



Impact of National Greening Program on the Environment and Economic Well-Being of Its Beneficiaries

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Abstract-The Philippines was formerly rich in forest resources. Forests provide a range of ecosystem services, ranging from the provision of food crops, livestock and fish to providing recreational experiences. However, the misuse and abuse of the country's forest resources resulted in the worst state of our forestlands today. The combined reforestation efforts of both the government and private sectors are not enough to stop the rapid deforestation rate of Philippine forests. In February 2011, the National Greening Program (NGP) was launched to enjoin the massive participation of the citizenry in the series of tree planting activities. In this study, NGP was assessed on its impact in the environment and economic well-being of its beneficiaries.

A semi-structured interview schedule was constructed and descriptive statistics were used in summarizing and analyzing the general findings of the data. The most notable environment impact of NGP implementation was the improvement in forest condition. The program also improved the income and livelihood opportunities of the members of the People's Organization. This proves that the program is well-implemented in the community. It was highly recommended by most of the respondents to conduct an Information Education Campaign (IEC) to have a similar and correct ideas and understanding about the program.

Keywords- Reforestation, Environmental Programs, Forest Degradation, People's Organization, Greening Programs

I. INTRODUCTION

Forests play a crucial role in our environment as they affect all other ecosystems and natural processes deemed essential for the sustenance, development and general well-being of the people. Our forests are a source of life; any threats to the survival of our forests threaten our very existence. In 2002, the DENR-FMB pegged forest cover at 5.39 million ha or about 18% of the total land area [2].

The misuse and abuse of the country's forest resources resulted in the worst state of our forestlands today. Human greediness contributes a lot in this wickedest scenario. Environmental degradation such as accelerated soil erosion, siltation of rivers and dams ,rapid loss of soil nutrients,

droughts during summer, and floods during rainy season; resource depletion, tenurial issues, upland poverty and continues influx of lowland migrants to the uplands are among the current issues in natural resources management. The gradual disappearance of our forest brought a massive problem to the community. Loss of jobs and livelihood as well as destructive floods and droughts are among the difficulty we are facing today. This condition encouraged the government to craft another development program to improve forest management and income in upland areas to mitigate hunger, while also enhancing the country's capacity to adapt to climate change. The government realized the importance of recognizing the claims of local communities to ensure accountability in the sustainable development and management of forest and forestland areas [4].The government expected that with the improvement in socio-economic condition of local communities, management of natural resources will also improve [3].

On February 24, 2011, with the issuance of the Executive Order No.26, the DENR formally launched the National Greening Program (NGP) together with the other concerned participating agencies. This is a nationwide social mobilization to enjoin the massive participation of the citizenry in the series of tree planting activities, with the noble aim "to put back the trees to where they once stood" by planting a total of 1.5 billion trees in the 1.5 million hectares of forest lands [8]. The NGP is a priority program of the government that is aimed at reducing poverty; promoting food security, environmental stability, and biodiversity conservation; and enhancing climate change mitigation and adaptation. It is, therefore, not a straightforward reforestation effort but a larger program intended to attain other important national objectives as well.

In Biliran Province, DENR has identified several sites to be covered by the NGP. The program has selected qualified beneficiaries of the province and has provided them with the needed technical assistance in developing community-based agroforestry projects. The first tree planting activity under the NGP was conducted in Brgy. Libtong, Naval during the Provincial Launching of the Program. It was followed at Brgy. Villaconsuelo together with the Villaconsuelo Tree Planters Association (VTPA) where the study was conducted.

This study was conducted to assess the impact of NGP on the environment and economic well-being of its beneficiaries.

II. METHODOLOGY

A. Study Site Selection

The National Greening Program implemented in Region 8 (Eastern Visayas Region) which is located at Brgy. Villaconsuelo, Naval, Biliran Province, Philippines was chosen as the research area of the study for the following reasons: (a) the NGP projects in this area have been on-going since 2011; (b) pertinent benchmark information and other secondary data particularly on the socio-economic and environmental conditions within the project sites are available; (c) the peace and order condition in the area is not critical; and (d) accessibility of the project sites.

B. Sampling Procedure and Data Collection

A total of 20 People's Organization (PO) members of Villaconsuelo Tree Planters Association (VTPA) and 10 Department of Environment and Natural Resources (DENR) staff were purposively selected from the list of 29 total number of PO members and 25 DENR staff considering their willingness and availability. A semi-structured questionnaire was constructed to obtain the environment and economic impacts of the program. A series of face-to-face interviews were conducted in their respective homes, farms and office.

