The Impact of Mangrove Rehabilitation Project: A Community-Based Conservation

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ABSTRACT In 2012, The Philippine National Aquasilviculture Project (PNAP) was forged and formally launched by the Department of Agriculture - Bureau of Fisheries and Aquatic Resources (DA-BFAR). To implement the PNAP, a Memorandum of Agreement (MOA) was executed by and between BFAR and the Commission on Higher Education (CHED) on December 16, 2011. The study was conducted to assess the impact of mangrove rehabilitation project implemented in the Municipality of Buenavista, Guimaras covering the seven (7) barangays with a total of 177 beneficiaries as participants. The collaborative mangrove rehabilitation project of Guimaras State College (GSC) and Bureau of Fisheries and Aquatic Resources (BFAR) accomplished about 430,695 planted mangrove propagules at 96.8 hectares area with 85.17% survival rate. The contribution of the projects to fisher folks to ease their financial woes may be represented by an appreciation of a beneficiary of the amount he/she signed in payroll. The Local Government Officials and the beneficiaries have been appreciating the BFAR-PNAP implementation; for them, the projects can be trusted to help their constituents. The projects have never been reneged ever since to pay all direct beneficiaries. The project commensurate a positive impact in terms of Economic, Environmental and Social aspects and the beneficiaries have a high satisfaction on the Mangrove Rehabilitation Project implemented by GSC and BFAR.

Keywords: PNAP, Mangrove Rehabilitation

INTRODUCTION

Mangrove forests are composed of several species having great economic potentialities, which inspire people to exploit the mangrove forests in an unplanned manner to meet their needs (Panda, Mardaraj, Subudhi, and Sahu, 2013). These anthropogenic and natural processes pressures call for immediate conservation of the mangrove forests – the need of the hour. Realizing these, the Philippine Government through the Bureau of Fisheries and Aquatic Resources (BFAR) now emphasizes over the conservation of mangrove vegetation in almost all regions and provinces of the country. The aims of the community-based mangrove conservation project under the Philippine National Aquasilviculture Program (PNAP) are the restoration, rehabilitation, and conservation of the unique and priceless mangrove ecosystems of the coastal regions in the Philippines through large-scale mangrove plantations. However, the question on the attitude of the participating peoples' organization (PO) comes into account towards sustaining the project at the termination phase after 5 years of its implementation. While most terminal reports highlight the socio-economic and ecological dimensions of the project, this study attempts to emphasize the community-based mangrove conservation.

In 2012, The Philippine National Aquasilviculture Project (PNAP) was forged and formally launched by the Department of Agriculture - Bureau of Fisheries and Aquatic Resources (DA-BFAR). To implement the PNAP, a Memorandum of Agreement (MOA) was executed by and between BFAR and the Commission on Higher Education (CHED) on December 16, 2011. The program concept is primarily mangrove resource rehabilitation and livelihood provision to help address climate change, food security, and poverty among municipal or artisanal coastal fisherfolk.

The project was started last July 2013 and Guimaras State College as one of the granted School to implement the program.

The aim of this study is to assess the status and development of the Mangrove Rehabilitation program implemented by Guimaras State College. Specifically, this study will:

1. Determine the number of beneficiaries in the mangrove rehabilitation project implemented in the Municipality of Buenavista.
2. Determine the cost of the project implemented in the Municipality of Buenavista when grouped according to barangay.
3. Determine the status and development of the project implemented in the Municipality of Buenavista when grouped according to barangay.
4. Determine the impact of the mangrove rehabilitation project.
5. Determine the Satisfaction of beneficiaries

METHODOLOGY

A Descriptive Research design will be used to elicit information about the "THE IMPACT OF MANGROVE REHABILITATION PROJECT: A COMMUNITY-BASED CONSERVATION" it will focus on the historical data of the project, impact assessment, and beneficiary's satisfaction.

According to Librero (1996), a survey research design allows to study "natural occurring phenomena." Furthermore, a researcher collects data from a part of the population to assess the interrelationship of the variables in his/her study. Survey research is the most efficient method in gathering data that will be used to describe a very large population (Babbie, 1986).

The GSC Mangrove Rehabilitation Project was implemented in the Municipality of Buenavista, Province of Guimaras covering the different barangays namely: Umilig, Tanag, Avila, San Miguel, Getulio, Bajao and Tanag.

For this study, surveys will be done from selected purposeful sampled sub-units. The respondents represented by all PO members was served as participants in whom they have direct engagement with the mangrove rehabilitation project implemented in the Municipality of Buenavista, Guimaras.

