Microcredit and savings associations for building rural household resilience

A case study of selected village development fund and savings groups in Koh Kong and Mondul Kiri, Cambodia

Working Paper No. 373

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

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Abstract

The Village Development Funds and Savings Group (VDFSG) was established in Cambodia as an instrument to enable poor families residing within Community Protected Areas (CPA) and Community Forestry (CF) establish supplementary economic activities to reduce their dependence on forest resources for their livelihood. The two main activities of this initiative are providing loans and encouraging savings among households who choose to become members of the group. This case study was conducted to generate insights on the financial sustainability of selected VDFSGs and to gather information on members' perceptions of the usefulness of these institutions in coping with household and climate change-related shocks or stresses. Financial sustainability was analyzed by conducting a detailed financial analysis of six selected VDFSGs to determine the sufficiency of interest payments as revenue to cover total costs as well as to evaluate loan recovery and equity build- up. Members' perception of the usefulness of VDFSGs in helping them to cope with and adjust to family and climate change-related shocks/stresses was determined by conducting Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) among selected representatives of VDFSG members. Useful feedback of the financial performance and areas for improvement were generated. The Pu Hong, Pu Chhob, and Prek Svay VDFSGs were considered financially sustainable based on the results of the study. The study also revealed that the VDFSGs are considered most useful when there are crop failures due to extreme weather events and when there are medical emergencies in the household. The FGD participants and key informants expressed confidence that they are in a better position to cope with their vulnerabilities due to the presence of a VDFSG in their village.

It is also worth noting that women have benefitted from the financial services of the VDFSGs. The membership rosters show that there is a high percentage of women members. There is a high percentage of women among the list of borrowers from the VDFSGs. Thus, the VDFSGs encourage gender inclusiveness in terms of membership and access to credit. Some challenges were identified that limit the VDFSGs' operational capacity to provide financial support to their members. Insufficiency of funds was mentioned as a limiting factor

in meeting loan demand. However, it was noted that there is available capital that can fund more loan applications when funds were analyzed on an annual or semi-annual basis.

VDFSG leadership and governance capacity was also identified as a concern. It was felt that some VDFSGs need further strengthening in governance. Also, when the BCC project exits, technical guidance will no longer be available. External monitoring and guidance will still be required to ensure that the VDFSGs will continue to operate and that members will continue to actively support the VDFSGs.

Keywords

Financial sustainability; household resilience; microfinance; village development fund

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The Village Development and Savings groups component was part of the Biodiversity Conservation Corridor (BCC) subproject on Drought and Salinity Tolerant Crops, funded by the Asian Development Bank (ADB) to support supplementary livelihood and small-scale infrastructure activities in poor communities living within protected areas and community forestry areas of Cambodia. A partnership between the IIRR and the Cambodian Center for Study and Development in Agriculture (CEDAC) provided technical assistance in the project implementation as well as training. Two of IIRR's Climate-Smart Villages, under the CCAFS Southeast Asian program are also located in Cambodia.

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Acronyms

ADB	Asian Development Bank
BCC	Biodiversity Conservation Corridor
CEDAC	Cambodian Center for Study and Development in Agriculture
CF	Community forestry
CPA	Community protected areas
CSA	Climate-smart agriculture
CSV	Climate-Smart Village
EGR	Equity Growth Rate
FGD	Focus group discussions
IDRC	International Development Research Center
IIRR	International Institute for Rural Reconstruction
KII	Key informant interviews
LRR	Loan Repayment Rate
MAFF	Ministry of Agriculture Forestry and Fishery
MoE	Ministry of Environment
MFI	Microfinancing institutions
OSS	Operating Self Sufficiency Ratio
ROE	Return on Equity
SGR	Savings Growth Rate

VDF	Village Development Funds
VDFSG	Village Development Funds and Savings Group
YOP	Yield on Portfolio

Introduction

Low-income farm households are highly vulnerable to climate-related shocks and family crises. Adverse events like crop failure due to extreme weather conditions (typhoons and droughts) as well as household emergencies such as sudden illnesses that require medical attention usually leave them no choice but to resort to costly coping strategies, such as borrowing money from lenders that charge exorbitant interest rates or selling productive assets (e.g. animals used in farming) (Moore, et al., 2019). Vulnerability stems from their lack of preparedness to cope with these unwelcome events due to lack of access to credit, low levels of family savings, and absence of crop insurance coverage (Moore et al.). The coping strategies that they resort to push them deeper into the self-reinforcing cycle of poverty (Azariadis and Stachurski, 2005). Households caught in this vicious cycle are trapped unless there is outside intervention from government or nongovernmental institutions (Marger, 2008; Azariadis and Stachurski).

The establishment of community-based microfinancing institutions (MFI) has evolved to be an effective program in breaking the vicious cycle of poverty for the low-income population (Charitonenko et al., 2004). They are founded on the premise that people at the local level are in a much better position to devise and implement effective adaptation solutions to improve their condition particularly in areas concerning resilience to climate-related shocks and family emergencies (Christensen, et al, 2012; Moore et al.). Community-based microfinancing services have been established in various developing countries across the globe such as in Ethiopia, Mali, and Myanmar (Hayworth, A. et al., 2016) as well as Bangladesh and Nepal (Agrawala and Carraro, 2010), among others.

In Cambodia, the Biodiversity Conservation Corridor (BCC) Project which is funded by the Asian Development Bank (ADB) was implemented in 2010. The target beneficiaries are poor households living in Community Protected Areas (CPA) and Community Forestry (CF) areas. These households mostly depend on forest resources (such as fuelwood, rattan, resin, and mushrooms) for their livelihood (www.recoftc.org/community-forestry-cambodia, retrieved 10/1/21). The BCC Project was designed to empower communities to manage their forest resources, restore habitat and degraded forest lands, improve livelihoods and income-enhancing small-scale infrastructure, and generate short-term employment for project households. An additional funding grant was provided by the ADB in 2014 to support supplementary livelihood and small-scale infrastructure activities to reduce the dependence of people living in the poor communities within the CPA and CF areas. The project is jointly directed by Cambodia's Ministry of Agriculture Forestry and Fishery (MAFF) and the Ministry of Environment (MoE). The Village Development Funds (VDF) component of the BCC Project was implemented in February 2016 until November 2021. Providing loans and encouraging savings among communities in the CPA and CF areas are the two main activities of this initiative. A partnership between the International Institute for Rural Reconstruction (IIRR) and the Cambodian Center for Study and Development in Agriculture (CEDAC) provided technical assistance in the project implementation as well as training for the CPA and CF communities. The savings and loan groups were formally called Village Development Fund and Savings Group (VDFSG) (Or Thy, et al., 2020).

The VDFSGs have two objectives:

1) Provide community members with access to financial services at reasonable interest rates for investment in economic activities, as well as collective activities related to agricultural production or other business without extracting and destroying natural resources in Community Protected Areas and Community Forestry; and

2) Build solidarity, cooperation and mutual help in local communities through group savings activities, exchanging knowledge and experience, participating in developing own community and protecting forests and natural resources in the community.

As of June 2021, 37 VDFSGs have been established in 37 villages in the provinces of Koh Kong and Mondul Kiri with a total of 1,969 members, 69% of which are women. Loanable funds have reached KHR 3,405,547,680.00 (USD 851,387.00 [1]) where KHR 1,823,760,680.00 (USD 444,820.00) comes from members' savings deposits and KHR 1,581,787,000.00 (USD 385,802.00) represents ADB funds. Additional funds are generated from interest income charged from loans borrowed by the members.

[1] USD 1.00 = KHR 4,000.00

Several years into the establishment of VDFSGs saw changes in the way communities economically provide for their families. From mere dependence on forest resources, many households have diversified their income sources. There has been a shift to climate-smart agriculture options such as raising native chicken, homestead vegetable gardening, growing fruit trees, and improved methods of rice production. Some families have ventured in microbusinesses. Success stories have been published as manifestations that the VDFSGs are effective instruments in helping the target communities break the vicious cycle of poverty.

However, to be able to generate a better understanding of the VDFSGs' effectiveness in opening doors towards household resilience from climate change-induced shocks and stresses, a study of how financially sustainable are the VDFSGs and how the CPA and CF communities perceive the VDFSGs is necessary. The results of the study will be useful in generating feedback data to project planners and national/local implementors of the BCC Project.

Furthermore, this study will be an input to the two-year research project called "*Climate-Smart Villages as Platforms for Resilience Building, Women Empowerment, Equity, and Sustainable Food Systems*." This IDRC-funded research project is being implemented by the International Institute of Rural Reconstruction (IIRR) since June 2020 until August 2022 in Climate-Smart Village (CSV) sites in Cambodia, Myanmar, and Philippines. The research study aims to generate evidence and new knowledge on the role of local platforms such as Climate-Smart Villages in supporting climate change adaptation in agriculture. Specifically, it explores the contributions of CSVs and climate smart agriculture (CSA) in enriching local food systems for better nutrition, enhancing livelihoods, increasing household resilience, and enhancing gender equity and inclusion. The primary thrusts of the project are 1) Quantitative and qualitative assessment of household resilience to climate change (in the context of CSA and CSV); 2) Quantitative and qualitative assessments of women empowerment; 3) Cost-benefit analysis of local adaptation platforms, such as the climate-smart villages (CSVs), and 4) Development of country-specific local food systems profile in the context of CSA and CSV.

Objectives of the case study

This case study is a preliminary work for Objective 1 of the IDRC-funded research project that focuses on developing metrics and assessing household resilience in the Climate-Smart Villages in the Philippines, Cambodia and Myanmar. It took into account the following questions to direct the focus of the study:

1) How viable is the financial model of the VDFSG in building financial assets of members?

2) How do communities in CPA and CF perceive the usefulness of the VDFSGs in contributing to household resilience from climate change-induced vulnerabilities.

Thus, the case study was conducted to document member perceptions regarding the relevance of the Village Development Fund and Savings Groups in managing climate-related risks and family emergencies. In addition, the study evaluated the sustainability of the VDFSGs through revenue ratios, loan repayment rates, and equity as well as members' savings growth rates.

Conceptual framework

The households in the village communities of Koh Kong and Mondul Kiri provinces are relatively poor and largely dependent on the natural forest for their livelihood. Being poor often deprive them of access to even the most basic resources that are otherwise enjoyed by other sectors of society. More often, being poor is linked to many negative conditions which persist for a long period of time and repeat themselves across generations. According to Marger (2008), the vicious cycle of poverty is based on the assumption that low income rural households lack the financial resources and employable skills to increase family income (Figure 1). Lack of capital forces households to choose low risk but less productive farming technologies for fear of crop failure. These choices lead to low farm productivity, minimal farm income, and to some extent, household food insecurity. Moreover, these households, particularly those living in the forest areas are often engaged in economic activities that are harmful to the environment and leave most of the natural forest degraded or destroyed. In terms of employable potentials, low levels of education restrict their chance to hold higher paying professional or skilled off-farm employment. The occurrence of crop failure due to extreme weather events or family health-related emergencies and educational expenses give them no choice but to take unsustainable debts or to sell their productive farm assets (eg. farm land, animals used as beasts of burden).

