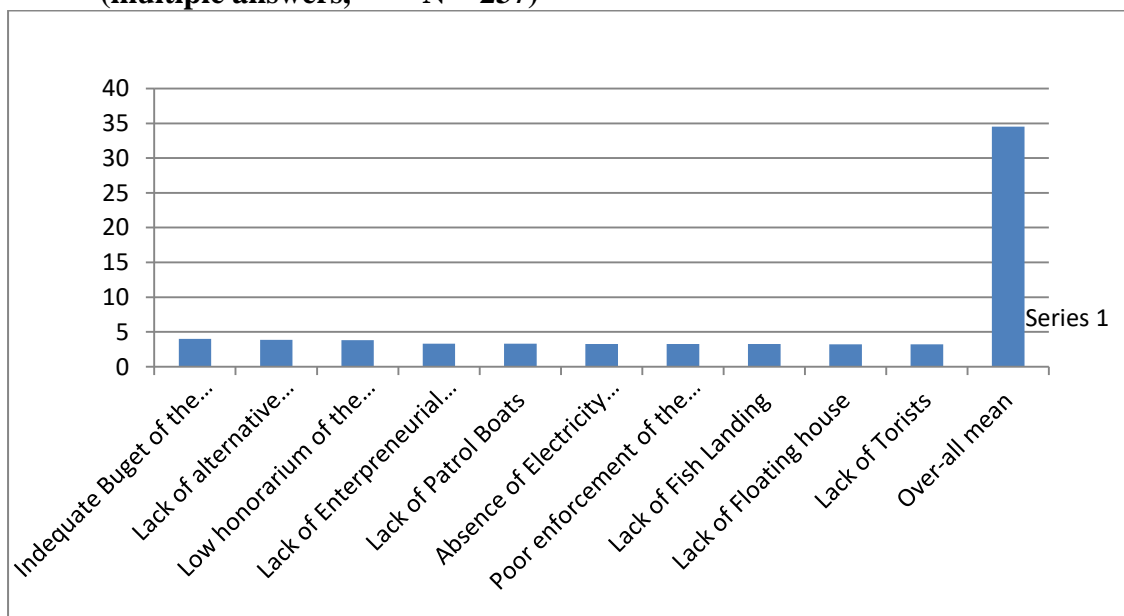


Figure 11 - Distribution of Respondents According to the challenges Encountered in the Management of Marine Protected Areas (multiple answers, N = 237)

Table 1. Distribution of Respondents According to the Livelihood Assistance Received Related to Fishing (multiple answers, N = 237)

| Assistance Received | Balibadon | Mabahin | Tigao | Tag-anongan | Burgos | Uba | Capandan | Freq. | % |
|--|-----------|---------|-------|-------------|--------|-----|----------|-------|-------|
| Mangrove conservation and rehabilitation | 29 | 23 | 24 | 33 | 28 | 28 | 37 | 202 | 13.06 |
| Assistance in developing the area for marine tourism | 27 | 24 | 27 | 34 | 22 | 28 | 29 | 191 | 12.35 |
| Marketing Workshop | 21 | 17 | 22 | 21 | 19 | 21 | 18 | 139 | 8.99 |
| Fish processing and demonstration | 4 | 11 | 19 | 21 | 17 | 14 | 15 | 101 | 6.53 |
| Provide training on agriculture | 13 | 10 | 13 | 10 | 17 | 9 | 12 | 84 | 5.43 |
| Seaweed farming | 15 | 6 | 8 | 13 | 15 | 9 | 7 | 73 | 4.72 |
| Seaweed Drying Facilities | 29 | 6 | 7 | 13 | 3 | 4 | 4 | 66 | 4.27 |
| 4 P's | 12 | 7 | 9 | 11 | 6 | 9 | 12 | 66 | 4.27 |
| Deputy fish warden training | 8 | 5 | 11 | 8 | 7 | 11 | 11 | 61 | 3.94 |
| Maintenance on MPA guard house | 3 | 4 | 4 | 5 | 7 | 5 | 31 | 59 | 3.81 |
| Fish cage/pens | 4 | 3 | 10 | 9 | 8 | 15 | 8 | 57 | 3.68 |
| Seaweed training facilities | 12 | 8 | 17 | 6 | 3 | 5 | 5 | 56 | 3.62 |
| Livelihood assistance to the displaced fisher folks | 8 | 4 | 7 | 9 | 4 | 9 | 14 | 55 | 3.56 |

| | | | | | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|
| Goat dispersal | 4 | 10 | 10 | 3 | 7 | 8 | 11 | 53 | 3.43 |
| Capital for Dried Fish Making | 4 | 3 | 4 | 4 | 13 | 4 | 12 | 44 | 2.84 |
| Other Form of Livelihood Assistance to Women Sector, Food delicacies training | 14 | 8 | 5 | 8 | 4 | 3 | 1 | 43 | 2.78 |
| Capital for handicrafts | 2 | 7 | 6 | 2 | 8 | 3 | 13 | 41 | 2.65 |
| Mud crab culture | 2 | 3 | 6 | 7 | 8 | 5 | 8 | 39 | 2.52 |
| Capital for Boat making | 2 | 1 | 3 | 3 | 5 | 3 | 5 | 22 | 1.42 |
| Study grants for the children | 4 | 2 | 3 | 3 | 3 | 3 | 2 | 20 | 1.29 |
| Providing fish gear | 2 | 2 | 5 | 0 | 3 | 3 | 4 | 19 | 1.23 |
| Capital for the motorized Banka used in transporting visitor of the MPA | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 16 | 1.03 |
| Motorized banka for bantay dagat | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 14 | 0.90 |
| Carabao dispersal | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 14 | 0.90 |
| Establishing bird sanctuary | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 | 0.78 |
| Total | 224 | 170 | 226 | 230 | 227 | 205 | 265 | 1547 | 100% |

