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Research Article

Livelihood Impact Evaluation of Maintenance and Monitoring of Mangrove Reforestation Initiatives (3MRI) Along Sorsogon Bay

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ABSTRACT

The over-all objective of the study is to document and evaluate the outcomes of the extension program/project of the Sorsogon State University

Specifically, it intends to describe the inputs, activities, outputs, outcomes, and impacts; validate the impact pathway, describe the social, environmental, or economic impact to the beneficiaries; document lessons learned in implementation; and recommend policies for the improvement of the design and replication of the program/project. The project has started on February 2015 in the five (5) coastal barangays of Sorsogon City, namely; Brgy. Rizal, Brgy. Bulabog, Brgy. Bitan-o, Brgy. Buhatan, and Brgy. Talisay. A total of 1,218 beneficiaries along the coastal area barangays were trained and actively involved in the project for the past 5 years with an over-all rating described as better. There are at least 700 mangroves planted in each mentioned coastal areas during the launching of the project with the Head of City Agriculture Office, Mrs. Adeline J. Detera, Student Leaders, and other volunteers. The focus is only Barangay Talisay and the subject for impact evaluation of the project.

(2008Primavera, J., & Esteban, J. M. A.) In one of the studies conducted, despite heavy funds for massive rehabilitation of mangrove forests over the last two decades, the long-term survival rates of mangroves are generally low at 10-20%. Poor survival can be mainly traced to two factors: inappropriate species and sites selection.

Keywords: *Impact Evaluation, Mangrove Reforestation, Beneficiaries and Non-beneficiaries, Sales, Harvest*

Background

According to some studies, mangrove loss reached up to 80 percent from almost a total of 500 million hectares now only about 120 million hectares. In the 1950s, vast tracts of mangroves were awarded to concessionaires and logged over for firewood and tanbarks. Mangrove woods were the preferred fuel

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source in coastal villages and most bakeries because of its high heating value, but a greater volume was exported to Japan as firewood but reportedly became the source of rayon. (Melana, Dioscoro M, et al.)

(Primavera & Esteban, 2008; López-Portillo et al., 2017). However, numerous planting efforts implemented were unsuccessful due to the lack of science-based approach guidelines

(Tupas & Cacho, 2020). Livelihood opportunities are dependent on the natural resources available in the area, restoring the natural habitat would provide livelihood for the residents.

Sorsogon State University project entitled Livelihood Impact Evaluation of Maintenance and Monitoring of Mangrove Reforestation Initiatives (3MRI) Along Sorsogon Bay would like to assess the impact of the project to the beneficiaries and Non-beneficiaries in Barangay Talisay.

There are at least 700 mangroves planted in each mentioned coastal areas during the launching of the project with the Head of City Agriculture Office, Mrs. Adeline J. Detera, Student Leaders, and other volunteers.

A total of 1,218 beneficiaries along the coastal area barangays were trained and actively involved in the project for the past 5 years with an over-all rating described as better. The project has able to maintain the abundance of mangrove species for the past five years which lead to the provision of livelihood, tourist attractions, balanced ecosystem, and forge community stakeholder's awareness and partnerships in the province. Sustainability plan and measures has been also proposed for an on-going project and activities in the future. The project has started on February 2015 in the five (5) coastal barangays of Sorsogon City, namely; Brgy. Rizal, Brgy. Bulabog, Brgy. Bitano, Brgy. Buhatan, and Brgy. Talisay.

Methods

The difference-in-differences approach was used to that compare the changes in outcomes over time between a population enrolled in a program (the treatment group) and a population that is not (the comparison group).To establish deeply the impact and assessment of the project to the beneficiaries and non- beneficiaries, counter factual method was also utilized involving other areas not included in the study.

Results and Discussion

It is to be noted that with regards to Livelihood Activities of the beneficiaries in Barangay Talisay, other than Shell gleaning and fishing there are other jobs they are involved such as Vending and laundry. In 2015 and 2024 there were 100% involved in shell gleaning and 1 involved solely in fishing. As an alternative source of income, others are involved in non-coastal livelihood activity.

LIVELIHOOD ACTIVITIES	2015	2019	2024
A. Coastal-Based Livelihood			
Shell Gleaning	6	5	6
Fishing	0	1	1
B. Non-Coastal Livelihood			
Vending	3	3	3
Laundry	1	1	1

Impact on Shell Gleaning Activities

a. Changes in the Number of Persons Engaged in Shell Gleaning

As to the actual number of beneficiaries present and interviewed in Barangay Talisay, number of shell gleaners is 6 or 100 % in 2015 were involved and 2024 respectively. But as to the number of gleaners forwarded by the City Agricultural Office, there were 29 beneficiaries in 2015 and 34 in 2024. However as to the factual presence of the shell gleaners, there were 6 and accordingly, since there was the massive infrastructure toke place in the coastal area, some were displaced and relocated in either

Brgy. Cabid-an and Barangay Buhatan. Others claimed to switched jobs as an alternative source of livelihood thereby leaving to a smaller number of respondents of the project.