As a result of being poor, these households are vulnerable to shocks and stresses brought about by family emergencies and climate change-related events. Among the most common vulnerabilities are: crop failure, household food insecurity, family health issues, and expenses for education. In addition to climate and family-related emergencies, the COVID-19 pandemic is assumed to contribute to the stresses experienced by the low-income households. Loss of employment, restrictions on social mobility, and being sick with the virus are some of the factors that are related to the pandemic that further heighten the vulnerability of the rural households. The lack of financial resources coupled with the threat of various forms of vulnerabilities continuously trap these households in this cycle of poverty and will remain vulnerable unless there is outside intervention.

The availability of village loans and savings associations have become useful instruments in addressing poverty among rural households.

A village loan and savings association provides a viable option for the affected households because they can either borrow funds from the association or withdraw their savings to partially or fully meet their financial needs. The loans can be used as additional capital for agricultural production. These institutions provide the households financial security should they require their services in the future such as medical and other household expenses. They also become instruments in helping households overcome their dependence on forest resources for their livelihood by giving them the opportunity to diversify into other income generating activities such as crop and livestock production or off-farm microbusinesses. Furthermore, these institutions become useful in meeting the educational expenses of children. The VDFSG also serve as the source of social support and camaraderie among members. They are also able to benefit from seminars and trainings on various topics hosted and sponsored by the savings and loan association as well as the intellectual exchange of knowledge from each member. The VDFSG as a vehicle towards breaking the cycle of poverty also play an important role in transforming the households into confident members of the communities who are able to cope with the vulnerabilities they face. The trainings they receive from the VDFSG together with the members' support for each other are contributing factors to building the households' confidence to face risks and, thereby become resilient to many changes which affect their livelihood particularly those which pertain to climate change-related shocks and stresses.

Maintaining financially sustainable VDFSGs is an important consideration in ensuring their long-term presence in the villages. According to Hollis and Sweetman (1998) "financial sustainability of microfinance institutions is a necessary condition for institutional sustainability". Schriener (2000) argued the same viewpoint by stating that "unsustainable MFIs might help the poor now, but they will not help the poor in the future because the MFIs will be gone." Long-term presence of the VDFSGs is necessary because developing household ability to counter climate and family-related shocks does not happen overnight. It takes time for a family to improve their economic base and free themselves from the poverty trap. MFIs such as the VDFSG must continue to exist to assist poor households in attaining economic freedom.

In order to achieve this goal, several indicators should be present. These include sound financial ratios on revenues, increasing total capital and members' savings, as well as high loan repayment rates. The VDFSG members are expected to make deposits in their savings accounts regularly. This would increase the capital of the associations together with the infusion of the grant and the interest payments of the borrowers. Furthermore, the members should be able to support the VDFSG through their loans and interest payments. However, aside from interest payments, the principal should be amortized religiously and paid in full when the loans mature. Principal payments are added to the loanable funds which are then available for relending. With these factors reinforcing each other, the VDFSG could attain a financially sustainable condition.

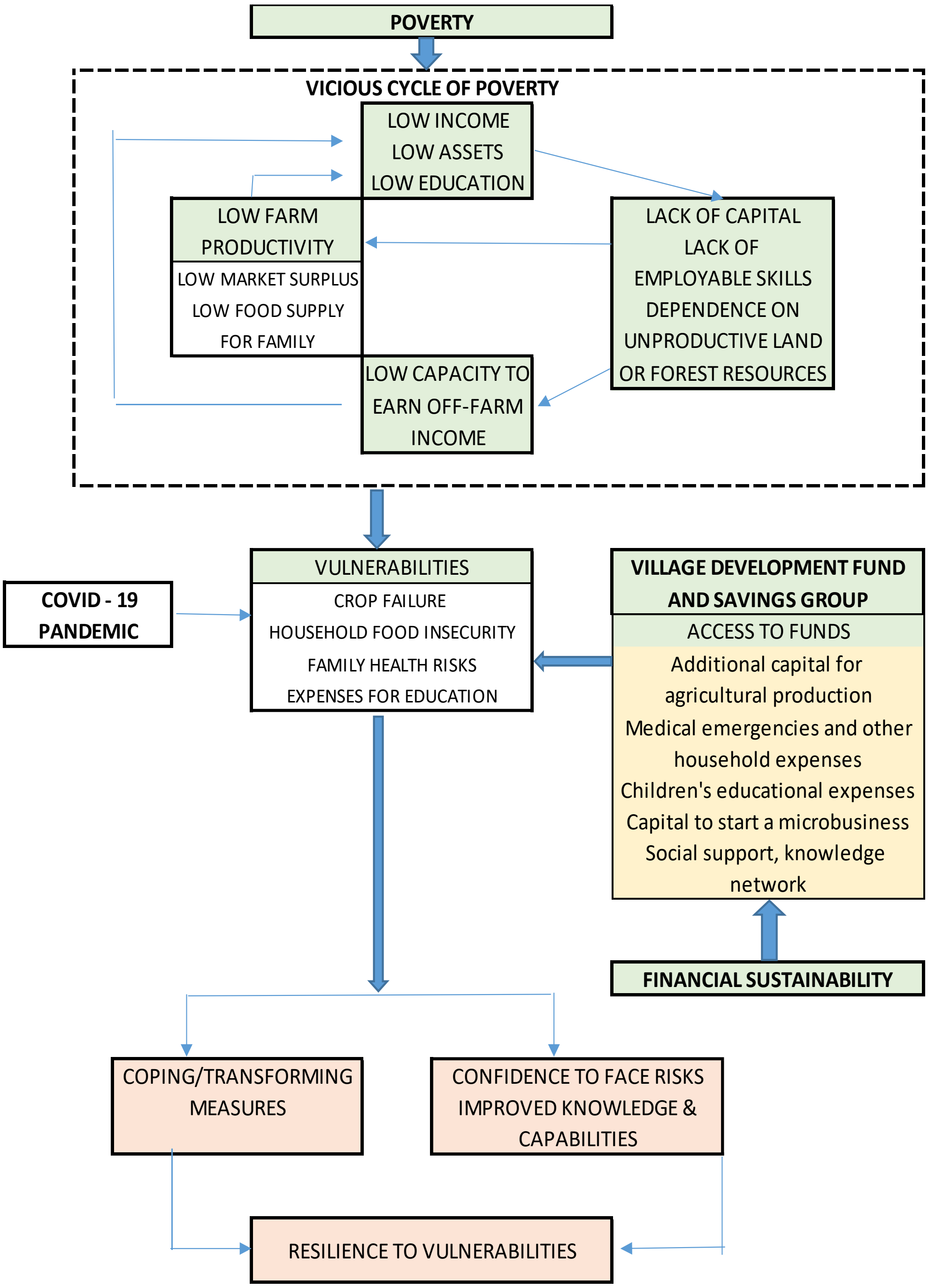

Figure 1. Conceptual framework on role of VDFSGs in addressing vulnerabilities of households to climate change

Analytical design of the case study

The case study focused on two important questions regarding the selected VDFSGs:

1. Are the VDFSGs financially sustainable?

2. Are the VDFSGs helping their members in facing shocks/stresses brought about by extreme weather conditions, family emergencies, and the COVID-19 pandemic?

Measurement of financial sustainability

Financial sustainability of VDFSGs refers to the ability of financial institutions to provide continuity of operations in the long run (Thapa et al., 1992; Kinde, 2012; Zabolotny, S. and M. Wasilevsky, 2019). This is dependent on two main considerations: 1) the VDFSGs' revenue generation to cover all their costs from operations without depending on external support or subsidy and 2) the VDFSGs' ability to keep their total capital intact. Revenue comes mostly from the interest paid by borrowers for the loans drawn from the VDFSGs. Part of the revenue is used to cover the expenses of the savings and loan associations. The remaining amount is retained and added to the Total Capital (Equity) of the associations. Funds for loans are withdrawn from the Total Capital. The VDFSGs are able to operate continuously as long as Total Capital is not depleted. Thus, ensuring that funds lent out to borrowers are repaid is a major responsibility of the VDFSGs and an equally important component of financial sustainability.

The Revenue component of the VDFSGs' financial sustainability was measured using the following financial ratios:

a) Operating Self Sufficiency Ratio (OSS),

b) Return on Equity (ROE),

c) Yield Gap, and

d) Yield on Portfolio (YOP).

The *Operating Self Sufficiency Ratio* provided an indication as to whether the VDFSGs are "earning sufficient revenue so as to cover [their] total costs (financial cost, operating cost, and loan loss provisions)" (Esampally and Joshi, 2016). The VDFSGs' **Revenue** refers to their **interest earnings** from the loans of members. **Financial costs** are the **dividends** paid by the VDFSGs to their members based on the amount of savings that they have deposited while **Operating Costs** are the **administrative** costs incurred by the VDFSGs to run their daily activities. **Loan loss provisions** are the amount set aside by the groups from their revenue to replace loan funds that would be declared as bad debts. A value that is greater than 1.0 is an acceptable ratio. This means that Revenue is greater than total cost.

Return on Equity (ROE) was measured to determine the VDFSGs' ability to build equity through retained earnings (CGAP, 2003). **Equity** are the loanable funds of the VDFSGs derived from members' savings, BCC project grant, and interest earnings. **Net income** represents the retained earnings of the groups after deducting all expenses. A ROE greater than 0.0% means that a certain amount of funds (represented by the percent value) is added to the VDFSGs' Equity. A ROE that increases over time indicates that the VDFSG is doing a good job of making its equity grow. A falling ROE indicates that the VDFSG's investments have failed to produce revenue growth, a sign that it may be in some trouble.

Yield Gap compared **revenue actually received** with the **expected revenue** from loan contracts. A "substantial yield gap (> 10%) may indicate significant past-due payments (arrears)" (CGAP, 2003). Expected revenue is the interest of the loan for a single payment period, multiplied by the number of periods in a year.

Yield on Portfolio measured how much the VDFSGs receive from their loan portfolio (ie., outstanding loans) by the way of cash from interest and fees. This is important because "cash receipts are needed in order for the [VDFSGs] to survive, to pay for [their] operational expenses, and to continue [their] business operations" (Mbeba, 2008). The YOP should closely approach the interest rate being charged by the VDFSGs from the funds that they loan out.

Financial sustainability was also measured in the context of the VDFSGs' Total Capital (Equity) on a given time period. The initial donor funds and members' savings available at the start of the savings and loan associations are expected to have grown to include funds from the accumulated members' savings deposits and the interest earnings from the loans portfolio. As the funds grow bigger, more member-borrowers can be served. Larger amounts of funds also increase the amount of loans available per borrower.

