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THESIS

THE OPERATIONAL EFFICIENCY AND SUSTAINABILITY OF VILLAGE DEVELOPMENT FUND IN CHAMPASAK PROVINCE, LAO PDR

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A Thesis Submitted in Partial Fulfillment of
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Bounthom Sisoumang 2013: Operational Efficiency and Sustainability of Village Development Fund in Champasak Province, Lao PDR. Doctor of Philosophy (Agricultural Economics), Major Field: Agricultural Economics, Department of Agricultural and Resource Economics. Thesis Advisor: Assistant Professor Visit Limsombunchai, Ph.D. 100 pages.

Village Development Fund (VDF) is a microfinance institution that has been established across Lao PDR since 1997. This study assesses and compares operational efficiency and sustainability of the VDF in urban (Pakse) and rural (Bachieng) districts of Lao PDR. Data envelop analysis (DEA) approach is used to analyze operation efficiency of VDF in urban (Pakse) and rural (Bachieng) districts of Champasak province in 2010. The result shows that the VDF, on average, had technical efficiency scores under constant return to scale and variable return to scale of 0.87 and 0.90 respectively. The fund had the scale efficiency of 0.97. The VDF in rural areas, despite their small sizes and located in poor infrastructure and public facilities, were more efficient than those in urban area. The main input factors contributing to inefficiency were number of staff and operating costs, while output factors contributing to inefficiency were the contribution money and financial revenue. More VDFs in rural area also had better repayment rate than those in urban area that mean VDFs in Bachieng more efficient than VDFs in Pakse.

When measure sustainability of VDF in Pakse and Bachieng using DEA to compare efficiency value for three years 2007-2009 with the average efficiency value of village development fund in Pakse (0.835) being slightly higher than in Bachieng (0.790) year 2007. However, in 2008 and 2009, the average efficiency values of village development fund in Bachieng became fully efficient (1) in both years and higher than in Pakse (0.978 and 0.929, respectively). This implies that the village development fund in rural area (Bachieng) has more efficiency and has a higher sustainability than in urban area (Pakse).

To improve operational efficiency and sustainability of VDFs in Champasak province, Lao PDR. There is a need to improve skill in operation and reduce operating costs. Balancing contribution to social welfare and ensure financial return is also a key to efficiency improvement. Finally, social norms and measures would also enhance responsibilities and transparency among members and hence improve the operational efficiency of the VDF.

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Bounthom Sisoumang

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LIST OF ABBREVIATION

Lao PDR	- Lao People Democratic Republic
MDGs	- Millennium Development Goals
GOL	- Government of Lao
VDF	- Village Development Fund
NERI	- National Economic Research Institute
GIZ	- German International Cooperation
DEA	- Data Envelop Analysis
OECD	- Organization for Economic Co-operative and Development
CRS	- Constant Return to Scale
VRS	- Variable Return to Scale
CGAP	- Consultative Group to Assist the Poor
MFIs	- Microfinance Institutions
NPLs	- Non Performing Loans
TE	- Technical Efficiency
AE	- Allocative Efficiency
EE	- Economic Efficiency
ROA	- Return on Asset
ROE	- Return on Equity
DMU	- Decision Making Unit
GDP	- Gross Domestic Product
BOL	- Bank of Lao
APB	- Agriculture Promotion Bank
NGOs	- Non Government Organization
ADB	- Asian Development Bank
UNDP	- United Nation Development Programmed
UNDAF	- United Nation Development Assistance Framework
NSEDP	- National Socio-Economic Development Plan

CHAPTER I

INTRODUCTION

Problem Statement

Rural development is at the centre of the Lao government's development and poverty eradication policy. The policy of the government of Lao PDR aims to maintain rapid economic growth, improve the living conditions of the poor, and graduate from its Least Developing Country status and meet the Millennium Development Goals (MDGs) by 2020. The orientation of the country's rural development strategy is moving towards decentralization, poverty reduction and local-level participatory development, using a bottom-up approach by developing livelihood of individual, family, village, district, province and country respectively. To support the rural poverty reduction strategy. To support the overall strategy, the Government of Lao PDR (GOL) recently launched a strategy aiming at extending financial services to the rural finance market to increase financial access for the rural population that otherwise would have to rely on the informal sector. Following other developing and underdeveloped countries, a microfinance system was established for this purpose (Darachanthra, 2003).

A locally initiated microfinance was established over ten years ago. A local fund called Lao Woman Union Fund was set up to support financial access to the poor women in each village in the forms of cash or produce (rice banking, animals or other products). The financial resources promoted the woman to produce traditional goods like handicraft, and run a small business. Lao woman union fund has now been transformed into the new microfinance called Village Development Fund.

Village Development Fund is a specific type of microfinance developed by the government of Lao PDR to mobilize the local resources and management to foster rural development and poverty eradication. The government provided general principles and guidelines for the Village Development Fund establishment and

operation, trained and supported the local communities to establish and operate the fund. The Village Development Fund has been established across the country since 1997. As of 2009, there were 3,314 village development fund establishments in Lao PDR with the total members of more than 334 thousand (Table 1).

Table 1 Village development fund in Lao PDR, by region as at 2009

No	Region	Number of village development funds Establishment (fund)	Number of members (persons)
1	Northern	914	57,198
2	Central	1,603	208,901
3	Southern	797	68,522
	Total	**3,314**	**334,621**

Source: NERI and GIZ (2011)

The reasons behind the establishment of the village development fund are:

(i) To be a source of revolving funds within the villages to provide either credit or savings to its members, which will be used to establish income generating activities, to the need in emergency or in responding to particular situations in the villages;

(ii) To support and build the capacity of the villages in terms of the financial resources management and system, in accordance with the local situation;

(iii)To establish process of self-reliance in terms of learning, taking one's own initiative to address problems and to encourage, strengthen and expand the local economy;

(iv)To ensure villagers actively participate as key elements in strengthening the social - economic situation of their villages;

(v) To safeguard the local environment, culture and traditions for the future (Darachanthra, 2003).

It should also be noted that the existence of village development fund is also part of the criteria for a village to be classified as development village or a member of a cluster of development villages. This condition induces the villages to establish village development fund and ensure its existence.

