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A Holistic Overview of Agricultural Practices among CDIP Beneficiaries in Salimgonj Area: Current Status, Persistent Problems, and Promising Prospects

Nujhat Tabassum Safa¹ and Mahbubur Rashid Ories^{2*}

¹Digitization Department, Centre for Development Innovation and Practices (CDIP), Dhaka-1207, Bangladesh; ²Program Department, Centre for Development Innovation and Practices (CDIP), Dhaka-1207, Bangladesh.

*Corresponding author: Mahbubur Rashid Ories; E-mail: ories@cdipbd.org

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ABSTRACT

Agriculture is an essential industry in rural Bangladesh since it is the primary source of income for fifty percent of the workforce and eighty seven percent of families. Non-governmental organizations (NGOs) play an essential part in advancing sustainable development by providing assistance to communities in need and giving them the tools, they need to boost agricultural production, improve food security, and alleviate poverty. Centre for Development Innovation and Practices (CDIP), which is located in Bangladesh, runs microfinance programs with the goals of eradicating poverty and providing persons who are economically disadvantaged with financial security. The research project utilized a Mixed-method approach, with the CDIP beneficiaries participating in both Key Information Interviews (KII) and Focused Group Discussions (FGD) as part of the research. The efficiency of certain agricultural initiatives is hindered by obstacles such as limited technical skills, infrastructure limitations, and a lack of availability of high-quality seeds and irrigation facilities. Despite all of these obstacles, there are chances for CDIP beneficiaries to develop their agricultural practices. It has been demonstrated that the utilization of mobile agricultural consulting services and digital platforms can increase crop output while also ensuring financial security. It has also been established that collaboration among CDIP, government agencies, and local communities may increase infrastructure, which in turn leads to improved market access and economic development for agriculture beneficiaries. The research focuses on loan distribution in the Salimgonj area of Bangladesh and emphasizes how important it is to address persisting barriers to sustainable agricultural growth.

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BACKGROUND

Agriculture is the predominant sector in rural Bangladesh, serving as the primary source of livelihood for the majority of rural residents. Approximately 50% of all workers and roughly 87% of rural households rely on agriculture to generate a portion of their income (World Bank, 2016). Agriculture plays a fundamental role in numerous communities, offering nourishment, means of living, and economic stability. Nevertheless, the influence of agricultural techniques carried out by Non-Governmental Organizations (NGOs) on marginalized communities and their potential for promoting sustainable development have attracted significant attention. This study aims to conduct a thorough evaluation of agricultural practices among individuals who get support from non-governmental organizations (NGOs). It will examine the existing state of these practices, the ongoing difficulties they face, and the potential opportunities for further development. The global agricultural landscape is complex, incorporating a diverse range of practices that are influenced by socio-economic, environmental, and technical factors. NGOs have a crucial role in this framework as they intervene to provide support and empower vulnerable communities in order to increase their agricultural output, enhance food security, and reduce poverty. The collaboration between non-governmental organizations (NGOs) and agricultural beneficiaries establishes a basis for examining the efficacy and obstacles of these interventions, offering a chance to assess their influence on sustainable development (Faruque, 2010). Between 1999-2000 and 2004-05, the number of women working in agriculture rose from 3.76 million to 7.61 million, representing a growth of almost 100% (Sraboni et al., 2014).

About CDIP

Centre for Development Innovation and Practices (CDIP), a Non-Government Organization (NGO), registered in Bangladesh by Registrar of Joint Stock Companies and Firms (RJSC) and Licensed by Microcredit Regulatory Authority (MRA) under Finance Division, Ministry of Finance and NGO Affairs Bureau under The Prime Minister's Office, Government of Bangladesh for purposes hereof of address in Bangladesh.

CDIP's Microfinance program seeks to eliminate poverty and offer economic stability to individuals who are disadvantaged and living in poverty. The micro-credit program is a financial arrangement that allows economically underprivileged individuals to borrow money from institutions under favorable terms for repayment and recovery. This loan is utilized for diverse family income-generating endeavors, and subsequently, it is feasible to repay them through installment payments. Obtaining loans or financial assistance from reputable banks or financial institutions is challenging for working-class people in rural areas. Consequently, local loan sharks exploit these individuals by imposing exorbitant interest rates and capitalizing on their vulnerability. CDIP has offered a range of inventive financial and non-financial services to rural communities and micro-entrepreneurs. Among its offerings are specialized products tailored for agriculture, such as seasonal loans, with the overarching goal of dismantling economic barriers. These initiatives also promote financial resilience by fostering savings habits, ensuring that individuals have access to a range of readily available loan and savings programs. CDIP's Microcredit services are being offered via its 201 branches, which are spread across over 8095 villages.