Total capital at the end of the calendar year should ideally be bigger than the previous year if the VDFSG is to continue its operation for a long time. Sustainability, therefore, can be inferred from an increasing Total Capital. The metrics that were used to examine sustainability through Total Capital were:

a) Loan Repayment Rate (LRR)

b) Equity Growth Rate (EGR),

c) Savings Growth Rate (SGR)

Loan Repayment Rate (LRR)[2] is the percentage of the loan that has been paid by the borrower at a given period of time. The focus is the repayment of the principal versus the loan amount. A high percentage value implies that the VDFSG holds a large percentage of turnover funds that it can relend to borrowers that are waiting in line for the loan funds to be replenished. If a loan is nearing its due date for repayment, > 95% repayment rate is preferred over anything lower than this value.

Equity Growth Rate (EGR) traces the increase or decrease of the VDFSGs' Total Capital (Equity) over time. A positive growth rate indicates that Total Capital is increasing while a negative value means that Total Capital is decreasing.

Savings Growth Rate (SGR) measures the increase or decrease in the members' savings deposits. Savings is an important component of the Total Capital (Equity) because it contributes to the build-up of loanable funds. In the absence of savings, the VDFSGs would be solely drawing loan funds from donor grants and will continuously be dependent on

[2] Collection rate should be a better measure of funds sustainability. It determines amount of loans actually paid against amounts that have fallen due. Unfortunately, data on uncollected due loans were not available and therefore, limited this study to use this metric.

additional donor funds when demand for loans grow. This is an unsustainable practice for microfinance institutions.

The formulas and measurement standards of the financial metrics are summarized in Table 1.

Table 1. Formula and standards for financial metrics used in the case study

Ratio	Formula	Measurement standard
Operating Self Sufficiency Ratio	Revenue ÷ (Financial Cost+Operating Cost+Loan Loss Provision) Financial cost = interest expenses Operating cost = personnel and administrative expenses	1.0
Return on Equity	Net Income ÷ Ave. Equity Ave. Equity = Average of monthly total capital	0.0% Increasing over time
Yield Gap	100% - [Revenue/(Amount of loan x Interest rate)	< 10%
Yield on Portfolio	Income from interest, fees ÷ Ave. loan portfolio Ave. loan portfolio = Ave. of monthly unpaid loan principal	Closely approaching interest rate charged by the VDFSG on loans
Loan Repayment Rate	Total principal payments ÷ Total loan released at end of time period	Greater than 95% if loan is nearing due date
Equity Growth Rate	GR = [(Equity at N^{th} month minus Equity at N-1 month) ÷ Equity at N-1 month)] $^{1/m}$ – 1 m=no. of GR	Positive growth rate
Savings Growth Rate	SGR =[(Savings deposit at n+1)-(Savings deposit at n)]/Savings deposit at n n = month of the year	Positive growth rate

Source of data

The monthly financial records in 2020 to 2021 of the selected VDFSGs were used as data inputs in generating the financial ratios. The monthly reports included Balance sheets, Profit and Loss Statements, Cashflows, and Savings and Loans reports.

Study sites

Three VDFSGs in each of the two provinces of Koh Kong and Mondul Kiri (a total of six VDFSGs) were selected for the financial analysis. These VDFSGs are located in the following villages (Table 2):

Table 2. Location of the VDFSGs included in the case study

Province	Village
Koh Kong	Prek Svay
	Prek Chik
	Chhouk
Mondul Kiri	Me Pai
	Pu Chhob
	Pu Hong

The VDFSGs under study were chosen using the following criteria:

1. At least 40% of the households located in the Community Forestry or Community Protected Area are members of the VDFSG

2. Members' savings make up at least 30% of the VDFSG's total capital

3. 50% or more of the VDFSG membership and borrowers are women

4. Members' demand for loans is at least 40% of total capital

Information on members' reasons for applying for a loan were taken from application forms submitted in 2018 to 2021. The rest of the data were based on VDFSG financial records updated as of June 2021.

Measurement of households' perception on the VDFSGs and household resilience from climate and family-related shocks/stresses

The effectiveness of the VDFSGs in the context of minimizing the vulnerabilities of low income households was assessed by determining the perception of VDFSG members on:

1. Types of vulnerabilities (or shocks/stresses) that they experience

2. Ease of access to the services of the VDFSGs

3. Confidence in coping with the identified vulnerabilities as a result of access to the VDFSG

Primary data were generated by conducting Key Informant Interviews (KII) and Focus Group Discussions (FGD). FGD meetings were conducted in two villages in Mondul Kiri (Me Pai and Pu Chhob) and three villages in Koh Kong (Prek Svay, Chhuk, and Prateal) (Table 3). There were 7 VDFSG members who participated in the FGD that was conducted in Me Pai while five members represented the VDFSG in Pu Chhob. All of the participants are indigenous people (IP) and four members are women. In Koh Kong, the FGD in Chhuk was attended by 6 VDFSG members while five members were present in the FGD in Prateal. Three members (IPs) joined the Prak Svay FGD. Nine of the participants in the FGDs in Koh Kong are women. All FGDs were conducted as a "face-to-face" meeting in the participants' respective villages except for Prek Svay which was done virtually. The FGDs were facilitated by the field staff of IIRR who are working in the two provinces, with guidance from the Cambodian Economist – Researcher.

Table 3. FGD locations and number of participants, August 2021

Province	Village	Participants		
		Total	Women	IP*
Mondul Kiri	Me Pai	7	3	7
	Pu Chhob	5	1	5
Koh Kong	Prek Svay	3	3	3
	Chhuk	6	4	0
	Prateal	5	2	0
Total		**26**	**13**	**15**

*IP = Indigenous person

The KIIs were conducted by phone calls in lieu of personal interviews due to the COVID-19 travel restriction that was imposed by the Cambodian government at the time that travel for the KIIs was scheduled. The names of the key informants and their role in their respective VDFSGs are presented in Table 4.

Table 4. Persons interviewed as key informants, 2021

Name	Role in VDFSG	Village	Province
Ms. Miech Penh	Committee member	Prek Svay	Koh Kong
Mr. En Deng	Committee member	Prai	Koh Kong
Ms. Hang Sreyleak	Committee member	Prek Chik	Koh Kong
Ms. Vong Pheap	Committee member	Chi Kha	Koh Kong
Mr. Khvang Chheang	Committee member	Pu Hong	Mondul Kiri

The six VDFSGs that were selected for the financial analysis component of the Case Study were also represented in the FGDs and KIIs. In addition, three VDFSGs from the villages of Prai, Prateal, and Chi Kha were included as sites for the primary data collection. Thus, a total of nine VDFSGs were represented in the FGD and KII. For questions related to COVID-19 as a stressor, one village with COVID-19 cases from each of the two provinces were selected.

The VDFSG's management, membership, and policies on savings and loans are presented in Box 1.

Box 1. Briefer on the VDFSG's management, membership, and policies on savings and loans.

Management:

Run by a 5-person committee whose members are elected from the VDFSG membership.

At least one member is a representative of the CPA or the CF and there should be at least one woman in the committee.

Membership:

The person must permanently reside within the Community Protected Area (CPA) or the Community Forestry (CF) of the village where the VDFSG is located.

He/she must be at least 18 years old with a good moral character and has a good relationship with the rest of the community.

Savings deposits:

Members can deposit any amount into the VDFSG savings fund. They are encouraged to make a deposit every month and are allowed to make withdrawals from the savings but the amount should not exceed 50% of their individual savings. Those members who wish to terminate their membership from the VDFSG can withdraw all their savings.

Lending policy:

The minimum loan amount was set at KHR 100,000.00 while the maximum amount is equal to five times the amount of money the borrower has in his/her savings deposit account or 50% of the borrower's collateral value. The borrower may be charged from 1% to 2% per month as interest for the loan. A loan period of six months to two years is permitted depending on the amount of loan. Aside from agricultural and business loans, a certain amount of funds is available for household emergencies and other family expenses. Two loan repayment plans are available to the borrowers:

Monthly installment (interest + principal) and

Monthly interest payment and principal repayment at the end of the loan period.

Analysis of the VDFSGs' financial sustainability

Brief description of the selected VDFSGs

VDFSG of Mae Pai Village, Mondul Kiri

The VDFSG in the village of Mae Pai currently has 31 members where 20 (65%) of the members are women (Table 5). The total amount of funds loaned out to members as of June 2021 was KHR 54,200,000.00 (USD 13,550.00). This was about 80% of the total loanable funds (Total Capital) which amounted to KHR 67,218,900.00 (USD 16,805). The members usually borrow loans with a repayment period of two years. Interests are paid monthly while the principal is paid upon maturity of the loans. Only a few borrowers opted to make monthly principal payments.

Table 5. Summary of Me Pai VDFSG statistics, updated June 2021

Number of members	31
Number of women members	20
Loans to members	KHR 54,200,000 (USD 13,550)
Number of member borrowers	26
Number of women borrowers	15
Total capital	KHR 67,218,900 (USD 16,805)
Members' savings	KHR 14, 615, 000 (USD 3,654)
BCC project (ADB grant)	KHR 46,299,700 (USD 11,575)

VDFSG of Pu Chhob Village, Mondul Kiri

The Pu Chhob VDFSG currently has 34 members where 59% of the members are women (Table 6). The total amount of funds loaned out to members as of June 2021 was KHR 24,154,000.00 (USD 6,038). This was about 47% of its total loanable funds (Total Capital) which amounted to KHR 40,945,700.00 (USD 10,236). Members' savings (KHR 10,787,900 [USD 2,697]) contributed 26% to this fund while 74% came from the BCC Project of the ADB. Members usually borrow loans with a repayment period of two years. Interests are paid monthly while the principal is paid upon maturity of the loans.

Table 6. Summary of Pu Chhob VDFSG statistics, updated June 2021

Number of members	34
Number of women members	20
Loans to members	KHR 24,154,000 (USD 6,038)
Number of member borrowers	11
Number of women borrowers	7
Total capital	KHR 40,945,700 (USD 10,236)
Members' savings	KHR 10,787,900 (USD 2,697)
BCC project (ADB grant)	KHR 26,991,000 (USD 6,748)

VDFSG of Pu Hong Village, Mondulkiri

As of June 2021, the Pu Hong VDFSG has 63 registered members where 54 or 86% are women. Of the total membership, 39 (62% of total members) have an existing loan from the VDFSG and these are comprised mostly of women (Table 7).

The Pu Hong VDFSG has a total capital of KHR 87,889,909.00 (USD 21,972.00) that can be loaned out to its members. Based on the June 2021 records, the total amount of funds lent to member-borrowers was KHR 35,620,000.00 (USD 8,905.00) which represents 41% of the total capital. Majority (66%) of the total capital came from the ADB grant while the remaining amount (34%) came from members' savings.