Table 2 – Capsule Data of the Seven (7) MPA's/Sites

| MPA Sites | HECTARES | YEAR Established | In charge in Management | Other Sectors Involved | Legal Basis | Budget Per Annum | Zone |
|-------------|---------------|------------------|-------------------------|--------------------------------|--------------------------|------------------|------------------------|
| Balibadon | 24.8 hectares | 2003 | PO, BLGU, LGU | Women, 4 P's, Education, Media | Ord. No. 4 s. 2003 | 250,000 | Core zone/ Buffer zone |
| Burgos | 55.5 | 2000 | PO, BLGU, GU | Women, 4 P's, Media, Education | Ord. No. 3 s. 2000 | 250,000 | Core zone/ Buffer zone |
| Capandan | 21.5 | 2003 | PO, BLGU, LGU | Women, 4 P's, Education, Media | No. 5 s. 2003 | 250,000 | Core zone/ Buffer zone |
| Tag-Anongan | 24.7 | 2003 | PO, LGU, BLGU | Women, 4 P's, Media, Education | No. 1. S. 2003 | 250,000 | Core zone/ Buffer zone |
| Mabahen | 43 | 1997 | PO, BLGU, LGU, | Women, 4 P's, Education | Ordinance No. 17 s. 1997 | 250,000 | Core zone/ Buffer zone |
| Uba | 25 | 2005 | PO, BLGU, LGU | Women, 4 P's, Education, Media | No. 11 s. 2005 | 250,000 | Core zone/ Buffer zone |
| Tigao | 55.3 | 1996 | PO, BLGU, LGU | Women, 4 P's, Education, Media | Ord. no. 1. S. 2003 | 250,000 | Core zone/ Buffer zone |

Source: Cortes Municipal Planning Office



Plate Number 4. The Mangrove forest of Tag-anongan

Table No. 3 Distribution of the NGO's that had work /had advocacy /CD work in the site

| Unit | Balibadon | Mabahin | Tigao | Tag-anongan | Burgos | Uba | Capandan | WM | Description |
|---------------------------------|-----------|---------|-------|-------------|--------|-------|----------|-------|-------------------|
| Green Mindanao | 3.66 | 3.66 | 3.63 | 3.52 | 3.54 | 3.80 | 3.66 | 3.60 | Highly Supportive |
| Haribon | 3.64 | 3.48 | 3.75 | 4.00 | 3.48 | 3.53 | 3.28 | 3.59 | Highly Supportive |
| Rare Pride Project | 3.28 | 3.48 | 3.28 | 3.32 | 3.51 | 3.50 | 3.64 | 3.43 | Highly Supportive |
| Fish Project of USAID | 3.20 | 3.48 | 3.21 | 3.30 | 3.54 | 3.36 | 3.20 | 3.32 | Highly Supportive |
| Lanuza Bay Development Alliance | 3.40 | 3.52 | 3.46 | 3.53 | 3.51 | 3.54 | 3.40 | 3.48 | Highly Supportive |
| Overall Description | 3.436 | 3.524 | 3.466 | 3.534 | 3.516 | 3.546 | 3.436 | 3.998 | Highly Supportive |

Table 4 Distribution of Respondents According to the Perceived Support of the Government Agencies (N = 237)

| Unit | Balibadon | Mabahin | Tigao | Tag-anongan | Burgos | Uba | Capanan | WM | Description |
|--|-----------|---------|-------|-------------|--------|------|---------|------|-------------------|
| Barangay | 3.66 | 2.77 | 4.36 | 4.0 | 3.33 | 5.34 | 3.56 | 3.86 | Highly supportive |
| LGU | 3.87 | 3.55 | 3.81 | 3.21 | 3.77 | 4.10 | 3.66 | 3.71 | Highly supportive |
| BFAR | 3.81 | 2.85 | 3.81 | 3.70 | 3.48 | 3.13 | 3.82 | 3.51 | Highly Supportive |
| Provincial Fishery and Aquatic resources | 3.60 | 3.43 | 3.02 | 3.47 | 3.43 | 3.50 | 3.42 | 3.41 | Highly Supportive |

| | | | | | | | | | |
|-------------|-------|------|------|------|------|-------|-------|------|-------------------|
| NGP of DENR | 3.73 | 3.15 | 3.75 | 3.62 | 3.50 | 4.0 | 3.61 | 3.62 | Highly Supportive |
| Total | 3.738 | 3.15 | 3.75 | 3.62 | 3.50 | 4.014 | 3.614 | 3.62 | Highly Supportive |