Literature Review

Agriculture in Bangladesh is of paramount importance to the economy, as a significant segment of the people depends on farming for their sustenance. NGOs have been actively engaged in developing many agricultural projects aimed at enhancing the well-being of recipients. This literature study seeks to examine the existing state, enduring difficulties, and possible future opportunities regarding agricultural practices among those who benefit from NGOs in Bangladesh. Saha et al., (2016) conducted a study which shown that the agricultural efforts carried out by non-governmental organizations (NGOs) in Bangladesh had a substantial positive impact on the crop yields of the individuals who benefited from these activities. The adoption of sustainable farming practices, such as integrated pest management and organic fertilization, was highlighted, leading to a boost in output. Nevertheless, whilst several initiatives shown success, others encountered constraints. According to a study conducted by Das and Kabir (2019), the effectiveness of specific agricultural projects in rural locations was impeded due to the unavailability of high-quality seeds and irrigation facilities. Multiple studies have revealed ongoing problems in agricultural projects implemented by non-governmental organizations (NGOs) in Bangladesh. Mamun-Ur-Rashid et al., (2017) highlighted the obstacle posed by beneficiaries' insufficient technical expertise, which hampers the adoption of sophisticated farming methods. Insufficient infrastructural assistance, as emphasized by Islam et al. (2018), namely in terms of roadways and storage facilities, created major challenges in moving

agricultural products to markets, thereby impacting the economic results for those who benefit from them. Although facing obstacles, there are encouraging opportunities for agricultural advancement among the recipients of non-governmental organizations (NGOs) in Bangladesh. In a recent study conducted by Shahjahan et al., (2019), the focus was on the possibilities of utilizing contemporary technologies, such as mobile-based agricultural consulting services, to effectively distribute information and close the gap in knowledge.

In addition, the study conducted by Islam et al. (2018) has demonstrated the potential of partnerships between non-governmental organizations (NGOs), government agencies, and local communities in effectively tackling infrastructure-related obstacles and establishing long-lasting agricultural methods. Das and Kabir (2019) emphasized the beneficial influence of agricultural initiatives implemented by non-governmental organizations (NGOs) in Bangladesh, namely in enhancing both crop productivity and the financial situation of the recipients. Their research highlighted the implementation of sustainable agricultural practices, such as integrated pest management and organic fertilization, resulting in significant improvements in productivity. In addition, Ayers et al., (2014) corroborated these results, demonstrating the efficacy of particular non-governmental organizations (NGOs) in implementing climate-resistant agricultural types, hence mitigating susceptibility to environmental hazards.

There are multiple ongoing obstacles that hinder the efficiency of agricultural projects among the recipients of Bangladeshi non-governmental organizations. Das and Kabir (2019) emphasized the widespread occurrence of insufficient technical expertise among recipients, which obstructs the acceptance of innovative and more efficient farming techniques. According to Mamun-Ur-Rashid et al., (2017), farmers still face obstacles in accessing markets and achieving economic success due to infrastructure problems such as poor transportation systems and insufficient storage facilities. Despite facing difficulties, there are encouraging opportunities for agricultural advancement among the recipients of Bangladeshi non-governmental organizations. Shahjahan et al., (2019) emphasized the capacity of digital platforms to distribute agricultural knowledge and offer immediate assistance to farmers. Their study emphasized the efficacy of mobile-based agricultural consulting services in fostering optimal techniques and enhancing crop productivity among recipients. In their study, Chowdhury et al. (2022) demonstrated effective collaboration among non-governmental organizations (NGOs), government entities, and local communities to strengthen infrastructure, leading to improved market access and economic development for farmers.