Table 7. Summary of Pu Hong VDFSG statistics, updated June 2021

Number of members	63
Number of women members	54
Loans to members	KHR 35,620,000 (USD 8,905.00)
Number of member borrowers	39
Number of women borrowers	37
Total capital	KHR 87,889,909 (USD 21,972)
Members' savings	KHR 25,053,700 (USD 6,263)
BCC project (ADB grant)	KHR 57,667,600 (USD 14,417)

VDFSG of Chhouk Village, Koh Kong

The Chhouk VDFSG has 70 members where 54 (77 % of its members) are women (Table 8). Of the total number of members, 50 or 71% have on-going loan contracts (as of June 2021). Forty one or 82% of these borrowers are women.

The VDFSG currently has a loan portfolio amounting to KHR 155,150,000.00 (USD 38,787.50) which represents 98% of its Total Capital of KHR 160,687,700.00 (USD 40,172.00). The latter is composed of the members' savings which has a current balance of KHR 52,017,000.00 (USD 13,004) plus the ADB grant of KHR 97,183,800.00 (USD 24,296).

Table 8. Summary of Chhouk VDFSG statistics, updated June 2021

Number of members	70
Number of women members	54
Loans to members	KHR 155, 150, 000 (USD 38,787.50)
Number of member borrowers	50
Number of women borrowers	41
Total capital	KHR160, 687,700 (USD 40,172)
Members' savings	KHR 52,017,000 (USD 13,004)
BCC project (ADB grant)	KHR 97,183,800 (USD 24,296)

VDFSG of Prek Chik Village, Koh Kong

The Prek Chik VDFSG has 53 members where 36 (68%) of these members are women (Table 9). Thirty-two or 60% of the total membership have loan contracts with the VDFSG as of June 2021. Twenty-seven or 84% of these borrowers are women.

The VDFSG has a loanable capital amounting to KHR 61,980,800.00. The funds are made up of members' savings (KHR 12,378,400.00) and Asian Development Bank (ADB) grant equivalent to KHR 43,848,800.00. Ninety-one percent of the capital funds are on loan to member-borrowers (KHR 56,277,500).

Table 9. Summary of Prek Chik VDFSG statistics, updated June 2021

Number of members	53
Number of women members	36
Loans to members	KHR 56,277,500.00 (USD 14,069.00)
Number of member borrowers	32
Number of women borrowers	27
Total capital	KHR 61,980,800.00 (USD 15,495.00)
Members' savings	KHR 12,378,400.00 (USD 3,095.00)
BCC project (ADB grant)	KHR 43,848,800.00 (USD 10,962.00)

VDFSG of Prek Svay Village, Koh Kong

The Prek Svay VDFSG has 66 members as of June 2021 where 37 (56%) of the members are women (Table 10). It has a loan portfolio amounting to KHR 128,965,000.00 which represents 90% of its Total Capital. The VDFSG's capital came from the members' savings (KHR 86,749,900.00) and a grant from the BCC project funded by the Asian Development Bank (KHR 50,544,400.00).

Table 10. Summary of Prek Svay VDFSG statistics, updated June 2021

Number of members	66
Number of women members	37
Loans to members	KHR 128,965,000.00 (USD 32,241.00)
Number of member borrowers	45
Number of women borrowers	26
Total capital	KHR 143,428,000.00 (USD 35,857.00)
Members' savings	KHR 86,749,900.00 (USD 21,687.00)
BCC project (ADB grant)	KHR 50,544,400.00 (USD 12,636.00)

Financial sustainability: Revenue analysis

The capability of the VDFSGs to operate continuously without external support by generating their own funds was evaluated. The financial ratios that were used in the revenue analysis to quantify financial sustainability were a) Operating Self-Sufficiency Ratio, b) Return on Assets, c) Yield on Portfolio, and d) Yield Gap.

The Me Pai VDFSG showed a poor performance in interest payment collection in 2020 based on the low value of the YOP (0.63%) and a Yield Gap of 52%. However, it exhibited a significant improvement in revenue collection in 2021 (January to June). During this time, the YOP increased to 1.2% and the Yield Gap decreased to only 9%. Meanwhile, the OSS Ratios in both years (1.28) indicate that the VDFSG has no liquidity problem in meeting its total expenses. Based on the revenue analysis, the Me Pai VDFSG is FLASHING A WARNING LIGHT indicating that financial sustainability is possible only if it will be able to maintain its 2021 performance. The financial ratios for the Me Pai VDFSG are summarized in Table 11.

Table 11. Financial ratios, Me Pai VDFSG, 2020 to 2021

Financial Ratio	2020	2021	Standard
Operating Self Sufficiency Ratio	1.28	1.28	> 1.0
Return on Equity	2.6%	3.8%	Nonzero value Increasing over time
Yield Gap	52%	9%	>10% indicates significant arrears
Yield on Portfolio **Interest rate = 1.3%**	0.63%	1.2%	Approaching interest rate charged on loans

The Pu Chhob VDFSG is FINANCIALLY SUSTAINABLE. This conclusion was based on the financial metrics that were used to examine the financial condition of the VDFSG. The organization is liquid based on an OSS value of 1.3 and is projected to continue to be liquid because of a high rate of revenue collection as indicated by a low and further decreasing Yield Gap (5% in 2020 and 0.3% in 2021). Furthermore, the rates of return to equity as well as portfolio yield are high thereby ensuring that the VDFSG remain at a sustainable level of liquidity. The results of the financial analysis are summarized in Table 12.

Table 12. Financial ratios, Pu Chob VDFSG, 2020 to 2021

Financial Ratio	2020	2021	Standard
Operating Self Sufficiency Ratio	1.3	1.3	> 1.0
Return on Equity	9.0%	8.0%	Nonzero value Increasing over time
Yield Gap	5.0%	0.3%	>10% indicates significant arrears
Yield on Portfolio **Interest rate = 1.3%**	2.0%	1.8%	Approaching interest rate charged on loans

The Pu Hong VDFSG exhibits a FINANCIALLY SUSTAINABLE credit and savings operation based on the financial ratios derived from its 2020 and 2021 financial records. It has enough liquidity to cover its financial liabilities (OSS > 1.0), revenue collection is not a problem (Yield Gap < 10%, YOP = interest rate), and high as well as increasing rates of return on assets. Table 13 summarizes the result of the financial ratios used to evaluate the financial performance of the VDFSG.

Table 13. Financial ratios, Pu Hong VDFSG, 2020 to 2021

Financial Ratio	2020	2021	Standard
Operating Self Sufficiency Ratio	1.3	1.3	> 1.0
Return on Equity	7.3%	8.7%	Nonzero value Increasing over time
Yield Gap	7.0%	3.2%	>10% indicates significant arrears
Yield on Portfolio **Interest rate = 1.3%**	1.5%	1.5%	Approaching interest rate charged on loans

The Chouk VDSFG presented a declining financial performance in terms of the OSS and ROE. However, the YOP and Yield Gap values are within the set standards. The Chouk VDFSG only satisfied half of the standards for financial sustainability based on revenue. It should meet the standards of all the financial ratios to be considered financially sustainable. The financial ratios are summarized in Table 14.

Table 14. Financial ratios, Chhouk VDFSG, 2020 to 2021

Financial Ratio	2020	2021	Standard
Operating Self Sufficiency Ratio	1.27	1.08	> 1.0
Return on Equity	11%	3.0%	Nonzero value Increasing over time
Yield Gap	0.32%	1.5%	>10% indicates significant arrears
Yield on Portfolio **Interest rate = 1.3%**	1.5%	1.4%	Approaching interest rate charged on loans

The financial ratios of the Prek Chik VDSFG presented a financially sustainable scenario in 2020. However, the FINANCIAL CONDITION WEAKENED IN 2021. Revenue from interest payments decreased giving rise to decreased financial ratios. The ROE and YOP went down from 9.5% to 3.5% and from 1.5% to 1.0%, respectively. Yield Gap increased from 8% to 34%. A summary of the financial ratios are shown in Table 15.

Table 15. Financial ratios, Prek Chik VDFSG, 2020 to 2021

Financial Ratio	2020	2021	Standard
Operating Self Sufficiency Ratio	1.28	1.28	> 1.0
Return on Equity	9.5%	3.8%	Nonzero value Increasing over time
Yield Gap	8%	34%	>10% indicates significant arrears
Yield on Portfolio **Interest rate = 1.3%**	1.5%	1.0%	Approaching interest rate charged on loans

The financial ratios of the Prek Svay VDSFG presented a FINANCIALLY SUSTAINABLE scenario. Revenue sufficiently covers the VDFSG's Total Costs and improved efficiency in collecting interest payments was noted through a decrease in the Yield Gap. Returns on Equity and on loan portfolio are also at a satisfactory level. Table 16 summarizes the values of the financial ratios.

Table 16. Financial ratios, Prek Svay VDFSG, 2020 to 2021

Financial Ratio	2020	2021	Standard
Operating Self Sufficiency Ratio	1.23	1.27	> 1.0
Return on Equity	10%	5%	Nonzero value Increasing over time
Yield Gap	5%	2%	>10% indicates significant arrears
Yield on Portfolio **Interest rate = 1.3%**	1.5%	1.5%	Approaching interest rate charged on loans

Comparison of the financial ratios of the selected VDFSGs

The financial ratios of the six VDFSGs were compared to rank their financial performance in 2020 to 2021. Ranking was achieved by assigning numerical scores from 1 to 6. A score of 1 denotes the highest performance while a score of 6 signifies the least performance. Each of the VDFSGs were given scores for their performance under each of the four financial ratios (OSS, ROE, YIELD GAP, and YOP). The scores were then summed up and divided by 4 to get the average score. The VDFSG with the lowest score gets a rank of 1 (highest financial performance) while the VDFSG with the highest average score gets a rank of 6 (least financial performance). The result of the ranking is presented in Table 17.

In terms of the Operating Self Sufficiency Ratio, the Pu Hong and Pu Chhob VDFSGs were both ranked number 1 since they consistently had the highest OSS ratio in 2020 and 2021. The Me Pai and Prek Chik VDFSGs were ranked as number 2.

The number 1 ranking under the ROE category went to the Pu Hong VDFSG which generated an ROE ratio of 7.3% in 2020 and increased to 8.7% in 2021. Number 2 rank was achieved by the Pu Chhob VDFSG having a 9% ROE in 2020 but decreased to 8% in 2021.

The Chhouk VDFSG had the highest ranking under the Yield Gap category since it had the lowest yield gap in 2020 (0.3%) and 2021 (1.5%). The Pu Chhob VDFSG was ranked number 2 for attaining a yield gap of 5% (second lowest in 2020) and further decreasing it to 0.3% in 2021.

Prek Svay and Pu Chhob VDFSG ranked number 1 under the Yield on Portfolio category. They consistently achieved a 1.5% YOP which equates to their loan interest rate during the two-year period. The Chhouk VDFSG ranked second for registering a 1.5% YOP in 2020 and 1.4% in 2021.