Over the last 15 years of development, the Village Development Fund in general has grown continuously. Rules and regulation have also been improved in accordance with the conditions of the villages. Among the villages, business sizes (total fund, income, operating cost etc.) and hence performance of operation and management of the fund are varied across regions and provinces.

The Village Development Fund in Champasak province was initiated in Phonethong district in the year 2000 with financial endowment support of 4 million kip (or about 510 US$) from the Governor of Champasak province. Since then, Village Development Fund has been established across the province and increased gradually.

Similar to the regional level, progress of village development fund has been varied across the provinces in the Southern region and between urban and rural areas. The operation and management performance in urban and rural area are different. While some have grown gradually, others have been sluggish. Some village development funds could hardly continue due to poor repayment from the borrowers and poor return to depositors. The same is true for poverty eradication. Poverty levels in relatively urbanized or diversified economic areas tend to drop more rapidly than those agricultural dominated ones.

As observed in Pakse district of Champasak province, Poverty incidence in the district decreased greatly from 5% in the year 2000 to less than one % in 2004 and zero in 2008. The average per capita income of Pakse district in the year 2011 was

more than $1,500 mostly from non-agriculture (Department of Planning and Investment, 2011). In 2010, the total members of village development fund in Pakse district was 8,400 members with total loan size of nearly 10 billion kip (Table 2).

In contrast, poverty reduction and development of VDFs in less urbanized area such as Bachieng district were slow. Poverty incidence in the district decreased from 18% in the year 2000 to 15% in the year 2004 and 4% in 2008. The average per capita income of the district in the year 2011 was 688$/person/year and mostly from agriculture (Department of Planning and Investment, 2011). The sizes of VDFs in Bachieng were much smaller than those in Pakse district. The total fund of VDFs in Bachieng was about 918.76 million kip with 4,291 members and the loan size of about 904 million kip in year 2010 (Table 2).

Table 2 Number of members and amount of savings and loans of the VDFs in Pakse and Bachieng district, Champasak Province, 2010

No	Name of district	Village (number)	Members saving (persons)	Total saving (million kip)	Members borrowing (persons)	Total loan (million kip)
1	Pakse	42	8,400	9,890.55	4,665	9,853.97
2	Bachieng	39	4,291	918.76	1,954	903.96

Source: Office of Political and Rural Development (2011)

With its potential roles in fostering rural development and poverty reduction, development and sustainability of VDFs are important. The aim of this study is to analyze the achievements of the village development fund in urban and rural areas of Champasak province of Lao PDR (see appendix A).

Objectives of the Study

1. To compare operational efficiency of VDFs in urban (Pakse) and rural (Bachieng) in Champasak province, Lao PDR

2. To assess sustainability of VDFs in urban (Pakse) and rural (Bachieng) in Champasak province, Lao PDR

Scope and Limitation of the Study

This study concerns operational efficiency and sustainability of VDFs in two areas Pakse district present in urban area and Bachieng district present in rural area Champasak province, Lao PDR, using secondary data over the past three years 2007-2009 to measure sustainability and secondary data for year 2010 to measure efficiency of VDFs in two areas.

Expected Outcome

The results of this research will provide an insight to management efficiency of village development fund in urban and rural areas for operational and management improvement of Lao PDR in the future.

The Hypothesis of this Study

1. Village development fund in Champasak province in urban area is more efficient than that in rural area.

2. Village development fund in urban area in Champasak province is more sustainable than that in rural area.

CHAPTER II

REVIEW OF LITERATURE

Literature Reviews

Review of Efficiency

Efficiency can be measured by parametric and non-parametric approach. The parametric approach is commonly used with stochastic model and requires the specification of frontier function. Non-parametric approach does not require the specification of any function form.

Data Envelop Analysis (DEA) is a non parametric method and commonly used and applied in many fields, including efficiency. For instance, Ramesh *et al.* (2001) compared the efficiency of grand – in –aid hospital and public hospital and the relative efficiency of government and not-for-profit sectors; Gimenez (2000) measured operating efficiency of 16 restaurants in Spain and Afonso and Aubyn (2005) used non-parametric approach to analyze education and health efficiency in OECD (Organization for Economic Co-operative and Development) countries.

In the financial sector, DEA is a common tool used to measure the financial efficiency. Farrell (1957) proposed that the efficiency of a firm consists of two components: technical efficiency, which reflects the ability of a firm to obtain maximal output from a given set of inputs, and allocative efficiency, which reflects the ability of a firm to use the inputs in optimal proportion, given their respective prices and the production technology. These two measures are then combined to provide a measure of total economic efficiency. These are usually termed input-output oriented measures.

Charnes *et al.* (1978) proposed a model which had an input orientation and assumed constant return to scale (CRS). The CRS specification is used when not all firms are operating at the optimal scale. Other papers have considered alternative sets of assumptions, such as Banker *et al.* (1984) suggested an extension of the CRS-DEA model to account for variable return to scale (VRS) situation.

The paper measuring efficiency that used both methods, parametric and non parametric, to compare efficiency of microfinance is (Nghiem *et al.*, 2006). The study compared stochastic frontier analysis, parametric linear programming, and data envelop analysis technique in measuring microfinance efficiency in Vietnam. Consistency comparison between stochastic frontier analysis and parametric linear programming techniques in financial and operational microfinance in Vietnam is also conducted. Inputs are divided between labor and non-labor in value terms. Three outputs identified in his study are number of depositors, borrowers and groups. Based on technical efficiency scores, the study concluded that DEA and parametric linear programming techniques are better than the stochastic frontier analysis technique.

Since then, a large number of papers have extended and applied the DEA methodology, using different inputs and outputs to analyze efficiency in microfinance. For instance, Qayyum and Munir (2006) assumed constant returns to scale and variable returns to scale technologies with labor, capital and payable interest on deposit as inputs and loans and financial investments as outputs to measure efficiency of microfinance in Southeast Asia. On the other hand, Nieto *et al.* (2009) used assets, costs and employees as inputs and loans and revenues as two financial outputs to measure efficiency. In the study, women and index of poverty were also used as two social outputs in the analysis. Likewise, Svante and Bassem (2008) used both CRS and VRS to measure efficiency. In their model, the number of staff and assets are considered as inputs and the deposits and loans are outputs.