To summarize, the agricultural practices seen among the beneficiaries of Bangladeshi NGOs demonstrate a combination of achievements and ongoing difficulties. Although successful interventions have had a good effect on crop yields and livelihoods, persistent challenges such as insufficient technical expertise and infrastructure deficits continue to be major obstacles. However, the incorporation of digital technologies and collaborative approaches offer encouraging avenues for future agricultural advancement in Bangladesh.

Objectives and Methodology

The Overall objective of the study is to comprehensively assess the dynamics of agricultural lending, including data analysis for enhanced decision-making, risk evaluation, and the dissemination of lessons and recommendations for effective and scalable financial inclusion initiatives.

The Specific objectives of the study are:

1. Analyze data on loan disbursement, utilization, and repayment to gain valuable insights into the lending process and financial performance, enabling informed decision-making and optimization of loan management strategies.
2. Identify and evaluate the different types of risks associated with agricultural lending, such as production risks, market risks, credit risks, and environmental risks.
3. Discuss challenges and lessons learned from CDIP's efforts in promoting financial inclusion, and provide recommendations for scaling up or replicating successful initiatives.

A combination of qualitative and quantitative procedures is used to achieve the study's goals. The research is descriptive in nature. A total of 48 people were made to participate in this survey. The target population for this study comprises CDIP borrowers and key program stakeholders, including the program coordinator, area manager, branch manager, field officer, and sub-assistant agriculture officer. To make sure that each stakeholder group is represented, a stratified sampling strategy is used. Borrowers from various loan products are chosen at random to ensure that the

suggestions and experience are diverse. All the survey is made in the Salimgonj area as it has the coverage of CDIP's most of the agricultural loan.

The primary data is collected by CDIP agricultural researchers. Among 48 people, nearly 42 borrowers, in which, almost all of them are females, one Program Coordinator, one Area manager, 3 branch manager, 1 Agricultural Officer of that area. The Secondary Data is collected from CDIP MIS inception data to till April'23. After collecting the data from various sources, the data is subjected to verification, quantification and coding with referred coding keys. To run calculations and extract useful insights from the dataset, Microsoft Excel and the statistical software package R are used. With the secondary data we have employed linear regression analysis to investigate the relationship between the repayment rate of loans, loan amount, and the year of disbursement. This aims to determine whether there is a linear association between these variables, allowing us to predict the repayment rate based on the loan amount and the year of disbursement.

DPSIR Framework

The survey's primary data has been analyzed using the DPSIR Framework. The DPSIR Framework provides a methodical approach for presenting indicators that can offer policy makers feedback on environmental quality and the ramifications of their political decisions, both historical and prospective. The DPSIR framework proposes a linear chain of cause-and-effect relationships, starting with 'driving forces' (economic sectors, human activities), leading to 'pressures' (emissions, waste), then to 'states' (physical, chemical, and biological), and resulting in 'impacts' on ecosystems, human health, and functions. In the end, this results in political actions such as giving priority to certain issues, setting specific goals, and utilizing indicators. Creating a DPSIR framework for a particular situation is a difficult task because it necessitates a thorough description of all the various cause-effect connections and environmental alterations that are rarely attributable to a single cause.

Table 1. Variables and variable representation in loan repayment rate model

Application of the model	Variable	Variable Representation	Variable Type
Relationship between two or more variables of interest	Y	Repayment rate of loans	Dependent Variable
	X_1	Loan amount	Independent Variable
	X_2	Year of disbursement	Independent Variable

To clarify the relationships between these factors, an essential step involves conducting correlation analysis. To perform a correlation analysis, it is typical to compute the correlation coefficient between the variables. There are two categories of correlation coefficient: linear correlation coefficient and nonlinear correlation coefficient. This paper only studies the linear correlation coefficient including Pearson correlation coefficient.