Table 5. Distribution of the Challenges Encountered in MPA Management across the seven sites (N=237)

| Challenges | WM | Description |
|---|--------------|-----------------|
| Inadequate Budget of the MPA for having only 250 thousand pesos a year. | 4.00 | Most Prevailing |
| Lack of alternative Livelihood being a displaced fisher folks | 3.88 | Most Prevailing |
| Low honorarium of the Bantay Dagat | 3.83 | Most Prevailing |
| Lack of Entrepreneurial Training | 3.30 | Most Prevailing |
| Lack of Patrol Boats | 3.29 | Most Prevailing |
| Absence of Electricity connection in the Guard house | 3.28 | Most Prevailing |
| Poor enforcement of the MPA regulation/Intrusion of the MPA | 3.26 | Most Prevailing |
| Lack of Fish Landing | 3.25 | Prevailing |
| Lack of Floating house | 3.23 | Prevailing |
| Lack of Tourists | 3.20 | Prevailing |
| Over-all Mean | 34.52 | Most Prevailing |

Table 6 – Monitoring Schemes of the sites/MPA's

| Monitoring Scheme | Agencies Involved | Frequency | Source of Fund |
|---|--|-------------------|---------------------|
| Monitoring of Coral Covers | Municipal Agriculture Office, FAR .PFAR | Twice a Year | LGU of Cortes |
| Monitoring the Forest Covers of Mangroves | Municipal Forestry Office, NGP DENR | Four times a Year | LGU of Cortes, BLGU |
| Monitoring of Sea Weed Culture | Municipal Agriculture Office, FAR .PFAR | Six times a year | LGU of Cortes |
| Monitoring Fish catch | Office of the Municipal Agriculturist , BFAR. PFAR | 3 times a Year | LGU of Cortes |
| Monitoring the | Office of the | Twice a Year | LGU of Cortes |

| | | | |
|--|---|--|--|
| economic assistance: Fish Pens, goat , dispersals, pig raising etc. | Municipal Agriculturist, PFAR, BFAR | | |
|--|---|--|--|

Source: Municipal Planning Office

Table 7. Distribution of the Summary of Data in the Significance Difference of the Problems Encountered in the different sites and the ANOVAs Distribution.

| Sites/MPA | N | Mean | $\sum x$ | $\sum x^2$ |
|----------------------------|---------------------------|-----------------------|-----------------|-------------------|
| Balibadon | 32 | 15.09 | 483 | 18980 |
| Mabahin | 27 | 13.33 | 360 | 12647 |
| Tigao | 38 | 10.50 | 399 | 15957 |
| Tag – anongan | 40 | 12.88 | 515 | 29937 |
| Burgos | 31 | 11.61 | 360 | 15531 |
| Uba | 30 | 13.07 | 392 | 12763 |
| Capandan | 39 | 11.77 | 459 | 22267 |
| Total | 237 | 12.27 | 2908 | 128082 |
| Summary of the data | Computed F - Value | Critical Value | Decision | Conclusion |
| | 0.82 | 2.80@ 1% /2.10@5% | Significant | Rejected |

Organizational Culture: A Construct

The following part presents a social construct of the study: A social construct is defined as "a social mechanism, phenomenon, or category created and developed by society; a perception of an individual, group, or idea that is 'constructed' through cultural or social practice as defined by: (<http://www.dictionary.com/browse/social-construct>)".

The budget of 250 thousand pesos yearly in each MPA provided by the MLGU of Cortes only just enough since all the expenses are taken from the said budget from livelihood projects, health, education, cultural, promotion/advertisement, honorarium of the Bantay Dagat /fish warden , maintenance of the guard house, gasoline of the bus, bill boards/signage, the patrol, miscellaneous expenses in operating the MPA were taken from it. Taganungan, Balibadon, Capangdan Guard houses were already dilapidated since the bulk of its budget were intended as honorarium of the Bantay Dagat . Lack of the alternative livelihood as displaced fisher folks is another challenge encountered. Though, there were livelihoods interventions provided by the LGU of Cortes, the fisher folk during the focus group interview revealed that they were not enough. Long term sources on income are needed than simply livelihood projects they disclosed. Lack of entrepreneurial training is also a very serious challenge since the respondents declared that there is a need for them to have training in small scale business and marketing in order to best package and sell their products related and non related to fishery such handicrafts, fish draying, packaging sea weeds, and fish culture products, root crops to the market with higher value are wanting. Lack of patrol Boats is also a "Very Serious Challenge" since intrusion of the MPA's is frequently reported. Recent trend in intrusion were conducted by group or by band which made the MPA'a across sites to have innovations in patrolling the MPA such team patrol and issuing shot gun to the Bantay Dagat/coastal warden. Absence of electricity connection in the guard house is also

rated as “ Very Much Serious”. Only in the Tigao the MPA has electricity connection this has affected the guarding the MPA during the night/evening. Poor enforcement of the MPA norms due to the frequent intrusion is also a “Very Serious Challenge” As reflected in the police blotter that intrusions frequently occur in night usually by band of 20-24 able bodied armed men. These made the MPA’s to come together as a network to remedy the problem/challenge. The assistance of the Lanuza Bay Development Alliance in this aspect most especially in para-legal training of the Bantay Dagat/fish warden in the implementation of the MPA regulations proves beneficial in deterring future intrusions. Lack of fish landing in the seven sites is rated as “Much Serious Problem/challenge ”. If the Fish landing will be established in the seven sites there will be at ease in transportation of the fish catch. Lack of Floating houses is also rated as “Serious Challenge” since a floating house is supposedly a comfortable area in resting after guarding the MPA. It will also be a place of cooking and resting of the Bantay Dagat/Fish Warden”. Lack of Tourist is also a “Much Serious Challenge” since an absence of foreign tourist means the MPA’s of Cortes were less advertised for social marketing. Since it brings or pour money to the area and their absence will also means less monetary input for the local tourism sector.