From the papers above, DEA is widely used, simple and appropriate for efficiency analysis of microfinance. This study adopts the DEA approach in the analysis of efficiency of VDFs in urban and rural areas of Champasak province of

Lao PDR. The approach is appropriate to Lao PDR circumstance, particularly on availability of data and period of development of the fund.

Review of Sustainability

Over the past few years, several papers have discussed and attempted to measure sustainability of microfinance such as Mark Schreiner (2000), Puspa Raj Sharma (2008), CGAP (2003), Befekadu B. Kereta (2007), Meyer (2002), Otero and Rhyne (1994), Qayyum and Munir (2006), Yogendra and Acharya (2006).

One of the key elements in studying sustainability is to define practical definition of sustainability. In his study, Mark Schreiner (2000) defined sustainability as the ability to repeat performance through time. In his argument, a sustainable microfinance organization is permanent, but it is not constant. Its organization and its structure of incentives must be flexible so that managers can adapt and adjust to keep performance healthy in a shifting environment. A sustainable organization should have the structure and incentives to repeat transactions.

On the other hand, others consider microfinance sustainability also in term of social sustainability. Because microfinance is principally for the poor, micro-finance sustainability means a microfinance organization that is self-sustainable. However, micro-finance sustainability is for sustainable poverty alleviation, the public policy also emphasizes the sustainability of the microfinance institution (MFIs) that deliver services to the poor (Sharma, 2008 and CGAP, 2003).

To measure profit quality which has an effect on financial sustainability, one study used non-performing loan (NPLs) to loan outstanding ratio as an indicator (Kereta, 2007). Operational sustainability examination, as component of financial sustainability measurement, as reflected by return on asset and return on equity, is used to measure operational sustainability of the MFIs. In addition, the concept of sustainability also deals with operating performance, staff productivity and portfolio quality.

Kereta (2007) stated that the low repayment rate in microfinance institution means the microfinance institution un-sustainability. To ensure its sustainability, it also has to provide full transparency for income, expenses, loan recovery and potential losses (Meyer, 2002).

Financial sustainability means not depending on subsidies and grants, the revenue from the interest can cover the operation of microfinance institution (Otero and Rhyne, 1994).

Theoretical Concept

Efficiency

Efficiency is concerned with the optimal production and distribution of outputs or uses of scarce resources. Efficiency relates quantities and costs of inputs and outputs. A firm is efficient if it maximizes the quantity/price of an output for given quantities/prices of inputs; alternatively it is efficient if for a given quantity/price of output it operates with the least quantity or least costs of inputs.

Efficiency measurement was introduced by Farrell (1957), using an example of two inputs (x_1, x_2) to produce a single output (y) and with assumption of constant returns to scale. The technical efficiency (TE) of a firm is most commonly measured by the ratio between input use (OQ) and total input (OP).

$$TE_i = OQ/OP \quad (1)$$

It will take a value between zero and one, and hence provides an indicator of the degree of technical inefficiency of the firm and the value of one indicates the firm is fully technically efficient.

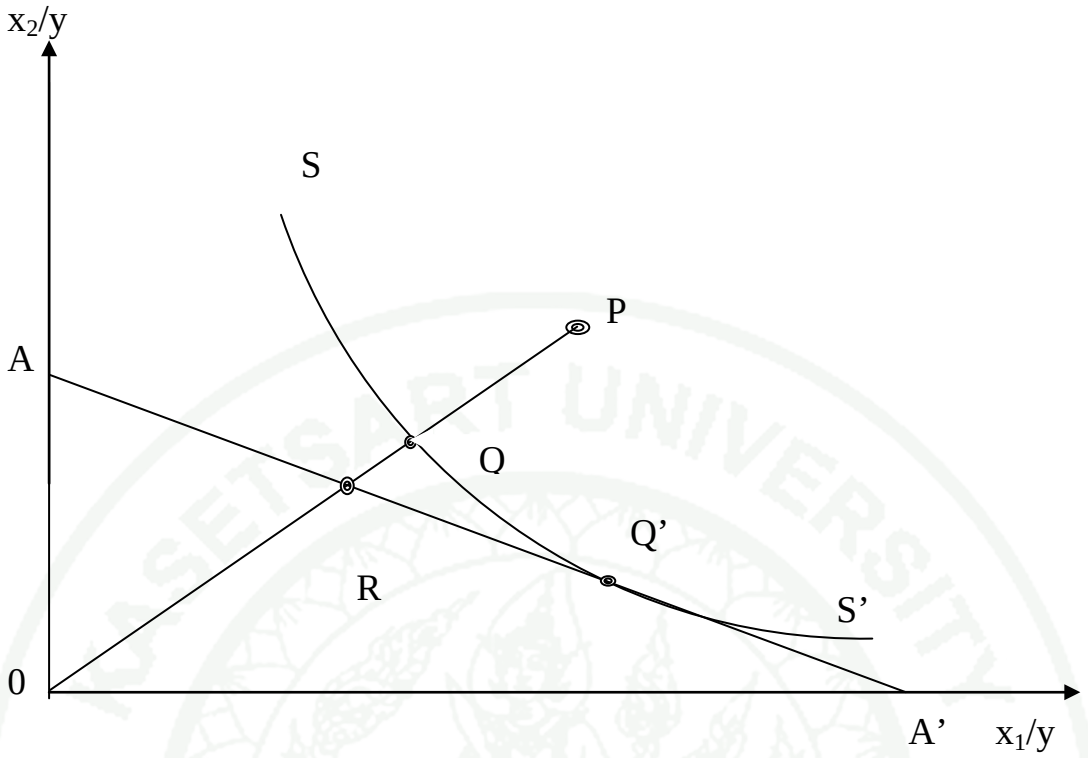

Figure 1 Technical and Allocative Efficiencies
Source: Coelli, Rao and Battese (2005)

The allocative efficiency (AE) of the firm operating at P is defined as the ratio between capital use (OR) and total capital OQ).

$$AE_i = OR/OQ \quad (2)$$

The total economic efficiency (EE) is defined as ratio between capital use OR and total input OP

$$EE_i = OR/OP \quad (3)$$

The product of the technical and allocative efficiency measures provides the measure of overall economic efficiency as shown in equation (4) below.

$$TE_i \times AE_i = (OQ/OP) \times (OR/OQ) = (OR/OP) = EE_i \quad (4)$$

For output and input-oriented measures are measures of technical efficiency in term of constant returns to scale exist (Färe and Lovell, 1978).

