

# Sustaining Climate Change Mitigation Initiatives for Agrarian Reform Beneficiaries: An Assessment of the Department of Agrarian Reform's Strategies

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**Abstract:** Climate change poses a significant threat to agriculture, particularly to smallholder farmers under the agrarian reform program in the Philippines. This study assesses the effectiveness and sustainability of the Department of Agrarian Reform's (DAR) climate change mitigation strategies as experienced by Agrarian Reform Beneficiaries (ARBs) in selected municipalities of Nueva Ecija. Using a Likert-scale-based survey and interviews, the study evaluates DAR's program reach, impact, and community responsiveness. Results indicate moderate awareness and accessibility of DAR climate initiatives, with strong support for improved training, infrastructure, and inter-agency collaboration. The findings highlight key gaps and provide actionable recommendations to enhance the sustainability of climate adaptation and mitigation for ARBs.

**Keywords:** Climate Change, Agrarian Reform, Sustainability, Mitigation Strategies, Department of Agrarian Reform.

## 1. The Problem and its Background

### A. Background of the Study

The Philippines is one of the countries most affected by climate change, and the agricultural sector bears the brunt of its impacts. Agrarian reform communities, largely composed of smallholder farmers, face increasing challenges from extreme weather events. The Department of Agrarian Reform (DAR) has launched several programs aimed at enhancing climate resilience and promoting sustainable farming practices. This study seeks to assess how effective these strategies are in mitigating climate impacts and whether they are sustainable in the long term.

### B. Objective of the Study

This research aims to answer the primary question: How effective and sustainable are the Department of Agrarian Reform's strategies for mitigating climate change impacts among Agrarian Reform Beneficiaries in Nueva Ecija?

Specifically, it seeks to:

1. Assess ARBs' awareness and understanding of DAR climate initiatives;

2. Measure the perceived effectiveness and sustainability of current DAR strategies;
3. Provide recommendations to strengthen climate mitigation and adaptation programs.

### C. Significance of the Study

This study is significant for the following stakeholders:

- *Department of Agrarian Reform:* To refine and improve policy and implementation;
- *ARBs:* To gain a voice in shaping the climate strategies that affect their livelihoods;
- *Policy Makers and LGUs:* To guide integrated, climate-resilient planning;
- *Researchers and NGOs:* To support further study and collaboration.

## 2. Methodology

### A. Research Design

A descriptive quantitative approach using a Likert-scale-based survey was employed to gather perceptions and experiences from ARBs. A qualitative component was added through key informant interviews with DAR personnel.

### B. Data Collection Method

The study was conducted in selected Agrarian Reform Communities (ARCs) in Nueva Ecija, including the municipalities of San Antonio, Talavera, Guimba, and Zaragoza. Respondents were 100 ARBs, selected using purposive sampling.

This study employed purposive sampling to select respondents who are directly engaged in farming and are registered Agrarian Reform Beneficiaries (ARBs) within the jurisdiction of the Department of Agrarian Reform in Nueva Ecija. The following criteria guided the selection:

1. *Active ARB status* – Only farmers who have been officially awarded land under the Comprehensive Agrarian Reform Program (CARP) and are listed in

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DAR's regional registry were considered.

2. *Minimum of 3 years farming experience* – To ensure that the respondents had sufficient exposure to agricultural practices and the potential effects of climate change.
3. *Residency in DAR-recognized Agrarian Reform Communities (ARCs)* – Respondents were chosen from four municipalities: San Antonio, Talavera, Guimba, and Zaragoza, where DAR has actively implemented support services and climate adaptation programs.
4. *Direct experience with DAR programs* – Priority was given to ARBs who had participated in or received assistance from DAR projects such as trainings, distribution of climate-resilient seeds, or infrastructure support (e.g., irrigation or composting facilities).

DAR Municipal and Provincial Offices in Nueva Ecija provided official lists of ARBs in each area. Local DAR officers assisted in identifying eligible respondents based on the study's inclusion criteria. The researchers then conducted the surveys during scheduled visits to the barangays, often in coordination with barangay officials or DAR field technicians.

This approach ensured that the selected participants had relevant and firsthand experience with both climate change impacts and DAR's mitigation initiatives, making their responses valid and meaningful for the study's objectives.

### C. Research Instrument

A structured questionnaire was designed using a 5-point Likert scale with the following responses: 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree. The questionnaire consisted of the following sections:

- Demographic Profile (Age, Gender, Years as ARB, Type of Farming)
- Awareness of Climate Change and Its Impacts
- Knowledge and Accessibility of DAR Climate Programs
- Perceived Effectiveness of Strategies (e.g., reforestation, farm tools, climate-resilient seeds)
- Sustainability and Long-Term Impact
- Recommendations for Improvement

### D. Data Analysis

Responses were analyzed using descriptive statistics (mean, percentage) and interpreted using the following scale:

- 4.21 - 5.00: Strongly Agree
- 3.41 - 4.20: Agree
- 2.61 - 3.40: Neutral
- 1.81 - 2.60: Disagree
- 1.00 - 1.80: Strongly Disagree

## 3. Results and Discussion

### A. Awareness and Perception of Climate Change

Most respondents showed high awareness of climate change, with a mean score of 4.46 indicating that they are experiencing worsening climate impacts.

### B. Knowledge of DAR Initiatives

Respondents generally agreed (mean = 3.72) that they are aware of DAR's efforts, such as tree planting, irrigation upgrades, and sustainable farming seminars. However, only 34% claimed they had personally benefitted from these programs.

### C. Effectiveness of Strategies

Programs such as the provision of climate-resilient crops (mean = 3.84) and support infrastructure (mean = 3.65) were viewed as moderately effective. The limited coverage and delayed implementation were common concerns during interviews.

### D. Long-Term Sustainability

On sustainability, the overall mean score was 3.43 (Agree), though ARBs noted that programs are often one-off or project-based without continuity.

### E. Recommendations from ARBs

Respondents strongly supported (mean = 4.57) increased training and (mean = 4.48) stronger coordination between government agencies, LGUs, and the private sector. Calls for regular consultations and monitoring were emphasized.

## 4. Summary, Conclusions and Recommendations

### A. Summary

The study revealed moderate awareness and participation in DAR's climate change mitigation strategies among ARBs in Nueva Ecija. While programs were generally perceived as helpful, their limited scale and lack of continuity reduced their overall effectiveness and sustainability.

### B. Conclusions

1. ARBs in Nueva Ecija are aware of climate change but receive uneven access to mitigation programs.
2. DAR's current strategies show moderate effectiveness but are hindered by insufficient reach and follow-up.
3. Sustaining climate initiatives requires institutional commitment, regular training, and inter-agency partnerships.

### C. Recommendations

- Expand access to climate-resilient agricultural inputs such as drought-tolerant seeds, solar pumps, and organic fertilizers for all ARBs in Nueva Ecija.
- Regularly conduct climate-smart agriculture trainings across all agrarian reform communities, using local dialects and hands-on demonstrations.
- Strengthen coordination between DAR, the Department of Agriculture (DA), DENR, and LGUs to ensure integrated and timely climate interventions.
- Invest in community-based infrastructure projects such as flood control channels, irrigation rehabilitation, and crop storage to minimize climate-related losses.
- Establish a monitoring system to assess the

effectiveness of DAR's climate programs and adjust strategies based on feedback from ARBs.

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