Focus group discussion and survey instrument were facilitated to gather data from the respondents concerning the benefits gained from the project.To answer the stated objectives, descriptive statistics specifically frequency and percentage distribution were used for objectives 1, 2 and 3, while in objective 4 and 5, mean was used.

RESULTS AND DISCUSSIONS

The collaborative mangrove rehabilitation project of Guimaras State College and Bureau of Fisheries and Aquatic Resources accomplished about 85.17% survival rate of mangrove plantation with 177 total beneficiaries in seven (7) Barangay's of Municipality of Buenavista, Guimaras.

Coastal habitat rehabilitation targeted the planting of 430,695 mangrove propagules in Municipality of Buenavista, Guimaras. Of that, 250,100 propagules were planted in Brgy Umilig; 47,831 in Brgy Tang; 26,665 in Brgy Avila; 24,999 in Brgy San Miguel; 51,400 in Brgy Getulio; 12,500 in Brgy Taminla and 17,200 in Brgy Bacjao. A total of Php 2,674,154.00 was paid to 177 total fisherfolk and farmer beneficiaries. The phase-1 and phase 2 targeted to plant mangroves in a land area of 96.8 hectares. The project was on-going, and the implementer and the funding agency continues on monitoring and evaluation to ensure the success of this project which was really benefits community.

Table 1. The Distribution of Beneficiaries, Number of Propagules and Cost of payments

Barangay	Beneficiaries	Area (Ha.)	Propagules (Pcs.)	Payments (PhP)
Umilig	61	55.12	250,100	1,633,642.00
Tanag	19	11.9	47,831	467,969.00
Avila	26	8	26,665	178,947.00
San Miguel	7	6	24,999	101,500.00
Getulio	29	10.28	51,400	115,000.00
Taminla	20	2.5	12,500	62,500
Bacjao	15	3	17,200	114,596.00
Grand Total	177	96.8	430,695	2,674,154.00

The impact of the Mangrove Rehabilitation project was evaluated by 177 total number of beneficiaries. As shown in the table above, beneficiaries strongly agreed that the project has Economic, Environmental and Social Impacts. On the economic impact, beneficiaries strongly agreed that, the project augmented the income of marginalized fisher folks, enhanced coastal fisheries livelihood by supporting fish habitat, paved the way for more funding or financial assistance from other agencies, opened opportunities to other projects like eco-park, eco-tourism and internalized by the whole family; all joined in planting and keeping the projects. While on Environmental impact, they believed, the greatest benefit from mangroves is not the tree but fish, contributing to carbon sequestration, ensured coastal integrity: mangroves protect against soil erosion, encourages accretion, windbreak, a buffer for big waves, supported the enhancement of marine ecosystem and biodiversity, mangrove planting is a rightful atonement to the mistake committed in the past - to rehabilitate neglected, abandoned, and unproductive fishponds under FLAs and recognizes for protection and management of coastal ecosystem. Moreover, the social impacts of this project were; the project was gender-sensitive: no inhibition based on gender or sex; increased the sense of community belongingness, social integration, camaraderie; because organized, the beneficiaries have bargaining power and voice in the LGUs decisions and policy-making; empowerment of the POs to chart their own course; increased community awareness on coastal resource rehabilitation and conservation; enhanced the beneficiaries' knowledge about coastal environmental

laws and mangrove biology and because of their involvement and participation in coastal rehabilitation.

One modality by which the BFAR supports to this nationally-initiated mangrove CBC action is to provide a modest funding support to complement the conservation and the research agenda of the implementers and the communities. In addition, training workshops were provided.

Mangrove Forests contribute significantly to the livelihoods of forest adjacent communities (Musyoki, Mugwe, Mutundu, and Muchiri, 2013). Scientific reports in 2011 detailed the destruction of the world's mangrove forests. The destruction went up to four times faster than the world's land-based forests and one fifth (around 35,500 square kilometers) of the world's mangroves have been lost since 1980 (Baral and Stern, 2011). The rapid growth in population, industrialization, and urbanization contributed primarily to the diminished mangrove forests. The global existing forests disappeared at an annual rate of over 2% (Motamedi, Hashim, Zakaria, Ki-Il Song, and Sofawi, 2014).

Table 2.The impact of the mangrove rehabilitation project.