One can illustrate output-oriented measures by considering the case where production involves two outputs (y_1 and y_2), and a single input (x_1) as shown in Figure 2.

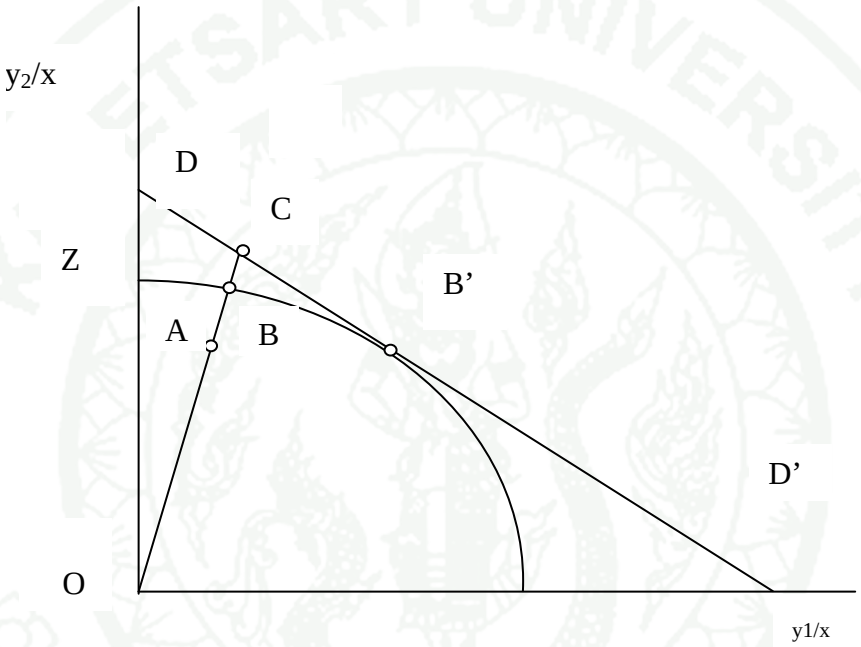

Figure 2 Output Oriented Technical and Allocative Efficiency Measurement
Source: Coelli, Rao and Battese (2005)

The output-oriented technical efficiency (TE_o) is measured by the ratio between (OA) and (OB).

$$TE_o = OA/OB \quad (5)$$

If the price information is available, then we can draw the iso-revenue line, DD', and define the allocative efficiency (AEo) as (OB) divided by (OC).

$$AE_o = OB/OC \quad (6)$$

The overall economic efficiency can be defined as below:

$$EE_o = (OA/OC) = (OA/OB) \times (OB/OC) = TE_o \times AE_o \quad (7)$$

Note that all of the three measures above are bounded by zero and one, it can be obtained by measurement of the ratios of all outputs over all inputs, such as $u'y_i/v'x_i$, where u is an Mx1 vector of output weights and v is a Kx1 vector of input weights. The optimal weights are obtained by solving the mathematical programming problem:

$$\text{Max}_{u,v} (u'y_i/v'x_i)$$

$$\text{Subject to } u'y_j/v'x_j \leq 1, \qquad j = 1, 2, \ldots, N$$

$$u,v \geq 0 \quad (8)$$

This involves finding values for u and v, such that the efficiency measurement for the i^{th} firm is maximized, subject to the constraints that all efficiency measures must be less than or equal to one. One problem with this particular ratio formulation is that it has an infinite number of solutions. To avoid this, one can impose the constraint $v'x_i = 1$, which provides (Charnes *et al.*, 1978):

$\text{Max}_{\mu, v}\ (\mu' y_i)$,

Subject to $v' x_i = 1$,

$\mu' y_j - v' x_j \leq 0, \qquad j = 1, 2, \ldots, N$

$\mu, v \geq 0,$ (9)

Where the change of notation from u and v to μ and v is used to stress that this is a different linear programming problem. The form in equation (9) is known as the multiplier form of the DEA linear programming problem.

Using the duality in linear programming, one can derive an equivalent envelopment form of this problem:

$\text{Min}_{\theta,}\ \theta$,

subject to $-y_r + Y\boldsymbol{\lambda} \geq 0,$

$\theta x_i - X\boldsymbol{\lambda} \geq 0,$

$\boldsymbol{\lambda} \geq 0,$ (10)

The CRS linear programming problem can be easily modified to account for VRS Banker, by adding the convexity constraint: $N1'\boldsymbol{\lambda} = 1$ to equation (10) (Charnes and Cooper, 1984).

$\text{Min}_{\theta,}\ \theta$,

subject to $-y_r + Y\boldsymbol{\lambda} \geq 0,$

$\theta x_i - X\boldsymbol{\lambda} \geq 0,$

$N1'\boldsymbol{\lambda} = 1$

$\boldsymbol{\lambda} \geq 0,$ (11)

Where N1 is an Nx1 vector of ones, the VRS specification has been the most commonly used specification in the 1990s. Note that the convexity constraint N1'$\boldsymbol{\lambda}$ =1, essentially ensures that an inefficient firm is only benchmarked against firms of a similar size. In this instance the $\boldsymbol{\lambda}$ -weights will sum to a value greater than (less than) one.