Plate Number 5. The researcher with the key informant taking a pose with a grateful smile.

The MPA’s of the cited communities were premised on community empowerment where the locals as stewards of the MPA’s and enforced by local legislation. Norms were also legislated in the *Sangunian Bayan/Municipal Council* which was partly based on conservation and sustainable used of marine resources. and on the mandate of BFAR on marine conservation. It was the assumption that the norms developed would harness the objective of sustainable use of coastal resources. There were numerous privileges of the members of the MPA’s to its members in this approach which included the following: able to avail livelihood assistance, indirect employment opportunities from LGU and NGO’s like in the in the Mangrove Conservation Program where the fishers were hired in the in the upland ABACA, Palcata and mangrove reforestations/ farming of NGP which is a project of DENR. This approach were tri-partite that included the local community, the LGU/NGA’s and the NGO’s. One of the interesting features of the Cortes MPA’s was the organization of MPA Peoples Organization such: NAMATI (Nagkahiusang Mananagat as Tigao), Balibadon Fisher folk Association, Barangay Uba Fishermen Association, NAMACOR (Nagpakabanang Managat sa Cortes, KAAMPAKA (Kadagatan, Ampingan, Pagmata Katawhan, NAGMATA (Nagpakabanang Mananagat sa Taganongan), Mabahin Fishers Association and Burgos Fishers Associations). These people’s organizations were the umbrella organization of the MPA’s of the cited communities. Mostly the livelihood interventions were channeled in these People’s Organization. Lately last May 2012 the Barangay took direct control of the MPA’s per request of the Peoples Organization. The reasons for this was to solve the problems encountered by the Peoples Organization which

managed the reserve particularly in the logistics such difficulty in sustaining the honorarium of the Bantay Dagat/Fish Warden . The Local Government of Cortes provides 3,000 pesos honorarium of the Bantay Dagat and 30,000 pesos in the maintenance of the MPA Guard house. Another intervention of the MPA was the encouragement of the 4 P's members as members of the Bantay Dagat/Fish Warden including the women sector thus decreasing the demand of Bantay Dagat or deputized Tanod due to 4 P's volunteers.

Lately another intervention made by NGP- DENR were the ABACA and Palcata, mangrove reforestation / farming which the fisher folks were employed in this project thus promoting employment. Wood craft had also been promoted to augment income so with sea weed culture. To effectively harness the effective campaign of marine conservation the Local Government Unit of Cortes operates a radio Program "*Sankwaryu atong Ampingan/We have to Take Care our Fish Sanctuaries*" aired every morning in the locality. Moreover, The promotion of the MPA's of Cortes was started then of former Mayor Dennis Yu in 1996 after that numerous municipal resolutions was passed geared in the effective management of the MPA's and being vigorously supported by Mayor Peter Trinidad . At the start of the project in 1996 former Mayor Yu conceptualized that there was a need for Cortes being a coastal town to have a marine conservation program however he realized that there was a need to harness community support. Tigao was the first one to be organized then followed by the succeeding MPA's. Tigao then was pilot MPA and community consultation was done then the technical assistance from BFAR was sought .Resistance of the community then was very strong with the fear that it will displaced them in their traditional fishing grounds. Collaboration and good governance by the PO's, BLGU and the MLGU unit was harnessed hence contributed to its success story.

Part of the observation in my field work was that the fisher folks blamed/held responsible the fishers from other municipalities/provinces for intrusion including foreign fishing fleets. They had been discussed in the MPA *Pulong Pulong*/gathering and they were planning to report it to the Philippine Coast Guard station in Tandag City for enforcement of the maritime laws of the country since it is a Coast Guard matters according to the key informant. I noticed also that the fishers were supportive and very much committed to conservation of the MPA spirit. One even said "*Hapit Na Kami Magkamatay ug Mopatay para lamang sa Sanwaryu*" (We nearby killed others for intrusion and also nearby killed ourselves just to protect the fish sanctuary indeed).

MPA's were an illustration of their conviction in the cause of conservation. Collaboration of line agencies such DSWD through its 4 P's program (refer to end note # 2 for further discussion of 4 P's), Department of Tourism for its Eco- Tourism Program and the Department of Education in the environmental education was evident, DENR through its NGP Project. The Lanuza Bay Development Alliance also greatly help in the capability/capacity building of the Cortes MPA's. It had also assisted in Bio-Physical inventory of coral covers. Since the Cortes MPA's were anchored on Bio-Diversity Conservation it had also in pace or established the Burgos Bird Sanctuary which is famous of its migratory Birds. One of the interesting Organizational features of the governance of the MPA's was the used of the School Bus of the LGU in promoting advocacy of the MPA. The said school Bus had a lot of paintings depicting the MPA's relevance. I observed that it was a very potent source of the campaign of MPA's advocacy. The attractive painting had also text bold enough to catch the attention of the viewers e.g. "*Kadagatan Ampingan Ta Para sa Kalabomboan, kinaiyahan og sa sunod na Kaliwatan*"(We have to conserve/protect/have sustainable use of the sea for the next generation) Besides the Bus, the LGU also distributed