ECONOMIC	Mean	Interpretation
Augmented the income of marginalized fisher folks.	4.56	Strongly Agree
Enhanced coastal fisheries livelihood by supporting fish habitat.	4.53	Strongly Agree
The projects paved the way for more funding or financial assistance from other agencies.	4.69	Strongly Agree
The projects opened opportunities to other projects like eco-park, eco-tourism.	4.53	Strongly Agree
Internalized by the whole family; all joined in planting and keeping the projects.	4.70	Strongly Agree
ENVIRONMENTAL	**Mean**	**Interpretation**
The greatest benefit from mangroves is not tree but fish.	4.66	Strongly Agree
Contributed to carbon sequestration.	4.53	Strongly Agree
Ensured coastal integrity: mangroves protect against soil erosion, encourages accretion, windbreak, a buffer for big waves.	4.37	Strongly Agree
Supported the enhancement of marine ecosystem and biodiversity.	4.43	Strongly Agree
Mangrove planting is a rightful atonement to the mistake committed in the past - to rehabilitate neglected, abandoned, and unproductive fishponds under FLAs.	4.49	Strongly Agree
Recognized contribution of POs as volunteers for protection and management of coastal ecosystem.	4.23	Strongly Agree
SOCIAL	**Mean**	**Interpretation**
The project was gender-sensitive: no inhibition based on gender or sex.	4.50	Strongly Agree
Increased the sense of community belongingness, social integration, camaraderie.	4.29	Strongly Agree
Because organized, the beneficiaries have bargaining power and voice in the LGUs decisions and policy making.	4.50	Strongly Agree
Empowerment of the POs to chart their own course.	4.24	Strongly Agree
Increased community awareness on coastal resource rehabilitation and conservation.	4.44	Strongly Agree
Enhanced the beneficiaries' knowledge about coastal environmental laws and mangrove biology.	4.34	Strongly Agree
Because of their involvement and participation in coastal rehabilitation.	4.37	Strongly Agree

The 177 total beneficiaries rated "Best (Napakahusay)" in all aspects of program implementation in which the harmonious relation of implementers with beneficiaries gained the highest rating, followed by project responsiveness to the needs of beneficiaries, timely release of funding for the project and project contribution to the improvement of living while transparency in all aspects of project implementation rated the lowest. The five (5) aspects of program implementation were important factors of service delivery to the community and the response of beneficiaries were a heart touching to note that they really appreciated the efforts made by Guimaras State College as an accountable implementer.

Table 3. Beneficiaries Satisfaction

Statements	Mean	Interpretation
1. Project responsiveness to the needs of beneficiaries	4.68	Best (napakahusay)
2. Timely release of funding for the project	4.67	Best (napakahusay)
3. Harmonious relation of implementers with beneficiaries	4.73	Best (napakahusay)
4. Project contribution to the improvement of living	4.65	Best (napakahusay)
5. Transparency in all aspects of project implementation	4.51	Best (napakahusay)
Total	4.65	Best (napakahusay)

Note: 177 total respondents participated in the surve

CONCLUSIONS

The collaborative mangrove rehabilitation project of Guimaras State College and Bureau of Fisheries and Aquatic Resources accomplished about 430,695 planted mangrove propagules at 96.8 hectares area with 85.17% survival rate with 177 total beneficiaries in seven (7) Barangay's of the Municipality of Buenavista, Guimaras.

The contribution of the projects to fisherfolks to ease their financial woes may be represented by an appreciation of a beneficiary of the amount he/she signed in payroll. The Local Government Officials and the beneficiaries have been appreciating the BFAR-PNAP implementation; for them, the projects can be trusted to help their constituents. The projects have never been reneged ever since to pay all direct beneficiaries.The project commensurate a positive impact in terms of Economic, Environmental and Social aspects. The beneficiaries have a high satisfaction with the Mangrove Rehabilitation Project implemented by Guimaras State College.

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REFERENCES

Baral, N., and Stern, M.J. 2011. A comparative study of two community-based conservation models in Nepal. Biodiversity conservation.

Baral, N., and J.T. Heinen. 2007. Decentralization and people's participation in conservation: a comparative study from the Western Terai of Nepal. International Journal of Sustainable Development & World Ecology, 14(5), 520-531.

Motamedi, S., R. Hashim, R. Zakaria, Ki-Il Song, and B. Sofawi. 2014. Long-Term Assessment of an Innovative MangroveRehabilitation Project: Case Study on Carey Island, Malaysia. Scientific World Journal Volume 2014, 12 pages.

Musyoki, J.K., J. Mugwe, K. Mutundu, and M. Muchiri. 2013. Determinants of Household Decision to Join Community Forest Associations: A Case Study of Kenya. ISRN Forestry, Volume 2013