The piece-wise linear forming the non-parametric frontier in DEA can cause a few difficulties in efficiency measurement. The output slacks will be equal to zero if and only if $Y\boldsymbol{\lambda} - y_i = 0$ and the input slacks will be equal to zero if and only if $\theta x_i - X\boldsymbol{\lambda} = 0$ (for the given optimal values of θ)

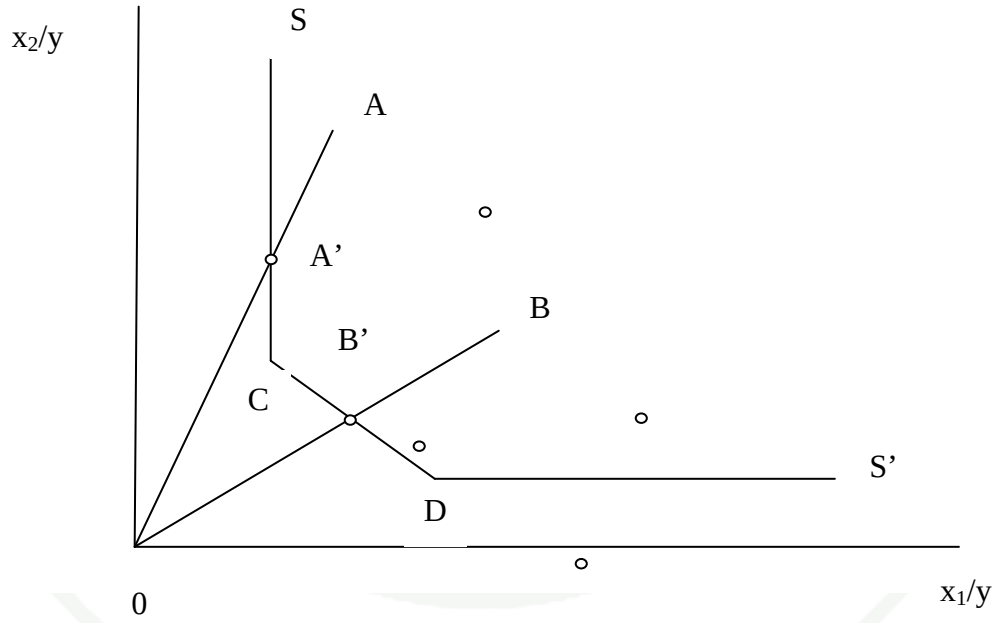

Figure 3 Efficiency Measurement and Input Slacks
Source: Coelli, Rao and Battese (2005)

The variable return to scale is measured when a firm isn't in optimal scale and for this study I choose for variable return to scale to measure VDFs efficiency.

Sustainability

The concept of sustainability in microfinance has not been well developed, compared to efficiency. Various studies have identified several measures to reflect sustainability of microfinance and they are summarized below.

Sustainability is the ability to repeat performance in the future. That means good organization and structure of incentives can help institutions maintain performance of change in the environment. In his study, Schreiner (2000) analyzed the performance and sustainability of subsidized development finance institutions with respect to five groups of the stakeholders: customers, society, donors, managers, and investors (Schreiner, 2000).

Perception of performance and sustainability for different groups could be different. For instance, financial sustainability, to microfinance institutions, bank and other commercial establishments, requires that the institutions must cover all transaction costs (loan losses, financial cost and administrative cost etc.) with return on equity (net of any subsidy received), and consequently function without subsides (Sharma, 2008). Sharma (2008) also suggests about financial sustainability indicators, such as financial performance, operating performance, operating and financial self-sufficiency ratio, portfolio quality ratio, administrative efficiency and staff productivity of the leading microfinance institutions and CGAP (2003) considers sustainability for profit of the bank and other commercial institutions by various indicators as shown below.

$$\text{Return on equity (ROE)} = \frac{\text{Net operating income} - \text{Taxes}}{\text{Average Equity}} \quad (12)$$

$$\text{Return on assets (ROA)} = \frac{\text{Net operating income} - \text{Taxes}}{\text{Average Assets}} \quad (13)$$

$$\text{Operational self} - \text{sufficiency} = \frac{\text{Financial Income}}{\text{Financial and Operating Cost+Loan Loss Provision}} \quad (14)$$

$$\text{Profit margin} = \frac{\text{Net Operating Income}}{\text{Operating Revenue}} \quad (15)$$

$$\text{Financial self} - \text{sufficiency} = \frac{\text{Financial Income}}{\text{Financial and Operating Cost+Loan Loss Provision+ Imputed Cost of Capital}} \quad (16)$$

Some studies measure microfinance sustainability in terms of financial, social and organization such as that of (Kereta, 2007). In that study, performance of microfinance institution in Ethiopia was assessed from outreach and financial angle. Number of poor clients and women served were used to measure outreach while dependency ratio and non-performing loan are used to measure financial sustainability. Operational sustainability is measured by return on asset and return on equity. Luong (2010) stated that sustainability model of microfinance needs to fulfill both social responsibility and financial sustainability by remittance flows and microfinance business.

Mayoux (2006) suggested that microfinance institutions have to sustainability both organization and financial, which enables development organization and intervention to continue without external fund by increasing revenue, cutting costs.

The Operation and Management

Operation plays a critical role in organizations. Operation is a process within an organization that acquires inputs (people, capital, and material) and transforms these inputs into outputs (services and goods) consumed by the public. So the operations should be viewed as part of the total organization, which may also include such specialties as accounting, finance, marketing, information systems, engineering, and personnel.

Operation management is decision making involving the design, planning, and management of many factors that affect operation. Decision includes which products to produce, how large a facility to build, how many people there, and what methods to use to improve quality. Operation managers apply ideas and knowledge to:

- Cut the production time to speed up new products to the market.
- Improve flexibility to meet rapidly changing customer needs.
- Enhance product quality.
- Improve customer service.
- Increase productivity and reduce costs (Vonderemse and White, 2004).

Operations and operation managers play an important role in their effectiveness in organizing, planning and managing operations and shape the firm's competitiveness and operations to become a positive factor when facilities, equipment, and employee training are viewed as a means of achieving organizational, rather than narrowly defined departmental objectives.

To understand operations and contribute to the success of an organization, it is important to understand:

- The value-added nature of operations.
- The impact that technology can have on performance.
- The importance of teamwork in achieving operating and organizational objectives.

Operations add value when consumers are willing to pay more for the finished good or service than the total cost of the inputs required to make it. In the private sector, the difference between the prices a consumer pays for a good or service and the cost to produce it is profit that can be reinvested to build new and better products, thus creating wealth for society. In the public sector, which is not for profit, the value added to products represents improved wealth to society.

Technology is the application of knowledge, usually in the form of recently developed tools, processes, and procedures, to solve problems. Advances in technology make it possible to design and build better products using fewer resources. Operations not only add value and technology, but need to consider that operations and teamwork solve quality and productivity problems

Successful operations depend not only on the nature and attributes of the resources contained within the firm but also on how those resources are organized, supported and developed.

Almost all operations have organizational structure clusters of resources bound together by sets of shared responsibility with recognized relationships between the clusters.