The overall ranking was determined after averaging all the scores. The Pu Hong VDFSG got the number 1 rank with an average score of 1.75. It was followed by the Pu Chhob VDFSG with an average score of 2.0. Rank number 3 was obtained by the Prek Svay VDFSG with an average score of 2.75 while the Chouk VDFSG landed as number 4 for having an average score of 3.25. The fifth and sixth ranks were assigned to the Me Pai and Prek Chik VDFSGs, respectively.

Being ranked as number 1 indicates that the Pu Hong VDFSG is the most financially sustainable among the six VDFSGs that were studied. The level of revenue and efficiency of collecting interest payments from member-borrowers are at the optimal level. The Pu Hong VDFSG was consistently cited by CEDAC for best management performance together with the Pu Chhob and Prek Svay VDFSGs. The criteria that were considered for the citation included in part the efficiency of members of the management committee in encouraging members to save and repay their loans on time, good bookkeeping practices and timely submission of monthly financial reports, transparency in fund management, assistance to poor members by making social funds available or food distribution, and a good working relationship with the BCC project staff as well as with the local authorities. In addition, members consider the VDFSG as their own and, therefore, they actively participate and regularly attend the monthly meetings as well as faithfully comply with its statutes. The good ratings for management performance of the three VDFSGs justify the high rankings that they obtained for financial performance.

On the other hand, the Prek Chik VDFSG had the lowest rank based on its financial ratio. The ROE decreased from a high of 9.5% in 2020 to 3.8% the following year. Similarly, YOP went down from 1.5% to 1.0% while the Yield Gap rose from 8.0% to 34% in 2021. The 2021 ratios signify a serious problem in interest payment collection possibly due to the combined effect of poor management and the members' financial problems caused by the COVID-19 pandemic. The Me Pai VDFSG was ranked 5th among the six groups on financial performance. The low ranking was brought about by its relatively poor performance in 2020. A slight improvement, however, was observed from its 2021 ratios. Despite the improvements, it is still precarious to consider the Me Pai VDFSG as a fully sustainable organization.

Table 17. Comparison of financial performance of the selected VDFSGs, Koh Kong and Mondul Kiri, 2020 to 2021

VDFSG	OSS			ROE			YIELD GAP			YOP			AVE SCORE	RANK
	Standard			Standard			Standard			Standard				
	> 1.0			Increasing over time Nonzero value			< 10%			Closely approaching interest rate charged by the VDFSG on loans				
	2020	2021	SCORE	2020	2021	SCORE	2020	2021	SCORE	2020	2021	SCORE		
Pu Hong	1.30	1.30	1	7.30%	8.70%	1	7.0%	3.2%	4	1.50%	1.50%	1	1.75	1
Pu Chhob	1.30	1.30	1	9.00%	8.00%	2	5.0%	0.3%	2	2.00%	1.80%	3	2	2
Prek Svay	1.23	1.27	3	10.00%	5.00%	4	5.0%	2.0%	3	1.50%	1.50%	1	2.75	3
Chhouk	1.27	1.08	4	11.00%	3.00%	6	0.3%	1.5%	1	1.50%	1.40%	2	3.25	4
Me Pai	1.28	1.28	2	2.60%	3.80%	3	52.0%	9.0%	5	0.63%	1.20%	5	3.75	5
Prek Chik	1.28	1.28	2	9.50%	3.80%	5	8.0%	34.0%	6	1.50%	1.00%	4	4.25	6

Financial sustainability: Total capital (Equity) Analysis

Maintenance of loanable funds (Equity) and loan repayment is another area related to financial sustainability. Like the financial ratios discussed earlier, loan repayment of borrowers deserves attention. Timely repayment of loans guarantees a continuous lending service to the VDFSG members. Loan repayment refers to the act of paying back the principal of the loan based on agreed or contracted amortization terms. Interests are paid monthly while amortization of the principal can be paid monthly or towards the date of maturity of the loan. The members are charged an interest rate that range between 1.2% to 2.0% per month depending the decision of the VDFSG management committee. In the villages of Pu Hong, Chhouk, Prek Svay, and Prek Chik, the VDFSGs charge a 1.5% interest rate. In Me Pai, the interest rate is 1.3% while the Pu Chhob VDFSG charges 2.0% per month. A portion of the interest payments are used to finance the expenses of the VDFSG. Specifically, the costs items include administrative expenses, contributions to forest conservation activities, allowances of committee members, reserve funds for loan loss. After deducting the cost items from the interest payments, the balance is retained and added as part of the equity of the VDFSG. The VDFSGs mostly require a loan repayment period of two years. At the end of two years, the principal is assumed to be fully amortized together with any unpaid interest.

Income from interest payments alone will not be able to sustain the operation of the VDFSG in the long run. The full payment of the principal is necessary if the VDFSG is to operate continuously for a long period of time. Funds from fully paid loans are channelled back to the pool of money to be lent again to other member-borrowers.

Loan Repayment Rate

Table 18 shows the average of the monthly loan repayment rates of the six VDFSGs for 2020 and 2021 (January to June). In 2020, The average loan repayment rate was between 0.5% to 7.2%. During the first two quarters of 2021, the average was between 0.4% to 12.9%. While all of the six VDFSGs gave positive repayment rates, the performance is still below satisfactory if the ideal rate (95% or better) is going to be used as the gauge. The VDFSG of Pu Chhob exhibited a relatively higher repayment rate at 7.2% in 2020 in comparison to the performance of the other VDFSGs. This increased further to 12.9% in 2021. The Pu Hong VDFSG followed at 6.7% in 2020 and 7.2% in 2021. The Me Pai VDFSG consistently lagged behind the five other VDFSGs. In 2020, loan repayment was only 0.5%. This further dropped to 0.4% in 2021.

The VDFSG in the village of Chhouk had the largest loan exposure amounting to KHR 155,150,000.00 as of June 2021. However, its average repayment rate from January to June 2021 was precariously only 0.5%. This is alarming, considering that the 2020 figure (3%) was already low and this continued to dive in 2021. Calling the attention of the Chhouk VDFSG management committee is in order so that appropriate measures can be imposed. Similarly, the Me Pai VDFSG requires attention to avoid the risk of having bad debts.

The available data did not provide information on the dates the loans were drawn and when they are due for full payment. We can only assume that the loans taken in January 2020 should be paid by January 2022 if a two-year loan will be assumed. However, after a year and a half since the loans were made, repayment should have been larger than the values that were derived. The actual repayment rates of most of the VDFSGs are less than 10% as of 2021. This indicates that with barely six months before the end of 2021, it is likely that the loans will not be paid on time or at the worst, loan defaults could happen. The non-payment of the principal means that the funds available for loans would shrink.

There is a need to re-evaluate the policy of allowing a flexible principal amortization schedule. The option to pay anytime within the loan contract of two years seems to encourage borrowers to postpone principal repayments until towards the end of the loan contract thereby allowing the payables to pile up. Enforcing a monthly amortization schedule presents a more efficient system for managing loan funds.

Table 18. Loan repayment rates of selected VDFSGs, Koh Kong and Mondul Kiri, 2020 to 2021

VDFSG	2020 (January - December)	2021 (January - June)
	Average of monthly loan repayment rates	
Pu Hong	6.7%	7.2%
Pu Chhob	7.2%	12.9%
Prek Svay	4.8%	4.9%
Chouk	3.0%	0.5%
Me Pai	0.5%	0.4%
Prek Chik	1.3%	1.3%

Growth Rate of Savings Deposits

The low members' savings deposits could be a factor for the seemingly low growth rates of equity experienced by the six VDFSGs. The available data did not allow a thorough analysis of the equity of the VDFSGs since it only covered the period from January 2020 to June 2021. Based on the available information, members' deposit only grew at an average rate from -3% to 12% in 2020. By June 2021, a decrease in average growth rates ranging from -3.9% to 7% was evident.

Table 19 presents the growth performance of the VDFSGs in terms of the members' savings deposits. The Prek Svay VDFSG led the other VDFSGs with an average savings growth rate of 12% in 2020. This decreased to 6% in 2021. The Pu Chhob and Pu Hong VDFSGs recorded a 9% and 7% savings growth rate, respectively in 2020 with a slight increase in 2021. The other VDFSGs experienced a negative growth rate during the third quarter of 2020. The Prek Chik VDFSG did not report any deposits during the month of July which pulled down the average growth rate to negative 14% for the July to September quarter and an average growth rate of negative 3% in 2020. The Prek Chik VDFSG's negative performance persisted until the second quarter of 2021. The Chhouk and Me Pai VDFSGs showed positive improvements in growth rates in 2021. However, their member savings performance paled in comparison to the growth rates of the Pu Hong, Pu Chhob, and Prek Svay VDFSGs.

The members' deposits together with the ADB grant would fuel the operation of the VDFSGs in the long run. The savings deposits would determine the amount of loans that can be accessed by the members. The higher the savings deposits are relative to the grant, the bigger the amount of loan each member can apply for. Consequently, higher member deposits would increase the total equity of the VDFSGs. However, increased savings deposits by the members should be accompanied by application for loans by the members as well. The VDFSGs pay interest or dividends to members for their savings deposits. As such the VDFSGs should be able to invest the savings deposits through loans and generate revenue from interest payments. The interest income will compensate for the cost of maintaining the savings deposits of the members provided that the interest rate for loans is higher than the rate of dividend that are paid to members as savings depositors. This will ensure that the cost of maintaining the savings deposits is lower than the revenue generated from the loans.

Table 19. Growth rates of VDFSGs members' savings, Koh Kong and Mondul Kiri, 2020 to June 2021

Time period	Pu Hong	Pu Chhob	Prek Svay	Chouk	Me Pai	Prek Chik
2020	Quarterly growth rates of members' savings					
January to March	11%	6%	5%	-2%	0%	3%
April to June	5%	14%	0.5%	7%	3%	-1%
July to September	8%	17%	36%	5%	-2%	-14%
October to December	5%	-2%	5%	-9%	-2%	1%
Ave quarterly GR 2020	7%	9%	12%	0.3%	-0.3%	-3%
2021						
January to March	8%	9%	7%	6%	3%	-0.2%
April to June	6%	5%	6%	3%	3%	-8%
Ave quarterly GR 2021	7%	7%	6%	5%	3%	-4%

Equity Growth Rate

Ascertaining high loan repayment rates ensures that total capital (Equity) is continuously replenished to keep the financial service of lending funds to borrowers uninterrupted. The Equity Growth Rate was used to measure the increase or decrease of the equities of the six VDFSGs between January 2020 to June 2021 (Table 20).

Considering all the quarterly growth rates for the years 2020 and 2021, the Pu Chhob VDFSG exhibited the highest equity growth rate among the six VDFSGs . In 2020, it registered an average growth rate of 13% versus the growth rates of the others which ranged from -1.0% to 8%. Its overall growth rate performance for 2020 to 2021 was 10%. The Pu Chhob VDFSG also had the highest loan repayment rate (2020=7.2%; 2021=12.9%) among the six VDFSGs. In the same manner, Pu Chhob also was one of the VDFSGs that had a high growth rate in members' savings. Thus, its higher equity growth can be partly attributed to its good repayment and savings performance.