calendars with printed messages in MPA conservation and life cycle of fishes. To promote further advocacy the use of “Bill Boards” were being utilized. In this Bill Board partners NGO’s were also reflected/printed. I also noticed that economic intervention in the MPA governance has a huge impact in the economic condition of the fisher folk such: sea weed production, piggery, goat, carabao, mangrove plantation labor contracting, and fish pens. These economic components of the MPA management were properly in placed. The indigent fisher folks were also recipient of “*Lingap Kalusugan*” program besides Phil Health. This is worth 4,000 pesos given on cash basis during hospitalization. Part component of the MPA management was the promotion of the MPA’s as eco-tourism destination as an avenue of scuba diving, snorkeling, surfing, sport fishing, island hopping. I also found out the effectiveness of the “Law Enforcement Aspect of the MPA”. The Deputation of Bantay Dagat (sea or coastal warden) as regular Tanod was one of the best practices of the MPA. Being a Deputized Tanod they received honorarium of 3,000 pesos a month from the Barangay. Thus, augmenting their source of income. I also observed that the participation of the women was widely felt. The women sectors who were not semi-employed but were helping guarding the MPA during day time 24/7. They were considered as active volunteers. The most potent Philosophy of the Cortes MPA was anchored on “Voluntarism and Stewardship” with these it had a spillover effect of collective ownership of the MPA. The Bio-Physical conditions of Cortes MPA’s were regularly monitored by the Municipal Agriculturist office with two licensed divers, one resident Marine Biologist and the Head of the unit is a holder of MS in Conservation from The University of Texas. Besides research in the Bio-diversity of the MPA’s were in progress to assess the coral cover covers and inventory of the marine environment. It can be deduced in my field work the loyalty of the members to the MPA. Community pride was evident, collective ownership was manifested by the community. The good governance of the MPA’s across sites is a result of committed members, supportive LGU’s, and active NGO’s and Philippines line agencies support like BFAR, NGP of DENR . This locally driven management style was worth emulating with other LGU’s. The participatory approach of MPA management was anchored in the philosophy of food security (Sajot et al., 2005), promoting biodiversity, good governance, people’s empowerment and sustainable development. The cooperative/ participatory approach in the sites/MPA's engaged the NGO’s, PO’s and Public sector hence promoted communal ownership and shared responsibility. The MPA’s of Cortes provided a mechanism of monitoring and evaluation. It can be inferred that the monitoring of the governance of the MPA’s was holistic in nature thus means it encompasses all aspects: economics, health, tourism and conservation. One of the best practices of the MPA’s was the “ Networking” scheme which means that MPA’s were considered as “one” and not independent from each other to have equity in the distribution of assistance. It linkage with the NGO’s were sustained indeed. However, most of financial interventions of the MPA’s come mostly from the LGU of Cortes, NGP of DENR, BFAR.

In the sustainable governance of the sites/MPA the 7 communities had adopted an indigenous norm duly adopted by the association and received significant assistant from LBDA and the LGU of Cortes. Moreover, the assistance given by the BFAR in the Bio-Physical aspect of monitoring had also a very satisfactory result. Part of the monitoring was the feedback mechanism and the presentation of the Municipal Fishery designate of the current condition of the coral covers of the sites. Feed backing of the MPA governance was done in the “*pulong-pulong*”/community/village gatherings called by the Chairman once in every two months or once a month if the need arises. It was observed by the researcher that the violators of the norms/intruders were reported to the Municipal Police and cases had been filed. It was assumed by the respondents that regular patrols would increase abundance of

spill over fishers, increase fish harvest and healthy corals. In the issue that there were members of the sites/MPA's that had relatives which intruded/violated the sites. It was observed by the researcher that they will forward the cases to the Municipal Police for appropriate charges regardless if they were blood related or members of the clan. This was due to the fact that clan relation was very strong in rural villages such the sites of the study.

It revealed that Members and Officers of the MPA perceived that the support extended by the BLGU was "Highly Supportive". The LGU of Cortes also receives the same rating of "Highly Supportive". The Bureau of Fishery and Aquatic Resources and the Provincial Fishery and Aquatic office both receives the rating of "Very Supportive". This is due to the assistance of BFAR, the Provincial Fishery and Aquatic resources were channeled to the Barangay. Thus, the "Very satisfactory" rating of the LGU of Cortes was due to the following: Holistic approach in the management of the MPA that includes economic, health, good governance and conservation aspects. The 2 Million allocation of the LGU in the management of the MPA was divided among the MPA's is a proof of its commitment to this cause. The indigent resident receives 4,000 pesos health insurance besides Phil health. In addition the 250 thousand pesos for the MPA governance from the MLGU. The LGU have sliced funding for scholarship "Alay ng Cortes LGU scholars" which are taking the different courses in SDSSU Cantilan and Tandag. Besides of the slots coming the provincial Governor for the Alay ng Probensiya". The LGU had provided Bill Boards in the different Elementary and Secondary Schools for the relevance of the MPA'. In 2007 Cortes MPA received second Place as the most managed MPA of the country awarded by the Marine Protected Areas Support Network (MPASN). The indicator /parameters /criterion of the award covers both the socio-economic and the bio-physical aspects. Among the excellent achievement are: the radio program aired every Saturday 5:30 to 7:00 AM which covers and discusses the relevance of the MPA's, the LGU Bus of Cortes which have a jingle of MPA songs and vivid painting of the school bus concerning the relevance of the MPA. It has maintained a mascot name "RABITA" since a bulk of reef fishes of Cortes comes from the RABBIT species (*Danggit, Bangkawon, and Molmol*). It is providing the said species in the neighboring towns even in the city of Tandag. The LGU of Cortes deputized Fish Warden, which they received 3,000 pesos honorarium from the LGU. Most of the fish wardens were former illegal fishers now being transformed as stewards of the MPA's. There is also YouTube file which discussed the relevance of MPA to the ecology, economy, tourism and education was instituted. To sum up the MPA of Cortes has a domino effect to the community, to the fisher folks, to the cause of conservation and for effective sustainable preservation. It showed that Harribon Foundation received the rating of "Highly Supportive" so with Green Mindanao. Rare Pride and Fish Project received also the rating of "Highly Supportive. They also provided livelihood projects. Fish Project also provides Conservation measures and livelihood projects. LBDA is highly commendable for the training provided in fishery law of the Philippines and capacity building/ training of the MPA members.