Morgan (1986) proposes a number of images or metaphors which can be used to understand organizations:

- Organizations are machines: the resources within organizations can be seen as components in a mechanism whose purpose is clearly understood.

- Organizations are organisms: organizations are also living entities; their behavior is dictated by the behavior of the individual humans within them.

- Organizations are brains: organizations process information and make decisions. No machine, or perhaps even organism, comes close to the degrees of sophistication of which a human brain is capable.

- Organizations are cultures: an organization’s culture is usually taken to mean its shared values, ideology, and pattern of thinking and day-to-day ritual. Different organizations will have different cultures stemming from their circumstances and their history. Because an organization’s internal structure and view

of itself are influenced by its culture, we can think of an organization as an expression of its culture.

Organizations are political system: organizations, like communities, are governed. The system of government is rarely democratic, but nor is usually a dictatorship. Within the mechanisms of government in an organization are usually ways of understanding alternative philosophies, ways of seeking consensus (or at least reconciliation) and sometimes ways of legitimizing opposition. Individuals and groups seek to pursue their arms through the detailed politics of the organization.

There are many alternative approaches to organizational design, most, in practice, are attempting to divide an organization into discrete parts which are given some degree of authority to make decisions within their part of the organization. There are three basic approaches:

- Group resources together according to their functional purpose.

- Group resources together by the characteristics of the resources themselves.

- Group resources together by the markets which the resources are intended to serve.

There are four types of organization, and the first form is unitary form, or U-form. Organization clusters its resources primarily according to their functional purpose. Figure 4 shows a typical U-form organization with a pyramid management structure, each level reporting to the managerial level above. The problem with U-form organization is that as companies become both larger and more complex, it becomes increasingly difficult for managers to retain effective control. Either the number of people reporting to each manager has to increase or more managerial levels are needed. In the former case, managers quickly reach the limit of their information processing ability. In the latter case, senior managers quickly become too

removed from day-to-day decisions. However, for relatively simple and/or small organizations the U-form can be efficient.

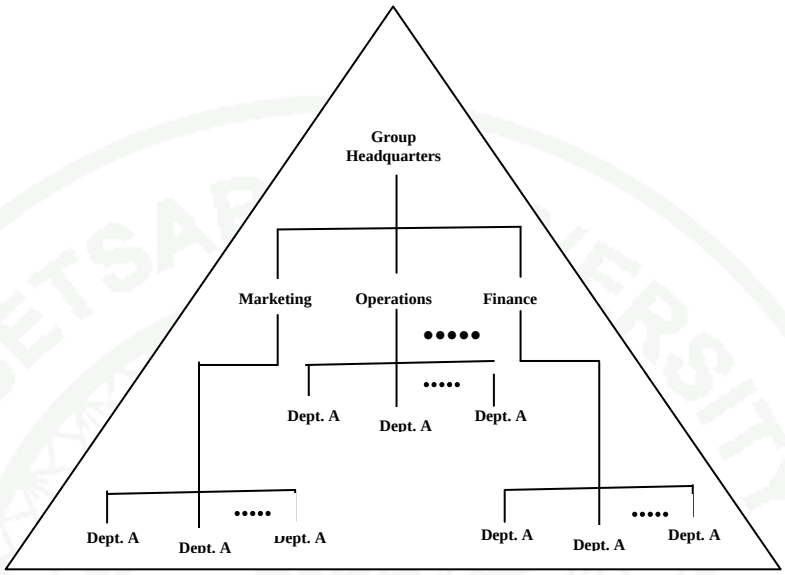

Figure 4 U-Form Organizations
Source: Slack and Lewis (2002)

The U-form organization is cumbersome when companies became large, produces many diverse products and services and serves several, often complex, markets. It groups together either the resources needed for each product or service group, or alternatively, those needed to serve a particular geographical market, in separate divisions. Within each division, resources may be organized using the conventional functional U-form. To compensate for this dispersal of expertise, M-form organizations may develop enhanced networking skills, so that they can obtain expertise from other divisions.

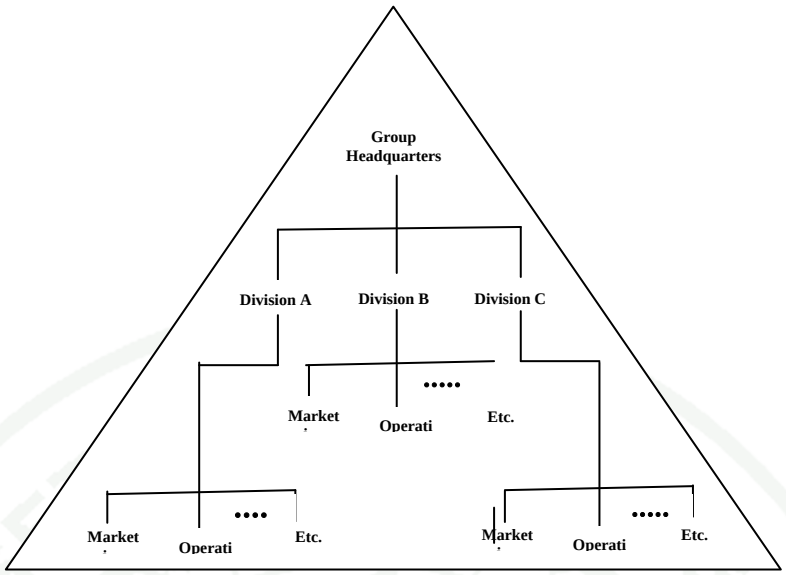

Figure 5 M-Form Organizations
Source: Slack and Lewis (2002)

Matrix structures are a hybrid, usually combining the M-form with the U-form. In effect, the organization has simultaneously two different structures (see Figure 6). In a matrix structure each resource cluster has at least two lines of authority, for example both to the division and the functional group. So an operations manager may be directly responsible to his or her division head, while at the same time having a reporting responsibility to the head of the operations function for the whole company.