The Prek Svay VDFSG exhibited the second highest equity growth rate. It had the highest growth rate in members' savings in 2020 which was a major factor in that contributed to the equity growth.

The VDFSG in the village of Chouk performed the least in equity growth despite the fact that it had the largest equity among the six VDFSGs. It had a negative growth rate (-1.0%) in 2020 but was able to slightly recover in 2021 showing a rate of 4% and an overall growth rate of 1.0%. The data showed that the loan repayment rate in 2020 was only 0.5% in 2021 while members' savings was only 0.3% in 2020. These things affected the equity growth of the VDFSG.

Table 20. Growth rates of equity (Total Capital), by VDFSG, 2020 to 2021

Time period	Village Development Fund and Savings Groups					
	Pu Hong	Pu Chhob	Prek Svay	Chouk	Me Pai	Prek Chik
	Quarterly growth rates of equity					
2020						
January to March	18%	3%	4%	-3%	0%	3%
April to June	3%	37%	2%	5%	0%	-1%
July to September	4%	9%	20%	-5%	3%	-3%
October to December	3%	2%	4%	-1%	1%	3%
Ave. quarterly GR 2020	7%	13%	8%	-1%	1%	1%
2021						
January to March	4%	4%	6%	4%	3%	3%
April to June	4%	3%	6%	4%	3%	1%
Ave. quarterly GR 2021	4%	3.7%	6%	4%	3%	2%
Growth rate 2020 to 2021	6%	10%	7%	1%	2%	1%

Comparison of the metrics on the financial sustainability: Equity analysis of the six selected VDFSGs

The results of the Equity analysis are summarized in Table 21. The values that are presented are aggregates of the 2020 and 2021 percentages that were derived from Tables 18, 19, and 20. These were then summed up to arrive at the total percent values. The VDFSGs with a high total percent value are considered more financially sustainable over those with lower values. The Pu Chhob, Prek Svay, and Pu Hong VDFSGs exhibited higher values over the Chhouk, Me Pai, and Prek Chik VDFSGs. The result is consistent with the evaluation of financial sustainability based on the analysis of Revenue using financial ratios. Therefore, the VDFSGs of Pu Hong, Pu Chob, and Prek Svay can be considered as financially sustainable on the basis of their ability to generate revenue and the growth of their equity.

Table 21. Aggregated percent values of selected metrics for analysis of Financial sustainability: Equity, 2020 to 2021

Financial Metric	Pu Hong	Pu Chhob	Prek Svay	Chhouk	Me Pai	Prek Chik
Loan repayment rate	7%	9%	5%	2%	0.4%	2%
Savings growth rate	7%	8%	10%	2%	1%	-3%
Equity growth rate	6%	10%	7%	1%	2%	1%
Total	20%	27%	22%	5%	3.4%	-0.2%

Utilization of total capital

The average loaned amount of each of the six VDFSGs is lower than their Equity by 5% to 24% in 2020 and by 5% to 43% in 2021 (Table 22). This implies that there are unused funds which otherwise should be earning interests if they were loaned out to members. The equity is the productive asset of the VDFSGs and, therefore, their utilization should be maximized. If they are not loaned out to members, these assets should be invested in other income generating prospects where the returns are either equal to or greater than the VDFSGs earnings from loans.

Table 22. Average of monthly equity, loan portfolio and percent difference by VDFSG, 2020 to 2021

VDFSG	Equity	Loan	Difference	%	Equity	Loan	Difference	%
	2020				2021			
Pu Hong	74,835,992	56,751,483	18,084,508	24%	84,058,570	66,261,667	17,796,903	21%
Pu Chhob	32,006,733	24,608,083	7,398,650	21%	39,181,467	22,381,667	16,799,800	43%
Prek Svay	108,992,433	92,679,875	16,312,558	13%	136,450,000	122,801,000	13,649,000	10%
Chouk	147,081,692	140,137,500	6,944,192	5%	153,595,000	148,616,667	4,978,333	3%
Me Pai	62,628,158	57,341,667	5,286,492	8%	65,053,050	54,075,000	10,978,050	17%
Prek Chik	61,594,442	58,527,833	3,066,608	5%	61,169,017	57,879,583	3,289,433	5%

Key findings on households' perception on the impact of VDFSGs on household resilience from climate and family-related vulnerabilities

Household vulnerabilities

All the VDFSG representatives in the Focus Group Discussions (FGD) and key Informant Interviews (KII) stated that the shocks/stresses that they experienced in the past two years were related to household vulnerabilities pertaining to crop and livestock/poultry failure, food insecurity, loss of jobs/income, health-related emergencies, expenses for children's education, and repayment of due loans to other MFIs. The participants were asked to rate the seriousness of each of the identified shocks as High, Moderate, or Low (Figure 2). Among the six identified vulnerabilities, the ones recognized by the participants as **highly serious** (in descending order) were Repayment of due loans (44%), Health-related emergencies (38%), Expenses for children's education (33%), Crop/Livestock/Poultry failure (22%), and Loss of Job/Income (11%). Food insecurity was not regarded as a highly serious source of stress. Instead, majority (78%) of the participants considered Household food insecurity only as a **moderately serious** source of stress. Another type of stress that was given the same degree of seriousness (moderately serious) by 78% of the participants was Loss of job/income. Also considered as moderately stressful by more than half (56%) of the participants was Crop/Livestock/Poultry failure. Household financial problems due to health-related emergencies were considered least serious by most (63%) of the participants.

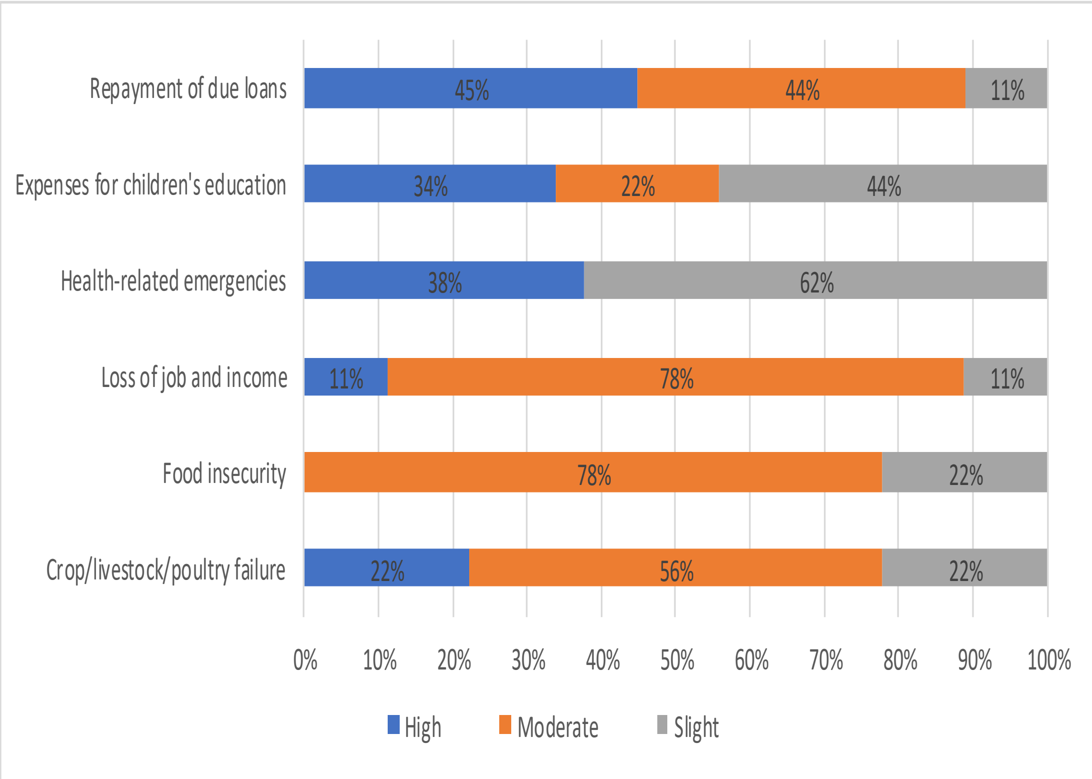

Figure 2. Degree of seriousness of identified stresses/shocks

The degrees of seriousness were assigned numerical scores where a high degree of seriousness was given a numerical value of 3; Moderate degree was assigned a value of 2; while Slight degree was given a value of 1. The percentages that were presented in Figure 2 were combined with the numerical values that correspond to each degree of seriousness. Through this process, numerical scores were obtained for each type of vulnerability. These scores were used to rank the vulnerabilities. The one with the highest score was considered as the most serious vulnerability and the one with the lowest score is perceived as the least serious. Table 23 presents the result of the scoring process. Repayment of due loans was ranked as number 1 indicating that it was perceived by the FGD participants and Key informants as the most serious source of stress. Crops and livestock/poultry failure as well as Loss of job/income were both ranked as number 2. Health-related emergencies were considered as the least serious (Rank 5).

Table 23. Perceived degree of seriousness of identified vulnerabilities, Koh Kong and Mondul Kiri, 2021

Vulnerabilities causing shocks/ stresses	Degree of seriousness				Score			Total Score	Rank
	High	Mod-erate	Slight	Total	3	2	1		
Repayment of due loans	45%	44%	11%	100%	1.35	0.88	0.11	2.34	1
Crop/ livestock/ poultry failure	22%	56%	22%	100%	0.67	1.11	0.22	2.00	2
Loss of job and income	11%	78%	11%	100%	0.33	1.56	0.11	2.00	2
Expenses for children's education	34%	22%	44%	100%	1.02	0.44	0.44	1.90	3
Food insecurity		78%	22%	100%	0.00	1.56	0.22	1.78	4
Health-related emergencies	38%		62%	100%	1.13	0.00	0.62	1.75	5

Usefulness of VDFSGs as a coping mechanism

There are a number of coping mechanisms in dealing with the stresses/shocks faced by households. Among those identified during the interviews was by borrowing money from banks, informal money lenders, relatives and securing loans from the VDFSG.

To understand how useful VDFSGs are in helping households to cope with the stresses/shocks, the FGD participants and key informants were asked to rate the degree of usefulness of the VDFSGs to households in facing stresses/shocks. The qualitative indices and the corresponding numerical scores that were given in rating usefulness were: a) Not useful =1, b) Slightly useful = 2, c) useful = 3, and d) Very useful = 4. Based on the total scores, the results showed that VDFSGs were perceived as most useful in **coping with crops and livestock/poultry failure** (Table 24 and Figure 3). One-third (33%) of the respondents perceived the VDFSGs as “Very useful” in addressing this vulnerability while 44% considered them as “Useful”. However, there were a small number of respondents that considered them as just “Slightly useful” (11%) and totally “Not useful” (11%). The VDFSGs were regarded as most useful to members in coping with crops and livestock/poultry failure because they have easier access to funds when they are most needed. This means the VDFSGs provide a faster service in the processing of loans and loan collaterals are waived.