Pearson Correlation Coefficient

The coefficient of the product, commonly known as the Pearson correlation coefficient, can be used to explain the direction and magnitude of the correlation between two variables in a linear connection. The correlation coefficient of n dimensional row vector X and Y are as follows:

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 \sum_{i=1}^n (Y_i - \bar{Y})^2}}$$

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n x_i, \bar{Y} = \frac{1}{n} \sum_{i=1}^n y_i$$

Where, r = Pearson Correlation Coefficient

RESULT AND DISCUSSION

For this study, Salimgonj area was selected due to the loan disbursement in agriculture sector in Sufolon and SMAP. Loan product is high in this area. We took the data from inception to till now. According to our analysis, a total sum of 3,08,76,74,000/- tk has been disbursed across a diverse range of 17 loan products in this area till April'23. Out of the 17 loan products available, 3 of them namely Commodity Product, Mid Land Loan and SOLAR boast a remarkable 100% repayment rate. This achievement can be attributed to these specific products being entirely funded by non-PKSF organization. Moreover, these products are currently inactive, as they have already been fully funded, disbursed, and the entire borrowed amount has been successfully repaid by the borrowers. Among the remaining 14 loan products there are three loan products Sufolon, SMAP and Jagoron loan product has the highest repayment rate 95.90%, 91.75% and 89.08% respectively. Furthermore, upon conducting an in-depth analysis, it has been determined that loans disbursed in the preceding years, specifically in 2013, 2014, 2015, and 2016, exhibit a noteworthy trend of being successfully repaid in full. In contrast, loans sanctioned in the pandemic-affected years, 2019 and 2020, exhibit a considerable number of outstanding balances. This pattern extends into the subsequent year, as a portion of loans from 2021 also remains unpaid.

Sufolon Loan

PKSF established the 'Microfinance for Marginal and Small Farmers Project (MFMSFP)' in 2005, which resulted in the successful introduction of 'Agriculture Sector Microcredit' in 2008. The 'Seasonal Loan Program' was established in 2006 to meet farmers' seasonal financial needs. In 2014, these two programs amalgamated to become 'Sufolon,' which provides variable repayment choices synchronized with agricultural seasons and multiple loans for crop diversification. 'Sufolon' has been instrumental in encouraging investment in a variety of income-generating activities such as crop production, livestock, fisheries, agro-forestry, and agro-processing.

Analysis on Sufolon Loan

During focus group discussions (FGD) and key informant interviews (KII), it was observed that the Sufolon Loan stands out in terms of high demand in the field. This heightened demand is primarily attributed to its attractive one-time payment feature. An analysis of our Management Information System (MIS) data reveals that in Salimgonj area there is a 14.5% non-repayment rate in our loan portfolio. Notably, a very small fraction, specifically 0.76%, of this non-repayment is attributed to the Sufolon Loan product. It's important to note that the data pertaining to the year 2023 has been excluded from this analysis, as borrowers still have outstanding repayment time for loans taken in that year.

In this analysis section, we present the results of the regression analysis conducted to examine the relationships between the repayment rate of loans, loan amount, and the year of disbursement.

Correlation between Repayment Rate and Loan Amount

The correlation coefficient between repayment rate and loan amount is approximately 0.03. This value is quite close to zero, indicating a very weak positive correlation between the repayment rate and the loan amount. In other words, there's hardly any relationship between the loan amount and the repayment rate.

Correlation between repayment rate and disburse year

The correlation coefficient between repayment rate and disburse year is approximately -0.53. This negative correlation suggests a moderate inverse relationship between the repayment rate and the disbursement year. As the disbursement year increases, the repayment rate tends to decrease. This could imply that older loans tend to have lower repayment rates compared to more recent loans.

SMAP LOAN

The Bangladeshi government perceives agriculture as a crucial factor in ensuring food security, alleviating poverty, and fostering income growth. Efforts have been made to secure funding for the enhancement of agricultural productivity and diversification. Small and marginally sized farmers (SMFs) face a lack of access to agricultural finance and technical support, which hinders their ability to modernize agriculture and enhance productivity. To prevent decreases in productivity, farmers must enhance their management of seed, soil, fertilizer, pesticide, and irrigation.

The "Small and Marginal Sized Farmers Agricultural Productivity Improvement and Diversification Financing Project: SMAP" received a loan from JICA, which is the Official Development Assistance (ODA) provided by the Government of Bangladesh (GOB). The project's objective is to offer microfinance services to small-scale and economically disadvantaged farmers. The implementation of the project is carried out by Bangladesh Bank. The duration of the Project will span a period of seven years. A portion of the loan funds will be used to support Bangladeshi PMFIs in implementing the agricultural credit program and overseeing the operations of BB and SMFs, as well as providing education and guidance.