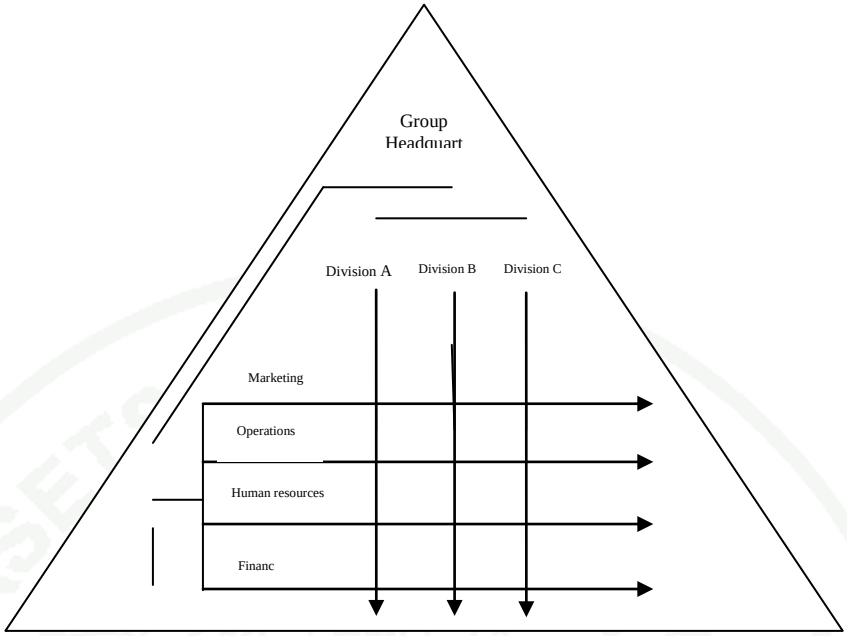

Figure 6 Matrix-Form Organizations
Source: Slack and Lewis (2002)

The other form is called N-form form organization and is sometimes taken to stand for ‘new’ or ‘novelty’ but more often now is taken to stand for ‘network’. In N-form organizations, resources are clustered into groups as in other organization forms, but with more delegation of responsibility for the strategic management of those resources. N-form have relatively little hierarchical reporting and control. Each cluster of resources is linked to the others to form a network, with the relative strength of the relationships between clusters changing over time, depending on circumstances (see Figure 7).

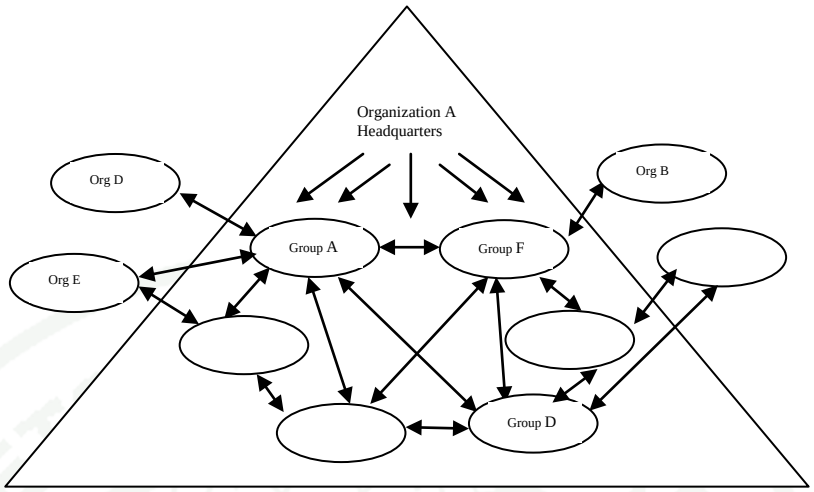

Figure 7 Matrix-Form Organizations
Source: Slack and Lewis (2002)

The advantages of the traditional functional U-form organization lie in its ability to develop and foster intangible assets, especially knowledge-based-assets. But this is gained at the cost of bureaucracy and rigidity as well as a difficulty in managing across organizational or functional boundary. M-form organizations can adapt flexibly to serve a range of markets with reasonable efficiency. The N-form organization therefore appears ideal. However, it is easy to slip into an argument whose logic quickly becomes circular. N-form organizations are defined as loose clusters of resources whose relationships are formed in order to provide high levels of market service flexibility and efficiency while developing tangible, intangible and network resources.

In the conventional U-form structure, operation is usually a fully defined functional hierarchy with hopeful significant board-level representation and a direct line of responsibility running from senior decision makers through to operational level operations managers. M-form structures may dilute the strength and coherence of the operation's function (Slack and Lewis, 2002).

CHAPTER III

METHODOLOGY

This chapter concentrates on data and methodology applied in this study. The chapter firstly describes the sources of data for the analysis. It then discusses the methodology applied. Discussion on methodology is divided into two parts. The first part describes the approach applied to assess the operational efficiency of the VDFs. The second part discusses the approach to assess the sustainability of the VDFs.

Sources of Data for the Analyses

Efficiency Analysis

Primary data are used for the efficiency analysis of VDFs. Data for the year 2010 were collected from records on VDF offices in all villages of urban and rural areas (Pakse and Bachieng district). Data Envelop Analysis (DEA), a nonparametric approach, is used to analyze the efficiency of the VDFs. The decision making unit (DMU) in this study is defined as the VDF. The population of VDFs in Pakse district is 39 and that in Bachieng district is 42. Table 3 shows the total population in this study.

Table 3 Number of VDFs in Pakse and Bachieng district, 2010

No	Area	VDF
1	Pakse district	42
2	Bachieng district	39
	Total	**81**

Source: Statistics Department (2011)

1. Pakse
2. Phonthong
3. Bachiangchareunsouk
4. Paksong
5. Xanasomboun
6. Champasak
7. Pathoumphon
8. Soukhouma
9. Mounlapamok
10. Khong

Figure 8 Map of Champaska Province, Lao PDR
Source: Statistics Department (2011)

Sustainability Analysis

Sustainability analysis requires a set of time series data. This study defines a period of 3 years (2007-2009) as the period of sustainability analysis. Due to their varied years of operation, this study selects only VDFs that meet the requirements of the analysis.

Data Analysis

This study contemplates two aspects of efficiency, financial and social. Three outputs (two outputs for financial and one output for social) and three inputs are adopted for the analysis (Table 4). The social efficiency is used to reflect the social objective of the VDF. The financial and social efficiencies may not always be coinciding. Social contribution (such as donation to infrastructure or social utilities

and health care improvement) to villages is recommended by government to promote self-ownership of the VDF of the villagers. At the same time, VDF could be self-sustained only with healthy and efficient overtime. Hence, VDF with simultaneous sustainable financial and social efficiency would be important VDFs in the Lao PDR.