The MPA's of Cortes works as a network. This means intrusion of either of the MPA's can be easily apprehended due this scheme /approach. The livelihood interventions both NGO's and LGU have added more economic benefits to the MPA members. Cortes, known by its rich coral reefs and long coast line and bestowed with a mountainous terrain aims to attain economic growth and social equity with in a context of a well balanced ecology (Malicse, 2005). Aware of this vision the Cortesanon strive to be a prime leader of conservation and sustainable governance of resources. The yearly celebration of *Kadagatan* festival manifested Cortesanon love for conservation and the pride in it for being awarded as one of the Outstanding MPA in 2007. A typical rural town endowed by nature with rich bounties and

strong and determined people who were stewards of the environment. The organization of various people's organization felt that there was a need of a collaborative approach in MPA management. That Cortes MPA's had illustrated this success story which is worth to be emulated. It can be deduced further due to the numerous assistance received by the fisher folks that the collaboration of the NGO's , LGU's , NGP-DENR, BFAR, PFAR were very much active geared towards capability and technical assistance that would benefit the fisher folks. This social interventions were geared in improving the economic status of the fisher folk in this avenue would discourage them to use illegal fishing and appreciate more the relevance of the MPA. The fishers conceptualized that there is a need to establish the MPA's since it is anchored on food security, livelihood interventions, sustainable conservation and good governance through the enactment of Municipal Ordinance. The MPA's were empowering the said communities in addressing sustainable use of marine resources. Thus, their organizations of MPA's were the result of the long process of social marketing and preparation for the relevance of the MPA's, participatory and co-stewardship approaches were evident.

The members of the MPA across sites demonstrated a very strong sense of volunteerism in the MPA causes. Though they had accepted when the MPA's was introduced 10 years ago then they had a negative conceptualization against it. But, by the thorough effort of the LGU, Green Mindanao, Haribon, LBDA , Fish Project, Rare Project, BFAR, DENR NGP in addition to the committed NGO's staff they had accepted the noble cause of the MPA. People's acceptance of the MPA's was due to the enactment of various municipal resolutions. At the start perception of the fishers of the project were mixed for they had endeavored most of their livelihood in near shore fishing. With dedicated community worker the residents accepted it for it was anchored on poverty reduction, promote regeneration of marine habitat. The restricted core and buffer zones were intended for scientific and research study, eco. and cultural tourism. The spell over effect of the fishes in the MPA's brings countless benefits such regenerated fish catch and increase fish yields. They had slowly realized the importance of coral reefs as breeding area, nursery of fishes and destructive fishing such electro and dynamite and among others had negative effect to the ecosystem. Thus, their organizations of the MPA were a response of sustainable use of resources. The committed NGO's and environmental advocacy of the LGU prompted the Cortesanon to embrace MPA relevance. Social awareness and acceptability was very high. Regular "Pulong – Pulong"/village/community gatherings had been conducted devotedly .

FINDINGS

It revealed that 6.32% of the respondents availed training on MPA management, 6.29% of the respondents attended training in Identification of corals, 6.26% of the respondents attended training on identification of Reef fishes, 5.91% of the respondents attended training in coral reefs management, 5.49% of the respondents attended on RARE training , 5.39% of the respondents attended training on waste management, 5.36 of the respondents attended training on fishery laws, another 5.36% of the respondents attended training on MPA enforcement ,5.26% of the respondents training on mangrove conservation, another 5.26 , 4.74% of the respondents training on Bantay Dagat, 4.68% of the respondents attended training on Marine ecotourism, 3.48% of the respondents availed training on MPA management sponsor by the Lanuza bay Development Alliance, 3.10% of the respondents attended a training on fishery stock assessment, 2.90% of the respondents attended training on Mud Crab culture , another 2.90 % of the respondents attended training on marketing, 2.81 % of the respondents attended training on cooperative, 2.24% of the respondents

attended a training on seaweed farming, 4.42% of the respondents attended a training on fish processing, 2.39% of the respondents attended a training on Fish cage, 2.32% of the respondents attended a training on shell culture, 1.68% of the respondents attended a training on Brackish Marine culture, while 1.29% of the respondents attended a training on Boat Making.