Analysis (SMAP - DPSIR Framework)

Driving Force: In this case, the rural population that CDIP serves has economic needs, which are the driving force. Higher loan amounts and seasonally-based loans are what the beneficiaries' want, which is indicative of their financial needs and aspirations.

Pressure: The demand for larger loan amounts and season-based loans puts pressure on the CDIP. The donor's current structure and resources may be strained by this demand, which may necessitate reviewing lending policies and reallocating funds.

State: The SMAP is currently available, providing a low-interest loan of fifty thousand taka with a six-month duration. This state is an example of the current financial support given to the rural populace.

Impact: There are two effects. The beneficiaries recognize the advantages of the current loan program and value its low interest rate, on the one hand. However, the need for more specialized financial assistance is indicated by the desire for larger loan amounts and seasonal distribution, which, if unfulfilled, could cause beneficiaries to become unhappy.

Response: In this case, a possible modification to the loan plan is required. In order to meet the needs of the beneficiaries, CDIP may need to think about changing their policies. This could entail introducing season-based loan distributions, reevaluating loan amounts, and making sure the beneficiaries continue to receive favorable interest rates.

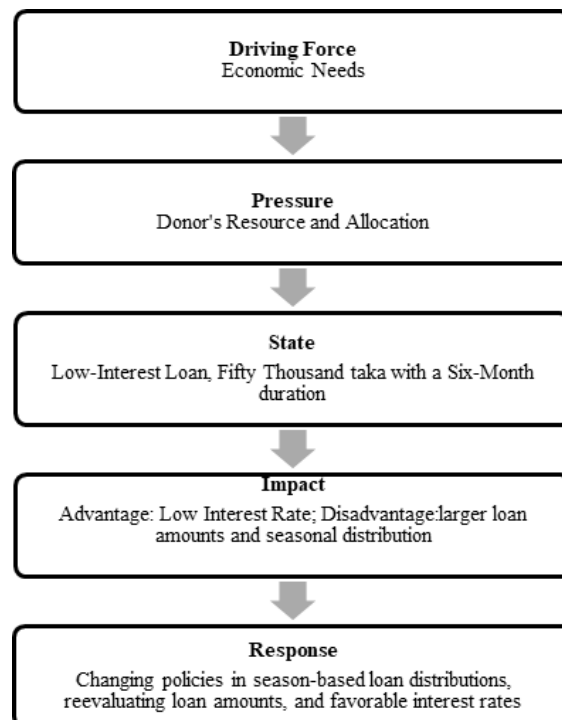


Figure 1. CDIP's SMAP analysis by DPSIR Framework

The interaction between the beneficiaries' economic needs (the driving force), the pressure that followed for CDIP to modify its loan schemes, the status of the loan provision as it stands, the effects on beneficiaries' satisfaction, and the necessary action to effectively address these demands is highlighted in this analysis conducted under the DPSIR framework.

CONCLUSION

A maximum level of Agricultural Loan (SMAP & Sufolon) beneficiaries covers CDIP's agriculture loan portfolio. Because of the short amount of loan ceiling, the beneficiary's expectation falls. But, properly managing this loan product has made the beneficiary's trust higher. The thorough investigation of agricultural practices among CDIP users has uncovered a complex and detailed environment. The successful implementation of sustainable farming methods and climate-resilient initiatives has resulted in noticeable crop yields and income improvements.

Nevertheless, the complete potential of these initiatives is still hindered by ongoing obstacles, including insufficient technical expertise, poor infrastructure, and difficulties in accessing the market. However, integrating digital solutions, collaborative efforts, and the distribution of best practices offer exciting opportunities for sustainable agricultural development. To make further progress with these projects, it is imperative to tackle current obstacles by improving technical education, allocating resources to vital infrastructure, and promoting collaborations among CDIP, governmental entities, and local communities. We may effectively expand and duplicate successful programs by utilizing technical improvements and adopting a collaborative approach. This will ultimately lead to the long-term sustainability and enhancement of agricultural practices for CDIP beneficiaries.

CONFLICT OF INTEREST

With full transparency, the authors confirm that neither their professional affiliations nor personal relationships raise any concerns regarding a potential conflict of interest in this paper. The research conducted and insights presented are solely driven by objective evidence and rigorous scientific methodology.

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