

**Impact assessment of DAR-provided communal irrigation systems
on farm productivity and income of ARBs**

Ruby Anne S. Roda*

Department of Agrarian Reform, Nueva Vizcaya Provincial Office, Bayombong, Nueva Vizcaya, Philippines

ABSTRACT

The study evaluated the effect of DAR-communal irrigation system on farm productivity and gross income agrarian reform beneficiaries (ARBs) in Bayombong, Nueva Vizcaya. The study used a descriptive-comparative research design, with the data being collected using a structured survey questionnaire from 50 ARB. The data were analyzed using frequency, percentage, weighted mean, ranking and t-test used at 0.05 level of significance. Results showed that majority of respondents were middle aged, male, college graduate, had small to medium household size to moderate farming experience and working on small to medium sized farms. The overall rating for the extent of implementation was moderate agree (3.48), indicating that not all respondents are concerned about the communal irrigation system since they preferred to be artist rather than understand this important enterprise, but organizational management obtained a highest rating. Table I shows the summary measures of farm productivity and cropping intensity, crop diversification and crop yield per hectare. The respondents were in strong agreement that before the irrigation project, their income was unpredictable and directly related to rainfed agriculture. Respondents strongly agreed that their income increased, became more stable after the irrigation system is implemented as well as improvements in their living standard. The specific issues reported by the respondents include, a) limited availability of water for farmers during dry season, b) weaker participation of farmer members in association practices, and c) weak competence of implementing agencies to provide technical support. The unlike t-test showed that there was no significant difference observed in the perceived level of farm productivity and income with respect to sex, which confirmed that both male and female farmers had equal benefits by irrigation (Table 3 Table 4). In general, the study found similar results as previous studies showing that DAR-supplied communal irrigation system resulted in higher farm productivity and income of ARBs in Bayombong, Nueva Vizcaya although some aspects on the use and maintenance of the system still need further improvement.

Keywords: Communal irrigation system, farm productivity, agrarian reform beneficiaries, income improvement, irrigation management.

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*Corresponding author/ Email: Rubyanneallejosadang@gmail.com
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INTRODUCTION

The agriculture sector continues to play an important role in the Philippine economy as it still provides many forms of livelihoods for the majority of those living in rural areas. Nevertheless, smallholder farmers—especially agrarian reform beneficiaries (ARBs)—still encounter low productivity, income insecurity and reliance on rainfed farming systems. Madhya Pradesh is endowed with ample rain-fed resources, yet limited irrigation infrastructure used for growing crops is one of the most important barriers to agricultural development as it directly affects crop yield, cropping intensity and consequently income generation.

In line with this, the Department of Agrarian Reform (DAR) has provided communal irrigation systems in partnership with National Irrigation Administration (NIA) and local government unit as part of its support services under the Comprehensive Agrarian Reform Program. In these systems, a sufficiently reliable and sufficient water supply is provided to promote productivity of land in order for ARBs to sustain economically. Communal irrigation systems have been designed to be jointly managed by irrigators associations and encourage sustainable community engagement.

However, the effect of communal irrigation systems on farm productivity and income at the local level has yet to be adequately studied. Considering agricultural significance in the local economy of Bayombong, Nueva Vizcaya and the soil quality probability is relatively different across towns they might have received these irrigation interventions so it means understanding their effectiveness at the location level would help produce continued benefits to farmers through improved program implementations.

Statement of the problem

The objective of this study was to evaluate the contribution of farm production and income from DAR-provided communal irrigation systems on ARBs in Bayombong, Nueva Vizcaya. It specifically analyzed the degree of implementation of the irrigation system, farm productivity as measured by yield, cropping intensity and diversification, and farmers income conditions before and after the irrigation project. It further described the problems experienced in the use and maintenance of irrigation system plus how aspects differ between groups when comparing sexes.

METHODOLOGY

This study employed a descriptive–comparative research design. The descriptive method was used to assess the level of implementation of the communal irrigation system, farm productivity, and income of the respondents, while the comparative method was used to determine differences in perceptions when grouped according to sex.

The respondents of the study consisted of 50 agrarian reform beneficiaries in Bayombong, Nueva Vizcaya who are beneficiaries of DAR-provided communal irrigation systems. A structured survey questionnaire was used as the primary data-gathering instrument. The questionnaire was divided into sections covering demographic profile, irrigation system implementation, farm productivity, income before and after irrigation, and challenges encountered.

Data were collected through personal distribution of questionnaires with the assistance of local officials and irrigators' associations. The collected data were tabulated and analyzed using frequency, percentage, weighted mean, ranking, and t-test at 0.05 level of significance.

The weighted mean was used to determine the level of implementation, productivity, and income, while the t-test was used to determine significant differences between male and female respondents.

Informed consent was obtained from all respondents before the administration of the survey questionnaire. Confidentiality and anonymity of the respondents were strictly maintained. No names or identifying information were disclosed in the questionnaire or in any part of the research report. All responses were treated with utmost confidentiality and were used solely for academic and research purposes.

RESULTS AND DISCUSSION

The findings revealed that most respondents belong to the middle-age group, are predominantly male, and are college graduates. The majority have moderate household sizes, limited to moderate farming experience, and manage small to medium-sized farms. These characteristics indicate that respondents are within their productive years and capable of engaging in farming activities.

The level of implementation of the communal irrigation system was generally rated as moderately agree. Among the components, organizational management obtained the highest rating, indicating effective coordination and conflict resolution within irrigators' associations. Accessibility and coverage, as well as maintenance and operation, were also rated positively, although some improvements are still needed, particularly in water distribution and maintenance efficiency.

Farm productivity was found to be high, particularly in terms of cropping intensity and crop diversification. Respondents reported that the irrigation system enabled them to plant multiple cropping cycles per year and diversify their crops, leading to increased farm output. Crop yield per hectare also improved, although it received slightly lower ratings compared to other indicators.

In terms of income, respondents strongly agreed that their income before the irrigation project was unstable and dependent on rainfall. After the implementation of the irrigation system, respondents reported significant improvements in income, including increased earnings, better financial stability, and improved living standards.

However, several challenges were identified. The most common issues include inadequate water supply during the dry season, weak participation of farmers in irrigation management activities, and limited technical support from implementing agencies. These challenges indicate the need for continuous monitoring and improvement of irrigation system management.

The t-test results revealed no significant difference in the perceived level of farm productivity and income when respondents were grouped according to sex. This suggests that both male and female farmers benefit equally from the irrigation system, highlighting the inclusivity of the program.

CONCLUSION

Based on the findings of the study, it can be concluded that the DAR-provided communal irrigation system has significantly contributed to improving farm productivity and income among agrarian reform beneficiaries in Bayombong, Nueva Vizcaya. The system has enabled farmers to increase cropping intensity, diversify their crops, and achieve more stable income.

The implementation of the irrigation system is generally effective, particularly in terms of organizational management and accessibility. However, certain challenges such as water supply during dry seasons, maintenance issues, and limited participation among farmers need to be addressed to ensure sustainability.

Furthermore, the absence of significant differences in productivity and income between male and female respondents indicates that the benefits of the irrigation system are equitably distributed among farmers.

Overall, communal irrigation systems play a vital role in enhancing agricultural productivity and improving the economic condition of farmers, making them an essential component of agrarian reform support.

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