The VDFSGs also allow the extension of loan maturity dates when crops or livestock/poultry are seriously affected by extreme weather events or by pests and diseases. In addition, it was found that most VDFSG members borrow money and use their savings to expand agriculture production. They use the funds to buy farm inputs (eg., seeds and fertilizer), hire farm machinery for ploughing and harvesting rice, install irrigation systems, buy fruit tree seedlings (durian, rambutan, banana), and to raise livestock (pig, chicken, cow). In the past, a few members used the loans to buy or rent additional farmland. In Koh Kong, many members raising hogs borrowed from the VDFSG to increase their inventory from 1-2 heads to 3-4 heads per family. Others started commercial native chicken raising.

The VDFSGs were also found most useful when there are **health-related emergencies** in the family (Rank 2). Thirteen percent of the respondents perceived the VDFSGs to be “Very useful” when there are health-related family emergencies while 63% considered them as “Useful”. The interviewees noted that each VDFSG keeps a cash reserve (KHR 1 to 2 Million) for lending to members who need cash for family emergencies such as in cases of illnesses, accidents, childbirth, death and funeral ceremony. This practice is highly appreciated by members and is a key factor in attracting villagers to join the savings group.

The VDFSGs were ranked 3 in usefulness when **loans from lending institutions become due.** More than half (56%) of the respondents perceived them as “Useful” while 11% rated them as “Very useful”. However, there were respondents who considered the VDFSG to be “Not useful” (11%) or just “Slightly useful” (22%) in facing their liquidity problem when loans become due. This perception would apply to persons whose loans come from other MFIs/banks. They cannot apply for a new loan until they have fully paid their existing due loans.

The VDFSGs’ usefulness was ranked lowest in meeting shocks due to **loss of jobs or other sources of income.** While 57% rated them as “Useful” in coping with this vulnerability, 29% considered them to be “Not useful” while 14% perceived them as “Slightly useful”. This is understandable considering the fact that people would hesitate to apply for a loan if they have no capacity to repay their loan since they have lost their jobs.

There were more respondents who perceived that the VDFSGs are just “Slightly Useful” (56%) for expenses related to children’s education. This perception exceeded those who consider them to be “Useful” (22%) and “Very useful” (11%). About 11% considered the VDFSGs as “Not Useful” in pursuing their children’s education. Those who borrowed funds used the loans to pay for school fees, buy books and school supplies, and to pay for transportation particularly for sons and daughters who are studying in a university or high school that are located at a far distance from home (e.g. schools in provincial towns or capital city). When face-to-face classes were cancelled due to the COVID-19 pandemic, some families used the loans to buy smart phones so that their children can attend online classes. Although currently not many families use the loans from VDFSGs for educational purposes, the members believe that the VDFSGs would be helpful in financing their children’s higher level education in the future. Aside from access to loans, some of the members aim to use the money that they are saving with the VDFSGs for their children’s university education.

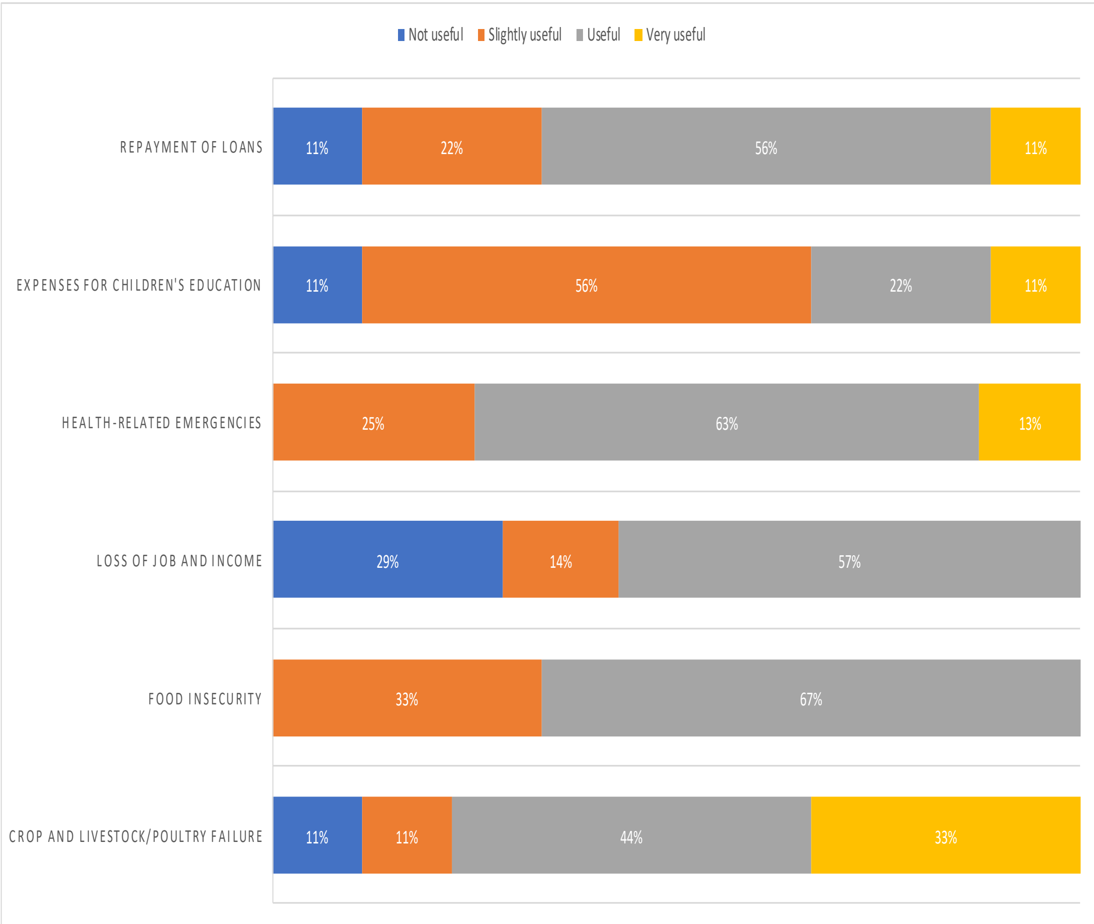

Figure 3. Degree of usefulness of VDFSGs in coping with stresses/shocks

Table 24. Degree of usefulness of VDFSGs in coping with vulnerabilities, Koh Kong and Mondul Kiri, 2021

Vulnerabilities causing	Degree of Usefulness					Score				Total	Rank
shocks/stresses	Not useful	Slightly useful	Useful	Very useful	Total	1	2	3	4	Score	
Crop and livestock/poultry failure	11%	11%	44%	33%	100%	0.11	0.22	1.33	1.33	3.00	1
Health-related emergencies		25%	63%	13%	100%	0.00	0.50	1.88	0.50	2.88	2
Food insecurity		33%	67%		100%	0.00	0.67	2.00	0.00	2.67	3
Repayment of loans	11%	22%	56%	11%	100%	0.11	0.44	1.67	0.44	2.67	3
Expenses for children's education	11%	56%	22%	11%	100%	0.11	1.11	0.67	0.44	2.33	4
Loss of job and income	29%	14%	57%		100%	0.29	0.29	1.71	0.00	2.29	5

It is also worth emphasizing that a high percentage of VDFSG members are women. This is an indication that VDFSGs provide access of their services to both men and women of the community.

In the midst of the COVID-19 pandemic, the VDFSGs served as a support system to their members. In the villages with COVID-19 lockdown, most households borrowed money to buy food supplies enough to last them through the quarantine period. Other examples of VDFSG usefulness during the COVID-19 pandemic are:

a) In Pu Hong village, a family used the money from the VDFSG to send to their daughter whose factory she is working in went on lockdown. Others borrowed money from the VDFSG to start microbusinesses after they lost their jobs in factories due to the COVID-19 restrictions.

b) In Prek Svay village, the VDFSG used their common funds (KHR 1 Million) for food purchase and distribution to 8 families during the COVID-19 lockdown. Part of the funds was used to buy alcohol and face masks for members who come to the VDFSG meetings and for COVID-19 vaccination.

c) Most groups extended the loan repayment schedule for one or two months due to the COVID-19 outbreak. In Prek Svay, the savings group reduced interest rate from 1.5% to 1% per month to reduce the burden of interest payment during the pandemic.

Membership to a VDFSG allows access to agricultural training and extension services. The FGD participants and key informants reported that most VDFSG members receive training in native chicken raising, home vegetable gardening, fruit tree growing, and sustainable NTFP harvest. Members also benefit from knowledge and experiences on successful farming practices and challenges shared by other members when coming to monthly meetings. The presence of the VDFSG makes it easier to mobilize community members to attend such training courses.

Confidence in coping with vulnerabilities

The FGD participants and key informants expressed confidence that they are in a better position to cope with their vulnerabilities due to the presence of a VDFSG in their village. Sixty-seven percent qualified that they feel “strongly confident” while 33% are “confident” in facing stresses/shocks. This reveals that VDFSG members are more resilient to possible stresses/shocks as they have access to financial and social support from VDFSGs to help them recover from difficult circumstances. The respondents confirmed that they can rely upon the VDFSGs when they need to borrow funds or withdraw from the savings account being managed by the group.

Impact of the COVID-19 pandemic on VDFSG performance

Most VDFSGs reported that there was a significant increase in loan application by members due to the COVID-19 pandemic. Loss of employment and other income sources as well as the need to buy food supplies for the family were considered as the main factors contributing to the need for loans. Before the pandemic, members rarely borrowed money to finance household expenses.

The FGD and KII respondents also noted that there was a decrease in the number of members depositing money into their savings account. Instead, there was an increase in cash withdrawals from their accounts. In addition, delays in the repayment of loan principal has also been observed. Most borrowers could only afford to pay the interest. To help the members during the pandemic, some VDFSGs even decided to postpone the collection of payments from member-borrowers. These factors caused a decrease in the VDFSGs’ total capital available for lending to members during the pandemic.

Perceived usefulness of VDFSGs versus actual purpose of loans applied for by members

VDFSG members indicate the reason for applying for a loan when they file their loan applications. In this section of the report, the perception on the VDFSGs’ usefulness was compared with the members’ purposes when applying for a loan to validate the verity of the reported perception. Table 25 summarizes the reasons given by VDFSG members who applied for a loan from 2018 to 2021.

Thirty-two percent of the member-borrowers from the **Pu Hong VDFSG** applied for a loan to buy cows that they can raise while 15% needed the capital to raise pigs. Ten percent borrowed funds to buy inputs for crop production. A handful (5%) used the funds to start a native chicken coop. Altogether, 62% of the members borrowed funds from the VDFSG for agriculture-related purposes. The other reasons given were for starting a microbusiness (13%), purchase of household items (23%), and lastly for house repairs (2%).