It can be deduced that the respondents availed training for the MPA governance from NGO's, LGU and BFA,PFAR, NGP of DENR for mangrove reforestations. It showed further that the collaboration by the cited agencies in technical aspect was evident. This implies that the respondents attended training in fishery related activities provided by the different agencies both NGO's and GO's. It can be concluded that the said agencies programs on the MPA management or capability building were responding for the needs of the community which aimed further of improving both the economic conditions of the fishers and the marine ecology/ecosystem as well. This further showed that NGO's were active in providing capability building seminars to the members of the MPA and livelihood interventions as well.

Majority of the respondents consider fishing as their dominant occupation. Though they also engages in some other occupation like farming etc. The respondents (Fisher Folks) attended training in fishery related trainings. They received varied livelihood assistance from the LGU and NGO's. All the Sites/MPA's are established through a Municipal Ordinance. The following NGO's entered the sites for the development assistance. Green Mindanao, Haribon Foundation, Fish Project, Rare Pride. The LGU of Cortes employed monitoring scheme in the management of the MPA which includes: Monitoring coral covers, monitoring forest covers, monitoring the effectiveness of livelihood interventions, promotion of eco-tourism, monitoring other programs like sagip Lingap, social advocacy of the MPA's through: Radio, Bill Boards. The LGU budgeted 2 million from its coppers/treasury for the management of MPA's. 250 thousand pesos each MPA. The funding of the MPAs was directly channeled to the Barangay Chairman /Captain. PPP (Public and Private Partnership) collaboration was evident in capacity assessment training of the MPA members given mostly by NGO's. It also includes livelihood assistance. BFAR participation is rated as "very supportive". This is due to the fact that its assistance is directly channeled to the LGU. That the Cortes MPA is anchored on food security, sustainable use of resources and environmental governance. Though the LGU allocates 250 thousand pesos in the management it covered also other components of the projects like livelihood assistance, health scholarship, operational cost of the MPA, honorarium of the Fish warden. The livelihood assistance provided by the LGU includes fish pens, goat, carabao dispersal, sea weed culture, mangrove reforestation, pig rising, and fruit tree planting. Recipient of the 4 P's collaborated in volunteering the MPA.

Innovative approaches were used to effectively campaign illegal fishing such: radio Program, Bill Boards, printed materials. The use of YouTube by the LGU of Cortes in promoting MPA/Sites awareness. Data revealed intrusion of illegal fishers is a serious problem/challenge in the MPA.

CONCLUSION

The following are derived Conclusion:

The community accepted the relevance of the MPA in conservation. That there is an active collaboration of the Private Sector and Public Sector in MPA management. The

problems/challenges encountered in the management of the MPA affected its operation. MPA is a form of strategy in sustainable use of resources however is also a quasi-informal economic institution since most of the livelihood assistance from the LGU is channeled to the Barangay then to the MPA. The MPA's are dependent from the LGU for funding. The training receives by the fisher folks are relevant in the MPA management. Monitoring and evaluation of Cortes MPA's are properly in place.

Success of the Cortes MPA's are not only due to effective Bio-Physical management but to the development intervention of the LGU's which contributed to its good governance and the NGO's collaboration. The legal bases of the cited MPA's are properly in place. The different Sangunian Ordinances are its proof. MPA's are very effective means of coastal management.



Plate No. 6 "The LBDA assembly". Photo Credit Retsy Tomaquin-Malong , DPA.

The Management of the 7 sites/MPA's can categorize as community based and anchored on food security and maintaining bio-diversity. Moreover, an issue like displacement of the traditional fishing grounds always emerges. One of which intrusion of the "No-TAKE-ZONE" Have been reported. The management of the MPA's includes the fishers, LGU, Barangay . Presently it is under now the jurisdiction of the Barangay Captain. Perception that those who are closer to the Mayor get more funding also surfaces. With these the issues of perceived conflict of neighboring MPA's emerges such in Taganongan and Burgos. With these threats to the MPA's are not eliminated.

The latest integration last March 2012 of the MPA's a under the direct control of the Barangay Captain introduces the new mode of MPA management that is semi-Bureaucratic. The stakeholders believed that this arrangement can reduce conflict among MPA's. MPA's of Cortes are a frontline strategy in coastal management of MLGU.

The MPA's of Cortes are presently achieving its purpose of conservation measures and food security despites of problems encountered. With the collaboration of the NGO's, and LBDA the governance of the MPA's is centered biodiversity and interventions of the displaced fisher folks. The program of converting the illegal fishers into steward of the MPA's by employing them as Fish wardens are commendable indeed. Increase in fish catch had been reported since the MPA's had been established. The MPA's promoted other industry such Eco. Tourism.

The MPA's are powerful tool in grassroots coastal development. The awards received by the LGU of Cortes were manifestations in its achievement in good management of the MPA's. One of which is the best MPA in the country in 2007. Social preparedness of the community will lead to effective campaign of social marketing of the MPA's hence proven in Cortes success story. The MPA's of Cortes are considered as a good strategy in coastal development geared towards good governance. The program of the LGU of Cortes in MPA management is "holistic" enough that it encompasses the economic, health, cultural, tourism, education, security, sustainable governance of the sites/MPA. Cortes MPA's aimed to harness people's empowerment and responsibility. MPA indicators in its monitoring are in placed such: monitoring of coral covers, mangrove covers, evaluation of economic interventions (livelihood projects) and extent of people's empowerment in the grass roots level. The other approaches in MPA promotion can be "Rated as very Effective" such the use of radio program, bill boards, the utilization of the LGU Bus in MPA promotion. The trainings attended by the MPA members in MPA governance were sufficient enough. There was an active collaboration in capability/capacity building of the MPA members by active engagements of the NGO's, GO's, LGU's and LBDA.