Aside from the interviews with the selected respondents, secondary information was obtained from DENR-PENRO, Naval, Biliran. These were the map of the project site, list of DENR staff involved in the project, list of the farmers involved in the NGP implementation, list of tree species planted on the NGP site, and the survival rate of the planted tree species. Moreover, field observation and informal interviews were also conducted.

C. Statistical Analysis

Descriptive statistics such as frequency counts, percentages and means were used to describe the general findings of the study. Construction of frequency tables was used in the data presentation.

III. RESULTS AND DISCUSSION

A. Impact on the Environment

According to PO members and own observation, the most notable impact of National Greening Program implementation

in Brgy. Villaconsuelo was the improvement in forest condition. The increase was attributed by the respondents to the reforestation program of DENR and initiatives of the stakeholders to develop their own land holdings. The respondents acknowledged that the implementation of NGP motivated them to develop and improve their land use practices for their own benefit through control of timber poaching and shifting cultivation. Although there were no immediate benefits from planting fruit trees, farmers shifted their farming practices into more environment-friendly technologies by integrating agricultural crops and forest trees. They also integrated rattan in their farm. Varied methods of improving forest were also observed. Farmers were also encouraged to plant fuelwood trees such as kakawate (*Gliricidia sepium*) and ipi-ipil (*Leuceana leucocephala*) to lessen the timber poaching activities.

Girdling, timber poaching and even burning were common activities prior to NGP. This was undertaken for various reasons. According to one of the beneficiaries, this was done to open up patches of land for shifting cultivation or clearing of existing farm lands and to be able to gather fuel wood. These destructive activities of land preparation resulted to damages in vegetation of the area. With the support of NGP team and the help of POs, these activities were gradually minimized and controlled.

Flora resources had improved because of the NGP. Large areas were converted into tree plantations. Mixed species of forest trees and fruit-bearing trees, and some species of rattan are maintained by the PO. Building of a two-hectare arboretum was one indication that the project in the area and the PO were doing well.

The table below (Table I) shows the survival rate of the planted seedlings in the NGP site of the barangay. In year 2011, two timber land area of the community were selected as NGP sites. There were a total of 13,000 seedlings planted in 26 hectares and 10,000 seedlings in 20 hectares timber land area. Out of it, 30% and 25% of the planted seedlings only survived, respectively. However, the survival rate increased (40%) on year 2012 but the species were indigenous. On the other hand, the rattan commodity has a high survival rate which is 85% on year 2013 and 90% on 2016. The given result implies that the NGP site of the barangay is dominated by Rattan (*Calamus sp.*).

TABLE I. SURVIVAL RATE OF PLANTED SEEDLINGS AT VILLAGONSUELO NGP SITE

Year planted	Commodity	No. of Seedlings Validated	No. of Seedlings Planted	No. of Seedlings Contracted	Survival Rate (%)
2011	Timber	3,900	13,000	13,000	30
2011	Timber	2,500	10,000	10,000	25
2012	Indigenous species	15,400	38,500	38,500	40
2013	Rattan	21,250	25,000	25,000	85
2016	Rattan	36,000	40,000	40,000	90

Other ecological impacts of greening programs include mitigation of extremes in microclimate [6]. Trees also help reduce airborne pollutants found in high concentrations [9]. Further, storm run-off can be captured by trees root system and stored in the tree, to be released by the processes of evapotranspiration [11]. Planted trees can also act as habitat of species [12].

B. Economic Impact

Based on the information gathered, it was perceived that the program had actually raised the income and livelihood opportunities of the program participants. According to the People's Organization members, earnings derived from the program gave them an additional income. Farmers were paid every time they finished working on the various program such as nursery establishment, seedling production, site preparation, and maintenance which were stated in Letter of Agreement (LOA). Moreover, planting of fuelwood such as kakawate (*Gliricidia sepium*) and ipi-ipil (*Leuceana leucocephala*) gave additional takings to the farmers.

In a related study conducted in mangrove ecosystem, replanting mangroves through community-based reforestation has direct improvement in livelihoods and food security [13]. In urban areas, planting trees add value to property [1][7]. Savings in energy expenditure is also observed [10]. Homes with trees may use 20-25% less energy than those without trees [5].

IV. CONCLUSION

The findings of the study revealed that in terms of the environmental impact of the National Greening Program (NGP), the most notable effect was on the improvement in forest condition. Results of direct field observation and informal interviews showed that the forest area had increased. In terms of the economic impact of the program, the earnings derived from NGP gave the members of the People's Organization an additional income. This proves that the program is well-implemented in the community.

V. RECOMMENDATIONS

It is recommended that similar study be conducted in other National Greening Program (NGP) sites to assess success of the program. Problems and issues in the implementation of NGP should also be documented, and alternative actions should be done to improve the implementation of NGP and future greening programs of the country.

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