In **Pu Chhob**, majority (60%) of the member-borrowers applied for a loan to be used for growing agricultural crops. Also, 25% used the borrowed funds for the operation of a microbusiness. Other reasons given were for house repairs (10%), to raise chicken (2%), and to buy household items (2%).

The members of the **Prek Svay** VDFSG applied for a loan mostly for agricultural purposes, ie., to raise chicken (26%), to expand crop production (20%) and to raise hogs (15%). The other reasons given were for starting a microbusiness (14%), to buy household items (14%), and for house repairs (11%).

Thirty-nine percent of the member borrowers in the **Chhouk** VDFSG declared that they would use their loans for crop production. Other members borrowed funds for other agriculture-related purposed, namely raising pigs (13%), cattle (12%), and chicken (2%). Starting a microbusiness was another (15%) reason for applying for a loan. Others indicated that they would use their loan for house repairs and for buying household items.

In the village of **Me Pai**, majority (65%) of the borrowers used the loan for agricultural production, ie., purchase of planting materials and other production inputs. Other reasons identified were for raising pigs (20%), as well as chicken or cattle, home repairs, and household expenses such as food, children's education, and wedding/cultural celebrations.

The main reasons given by the member-borrowers in **Prek Chik** for applying for a loan were for raising hogs (43%) and chicken (30%). A number (16%) used the borrowed funds for crop production. Other purposes for loans were for raising cattle and for buying household items (eg., clothes, kitchenware, household implements).

Table 25. Purpose of loans, by VDFSG, 2018 to 2021

Purpose	Pu Hong		Pu Chhob		Prek Svay		Chhouk		Me Pai		Prek Chik	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Agric. Production	8	10%	29	60.4%	26	20%	48	39%	58	65%	14	16%
Raising chicken	4	5%	1	2.1%	34	26%	3	2%	18	20%	27	30%
Raising pigs	12	15%			20	15%	16	13%	1	1%	39	43%
Raising cattle	26	32%					15	12%	3	3%	2	2%
Microbusiness	11	13%	12	25%	19	14%	18	15%	1	1%		
House repairs	2	2%	5	10.4%	15	11%	13	10%	5	6%		
Household items*	19	23%	1	2.1%	18	14%	11	9%	2	2%	8	9%
Household expenses**									1	1%		
Total	82	100%	48	100%	132	100%	124	100%	88	100%	90	100%

*Clothes, kitchen ware, toiletries

**Food, children's education, wedding/cultural celebrations

Superimposing these reasons with the members' perception of the usefulness of VDFSG validated the results of the FGDs and KIIs. The respondents ranked "Crop and livestock/poultry failure" as the main concern in which VDFSG loans are most useful. The loan applications from 2018 to 2021 showed that majority (73%) of the reasons given by the members for borrowing funds from the VDFSGs were related to "Crop and livestock/poultry production" (Table 26). Next to crop and livestock/poultry failure, the VDFSGs were also considered useful in the areas of "Health-related expenses, food insecurity, children's education, as well as for starting a microbusiness". These concerns, taken together, appear as 27% of the reasons why the members applied for loans. During the years covering the COVID-19 pandemic, starting a microbusiness was used as a coping mechanism by several members who were laid-off from work or lost other sources of income. Repayment of loans did not appear as a reason for applying for a VDFSG loan because members are not allowed to apply for new loans if they still have an outstanding loan with the association.

Table 26. Perceived usefulness and purpose of loans, Koh Kong and Mondul Kiri, 2021

Rank of perceived usefulness	Rank	Purpose of loans	Frequency	%
Crop and livestock/poultry failure	1	Crop and livestock/poultry production	352	73%
Health-related emergencies	2	Household expenses (food, children's	76	16%
Food insecurity	3	education, medical, cultural celebrations, etc.)		
Repayment of loans	3	Starting a microbusiness	51	11%
Expenses for children's education	4			
Loss of job and income	5			
			479	100%

Summary and recommendations

This report presents a case study of selected community-based savings and loans associations that were established in Cambodia (specifically in the villages of Prek Svay, Prek Chik, and Chhouk in Koh Kong province and the villages of Me Pai, Pu Chhob, and Pu Hong in the province of Mondul Kiri) to help local communities achieve resilience to climate change-induced risks. These groups, also known as Village Development Fund and Savings Group (VDFSG), are founded on a bottom-up/participatory approach wherein local communities are involved in developing strategies for coping with climate change-related vulnerabilities. They were initiated by the Ministry of Agriculture, Forestry and Fishery (MAFF) and the Ministry of Environment (MoE) in collaboration with the International Institute for Rural Reconstruction (IIRR) and the Cambodian Center for Study and Development in Agriculture (CEDAC). Implementation was made possible through the funding support of the Biodiversity Conservation Corridor (BCC) Project of the Asian Development Bank (ADB).

The case study focused on two areas of interest which tried to answer the questions on the VDFSGs' financial sustainability and their usefulness in assisting village communities in coping with climate change-induced vulnerabilities. For the first query, a financial analysis was conducted on six selected VDFSGs to evaluate 1) revenue generation as well as 2) equity growth to support their long-term operations.

The revenue analysis component revealed (in descending order of ranking) that the Pu Hong, Pu Chhob, and Prek Svay VDFSGs performed better than the other three VDFSGs in revenue generation. Good performance in revenue generation ensures that the association could operate continuously without depending on external support to cover their costs. Furthermore, high revenues enable the VDFSGs to increase their total capital through higher retained earnings. Revenue generation depends on an efficient system of collecting interest payments which is the sole source of revenue of the VDFSGs. On the other hand, the Prek Chik and Me Pai VDFSGs showed weaknesses in interest payment collection and, therefore, failed to meet the standard set for a financially sustainable organization. The Chouk VDFSG's financial performance was better than that of the Me Pai and Prek Chik VDFSGs. However, it showed declines in its financial ratios in 2021 causing it to be ranked fourth in terms of its capability on revenue generation.

The Equity component of the financial sustainability analysis also ranked the Pu Hong, Pu Chhob, and Prek Svay VDFSGs highly on loan repayment rate, savings growth, and growth in equity. The VDFSGs in Chouk, Me Pai, and Prek Chik had lackluster financial metrics. Thus, combining the results of the Revenue and the Equity analyses, the Pu Hong, Pu Chhob, and Prek Svay VDFSGs can be considered financially sustainable. The Chhouk, Me Pai, and Prek Chik VDFSGs have a much weaker financial condition and would require assistance in improving their performance.

The validity of giving the VDFSGs of Pu Hong, Pu Chhob, and Prek Svay high scores on financial sustainability was ascertained by comparing the results of the financial analysis with the report on the management and technical review of VDFSGs that were previously conducted by the CEDAC. The review cited these three VDFSGs as highly successful associations based on management capability as well as commitment of members to the organization. The CEDAC review provided confirmation that the result of the financial sustainability assessment is credible.

Total equity was further analyzed in the context of the loan portfolio of the VDFSGs. It was observed that Equity is not fully utilized based on the amount of loans granted to the member-borrowers. Loan utilization ranged from 5% to 24% in 2020. Even the utilization rate in 2021 did not provide impressive values. The VDFSGs were not able to optimize the use of their loanable funds. This means that the loan associations have not maximized their revenue generation through interest payments for loans while at the same time they are incurring costs on the dividends that they pay for the members' savings deposits. If there are constraints in increasing loan utilization, perhaps the VDFSGs could consider offering other services to the members wherein they can invest their available funds.

The VDFSGs' usefulness in assisting members in coping with climate-induced vulnerabilities was determined by conducting FGDs among VDFSG members and KIIs of representatives chosen from the VDFSG management committees. Through these methods, the case study determined the climate change-induced vulnerabilities of VDFSG members including how seriously these are perceived by the members. More importantly, the interviews attempted to establish how useful the VDFSGs are in coping with the identified vulnerabilities as perceived by the members. The FGD and KII revealed that:

a) The vulnerabilities of poor rural households in Cambodia include, in descending order of perceived seriousness are: lack of liquidity to repay due loans; crop and livestock/poultry failure, loss of jobs or other sources of income; lack of funds for children’s education; food insecurity; and health-related expenses;

b) The usefulness of VDFSGs in coping with these shocks/stresses were ranked as follows (in descending order): Crop and livestock/poultry failure, Health-related emergencies, Food insecurity, Repayment of loans, Expenses for children’s education, Loss of job and income.

c) The VDFSG usefulness was highly appreciated during the COVID-19 pandemic. People applied for loans or tapped their savings deposits when family members lost their sources of income due to company lay-offs and/or prolonged lockdowns. The borrowed funds were used to buy food supplies or to start microbusinesses to replace their lost jobs. When face-to-face classes were cancelled due to the COVID-19 pandemic, some families used the loans to buy smart phones so that their children could attend online classes; and

d) The FGD and KII respondents believe that there is a high level of confidence among VDFSG members that they are in a better position to cope with their vulnerabilities due to the presence of a VDFSG in their village. This indicates that VDFSG members are more resilient to possible stresses/shocks since they have access to financial and social support from VDFSGs.

It is also worth noting that women have benefitted from the financial services of the VDFSGs. The membership rosters show that there is a high percentage of women members. Furthermore, the financial records show that there is a high percentage of women among the list of borrowers from the VDFSGs. Thus, the VDFSGs encourage gender inclusiveness in terms of membership and access to credit.

The viability of the VDFSGs as perceived by the communities in terms of the assistance they provide to its members cannot be ignored. In fact, these communities have relatively the same vulnerabilities and have identified similar coping mechanisms as well. They believe that the presence of the VDFSGs have made them more confident and secure in facing their vulnerabilities and eventually become more resilient to the effects of climate change.

Challenges and goals as perceived by the VDFSG versus observations generated from the financial analysis

Some challenges were identified that limit the VDFSGs' operational capacity to provide financial support to their members. Insufficiency of funds was mentioned as a limiting factor in meeting loan demand. When a large number of loan applications are submitted at the same time, priority is given to loan applicants who need cash due to family emergencies. The approval of other applications has to wait until the following months when funds become available. With regard to savings, members are only allowed to withdraw 50% of the amount of their deposit even if they need a larger amount because members' equity is still small.

VDFSG leadership and governance capacity was also identified as a concern. It was felt that some VDFSGs need further strengthening in governance. Also, when the BCC project exits, technical guidance will no longer be available. External monitoring and guidance will still be required to ensure that the VDFSGs will continue to operate and that members will continue to actively support the VDFSGs. It is noted that the BCC project team has developed an exit strategy to ensure VDFSG sustainability.

Lastly, the FGD and KII revealed that crop and health insurance are still an unfamiliar entity among the VDFSG members. This financial service is missing in the VDFSG realm at the moment. The VDFSGs may be able to tap this service from external sources through the assistance of donor agencies such as the ADB. Crop and health insurance can broaden the usefulness of the VDFSGs since it can extend financial outreach through the help of other institutions that are willing to partner with the VDFSGs in providing this service.

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