RECOMMENDATION

The construction of the guard house of Capangdan should be finished because unfinished guard house affected the ability of its members in patrolling the MPA's. Dilapidated Guard houses in Balibadon, Taganongan should be repaired. Repair of the said guard houses are wanting for it will contribute the morale of its members. More Bill Boards are needed in Balibadon, Taganongan, and Capangdan. The bridge that suppose to connect Tag-anungan Island and Burgos should be finished. If the coppers or money from the MLGU of Cortes warrants the bridge should be finished for will contribute to more access of the delivery of goods from Taganongan to Cortes thus lowering the operation cost. The honorarium of the Fish warden should be increased. It is high time for the LGU to increase the honorarium of the fish Warden. Since guarding the MPA entails huge commitment even putting the lives of the Bantay Dagat in danger due to the frequent intrusion increasing their honorarium are wanting. More NGO's are needed for more collaboration in MPA management with the public sector. Increase the supply of Binoculars (Telescope) and armed the Fish Warden with a shot gun. Mentoring of the develop MPA's such: Uba, Tigao and Burgus be instituted to less developed MPA's such Balibadon & Tag-anungan. The program of eco-tourism should be enhanced which the MP'A as an integral component of it. Tourism industry offers jobs to the locality thus its development is beneficial to the local economy.



Plate no. 7 "Mayor Pet Trinidad of the municipality of Cortes, Surigao Del Sur with Atty. Gerardo Maglinte and the LBDA secretary during the LBDA assembly held in Uba." Photo Credit Retsy Tomaquin-Malong, DPA.

Strict implementation of the MPA regulation is a must to deter intrusion. Conduct Bio-Physical profiling of the marine reserve and ecological resource assessment including human activities and natural disturbances within the marine reserve such: commercial fishing, sewage pollution, poison fishing, siltation problem, coral damage, mass coral bleaching, level of poaching in the reserve, cause of coral damage be instituted . The management of the reserve should be turnover to the people's organization so they can avail support from foreign funding institutions. The development of seaweed industry is needed so that the residents can be trained on how to market it. Cooperatives for small-scale fisher folk should be enhanced so they can avail soft loans with lesser interest. Researches of the following topics are recommended: The need of MPA trainers training, community based tourism based on the marine reserved, other potential MPA sites of Lanuza Bay. The following technologies are recommended: furniture and Fish Canning. The officers and members of the PO should develop their skills in proposal writing, evaluation, and implementation in order that it will be easier for them to tie up with services from funding agencies. There is a need to hold a competency-based training enhancement Program to assess the training needs of the community. Development plan forecasting for 15 years in the management of the reserve is needed. In a scenario that the support from the LGU will cease the marine reserve will be sustained. There is a need to increase the inventory of artificial reefs. These are structures placed / establish in the marine ecosystem with the end view of serving as shelters of fish and other marine organism. It can also be a potential breeding ground of Fishes. The short term project can be funded by the LGU to be taken from the allocation of the MPA. A suitable area for the artificial coral reefs be identified where can be identified as potential spawning area.



Plate No. 8 "Happy Pose of the researcher for a successful social research "

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12. To the staff of NGP Project of DENR for their valuable input in mangrove conservation program (Please refer to end note Number 3).

End Note

1. The study was conducted from January 2012 to September 2012 . A total of 9 months of field work. Hon . Peter Trinidad was the Municipal Mayor of Cortes when the study was conducted likewise he had given a permit to the researcher to conduct the study. Hence the recommendations formulated was based on the result of the study covering only at that specific period/time mentioned above.

2. 4P's, Pantawid Pamilyang Pilipino Program is a human development program of the national government that invests in the health and education of poor households, particularly of children aged 0-18 years old. (<http://pantawid.dswd.gov.ph/index.php/about-us>) Patterned after the conditional cash transfer scheme implemented in other developing countries, the Pantawid Pamilya provides cash grants to beneficiaries provided that they comply with the set of conditions required by the program (<http://pantawid.dswd.gov.ph/index.php/about-us>.)

3. (<http://www.denr.gov.ph/priority-programs/national-greening-program.htm>) Defines /discussed the National Greening Program) (NGP) is a massive forest rehabilitation program of the government established by virtue of Executive Order No. 26 issued on Feb. 24, 2011 by President Benigno S. Aquino III. It seeks to grow 1.5 billion trees in 1.5 million hectares nationwide within a period of six years, from 2011 to 2016. Aside from being a reforestation initiative, the NGP is also seen as a climate change mitigation strategy as it seeks to enhance the country's forest stock to absorb carbon dioxide, which is largely blamed for global warming. It is also designed to reduce poverty, providing alternative livelihood activities for marginalized upland and lowland households relating to seedling production and care and maintenance of newly-planted trees. As a convergence initiative among the Departments of Agriculture, Agrarian Reform and DENR, half of the targeted trees to be planted under the program would constitute forest tree species intended for timber production and protection as well. The other 50% would comprised of agro forestry species. Areas eligible for rehabilitation under the program include all lands of the public domain. Specifically, these include forestlands, mangrove and protected areas, ancestral domains, civil and military reservation, urban greening areas, inactive and abandoned mine sites and other suitable lands (<http://www.denr.gov.ph/priority-programs/national-greening-program.html>.)

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