	2015	2019	2024
Beneficiaries	29		34
	6	5	6
Non-Beneficiaries	100	94	108

b. Changes in the Volume of Shells Gleaned

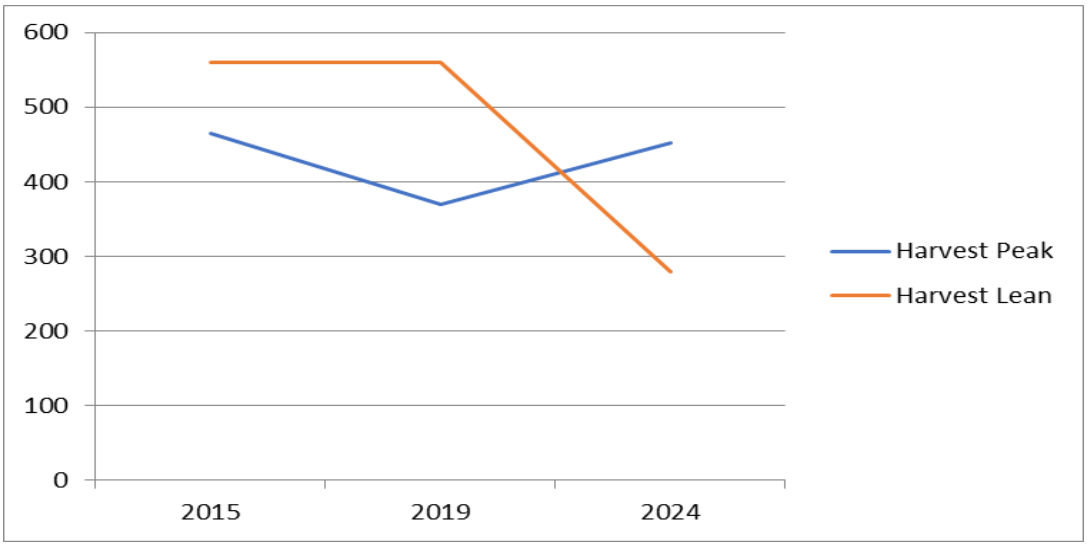

Figure 1 presents the average monthly harvest (in kg) of beneficiaries from2015 to 2024. The graph reveals a flat trend from 2015 to 2019 and a downtrend in 2024 while the harvest during peak season from 2015 decreases in 2024, however increased in 2024. Furthermore, after submitted for t test whether it is of significant value attributed to mangrove rehabilitation initiatives, it is not significant with p>01.

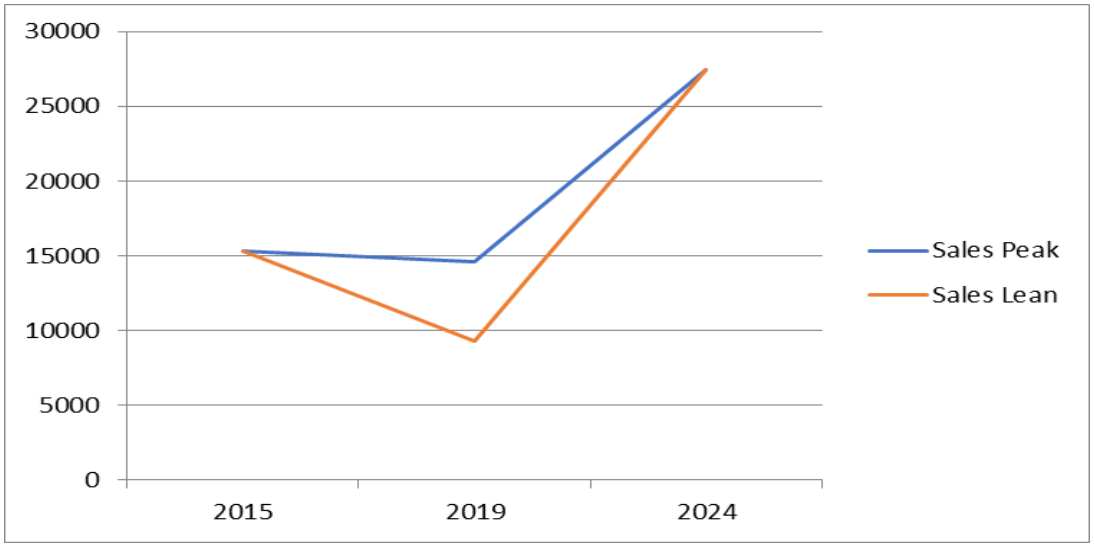

Fig 2. It shows the average monthly sales of beneficiaries from 2015 to 2024 reflecting a downtrend of sales in 2019 but increased in 2024 during the peak season as well as during the lean season. Although sales decreased in 2019, but it increased in 2024. T-test was used to identify whether the mangrove initiatives contributed to the increasing trend on the sales of the beneficiaries, it appears that it was not of significance having value of p=0.552 during peak season and p=-0.8627 during lean season.

Conclusion

The program by the Sorsogon State University has positive impact both to beneficiary and non-beneficiary in Barangay Talisay however as being tested as to its significance, it provides conclusion that not statistically significant thereby can concluded that there are other factors that may have contributed to the program not captured by this study.

It was concluded that mangrove rehabilitation will succeed if 1) it is built around an integrated and ecosystem-based approach that takes into account feedback between rehabilitation and other economic activities; 2) its scope is beyond mere planting; 3) local people are involved in planning and monitoring in addition to implementation; 4) all stakeholders are informed of their roles and responsibilities; and 5) species selection is based on ecological and silvicultural knowledge in conjunction with the needs and priorities identified by stakeholders. And also, by establishing buffer zones between coastal habitats and adjacent development. Identify more areas and do fencing to protect access to areas for rehabilitation.

The study results may aid the SorSU in measuring the Impact of their extension projects and be able to formulate other Interventions the study results may be used as benchmark of measuring impact of extension projects and be able to apply on their own project. The Local Government Unit of Sorsogon City with the results will provide insights to the LGU for projects relevant to coastal protection and preservation. The results may provide information on the economic impact of reforestation of coastal areas and further studies can be enhanced to provide additional information on impact evaluation.

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