Table 4 The indicators used to measure village development fund efficiency

Variable symbol	**Variable name**	**Definition**	**Unit**
Input TAF	Total amount of fund	Total amount of money of VDF	Kip
Input S	Number of staff	The number of persons working in VDF	persons
Input OC	Operating cost	Expenses related to operation, such as costs of personnel , transportation, office supplies	Kip
Output FR	Financial revenue	Revenue generated from gross loan portfolio plus other operating revenues	Kip
Output RM	Repayment money	Total repayment to the loan	Kip
Output CM	Contribution money	The money of fund given to develop village and community	Kip

The model used in the study is as follows:

$$\text{Max}\theta = \frac{\sum_{j}^{81} \lambda_j Y_{rj}}{\sum_{j}^{81} \lambda_j X_{ij}} \quad (17)$$

Subject to: input $\sum_{j=1}^{81} \lambda_j X_{ij} \leq X_{ij}$

Output $\sum_{j}^{81} \lambda_j Y_{rj} \geq Y_{rj}$

Where θ: efficiency value

x: input

y: output

i number of input i=1,2,3

r number of output r=1,2,3

j number of villages j=1,2,…,81

λ is weighted input and output in each village

The efficiency indicators are calculated for each village $\theta = 1$ refers to fully efficient. The lower values from 1 mean less efficient.

To measure efficiency in Pakse district and Bachieng district, year 2010, this study applied compare mean technique to compare the mean values of six different indicators in two districts to analyze the operation and management of VDF in both districts. In addition, questionnaire and in-depth interview were used. The management committees of all VDFS in Pakse and Bachieng were interviewed to obtain the information about their management and operation problems. The data envelop analysis technique with three inputs and three outputs selected above were utilized to determine the efficiency level of each VDF in Pakse and Bachieng districts.

To measure sustainability of VDF, the compare mean technique was used to analyze the operational and management of VDF from two districts, Pakse and

Bachieng, continued in three years time (2007-2009). Using DEA to analysis the data of VDFs in Pakse 20 villages (set up before 2007) and Bachieng 20 villages (set up before 2007) with consider tend of efficiency value from year 2007-2009.

CHAPTER IV

VILLAGE DEVELOPMENT FUND IN LAO PDR

Lao Economic Overview

Lao is a poor country with a population of 6.3 million people and contains ethnic groups living throughout the country from the north to the west (Foundation for Development Cooperation, 2010). The country shares borders with China, Myanmar, Thailand, Vietnam, and Cambodia. In 1986, the Lao government adopted a policy to ensure self-sufficiency in food supply and transformed the economy from a centrally planned to a market-oriented one (Latsavong and Biallas, 2007). Despite the increasing contribution of industry and services, agriculture has been the main contributor to the gross domestic product of the country accounting for about one-half of the total (Table 5).

Table 5 Share of GDP by sector in Lao PDR, 2002–2010 (%)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Agriculture	40.29	38.71	36.69	34.38	30.33	31.46	30.47	30.51	28.41
Industry	18.38	20.11	19.28	22.03	27.90	26.73	26.23	24.53	25.93
Services	35.70	35.52	38.03	37.26	35.29	35.23	36.52	38.73	39.32

Source: Statistics Department (2011)

Similar to other developing or least-developed countries, the urban sector in Lao PDR is relatively well developed in both economic and social aspects. The rural households, on the other hand, live in relatively poorly developed areas and rely on rain-fed agriculture and lack other economic opportunities or social support. Many areas are accessible only in the dry season. Hence, a larger proportion of people in rural areas live below the poverty line compared to those in urban areas.

The Lao government has emphasized development efforts to improve the living standards and healthcare, and to enhance the education opportunities of these poor people. The poverty rate has reduced from 33.5 percent in 2002 to 26 percent in 2010 (Table 6).

Table 6 People living in poverty in Lao from 1993 to 2010 (% of total population)

Year	1993	1998	2002	2005	2009	2010
	46.0	39.1	33.5	30.7	26.0	26.0

Source: Statistics Department (2011)

To address poverty, the Lao government has implemented the National Poverty Eradication Programmed aimed at helping the poorest groups by improving their basic needs such as health services, primary education, infrastructure, and agricultural products, with the target to improve from the country's least developed country status and meet the Millennium Development Goals by 2020 (Ministry of Planning and Investment, 2010). The government of Lao launched the VDF across the country in the early 1990s as a mechanism to help the urban and rural poor access loans and hence act to remediate their poverty.

Champasak province is the regional capital of Southern Lao PDR. Compared to other provinces of the South, Champasak province has succeeded in poverty reduction over the past decade. The percentage of poor people in the province has dropped gradually from 15 percent in 2004 to 5 percent in 2008 (Department of Planning and Investment, 2010). Even so, the poverty rate in Champasak province has remained high in some districts, particularly Munlapamok, Sukuma, and Paksong (Table 7).

Pakse was chosen to represent an advanced area where poverty has been completely eradicated. Bachieng district, on the other hand, is a rural area that still has a high poverty rate. It should be noted that Bachieng district was also among the

districts that the government of Lao selected to pioneer the benefits from the National Poverty Eradication Program.

Table 7 Poverty rate in Champasak province, 2010

District	Number of households	Number of poor households	Poverty rate %
Pakse	12,798	0	0
Sanasomboun	12,476	150	1.2
Phonthong	15,545	369	2.3
Bachieng	9,118	502	5.5
Paksong	12,195	3,112	25.51
Pathumphone	9,771	1.100	11.25
Champasak	9,980	450	4.5
Sukuma	8,545	2,757	32.26
Munlapamok	5,507	942	17.1
Khong	14,389	39	0.27

Source: Calculated from raw data of Office of Political and Rural Development

Lao Financial Sector

After Independence Day in 1975, the financial sector in Lao PDR was weak and existed only in urban areas. People living in rural areas had to rely on informal financial sector for agriculture or non-agriculture loans. During the 1980s, the banks, as a financial mechanism, were centrally planned, administrative and subsidized from central to local levels. During this period, the banks also had very limited resources and loans were restricted to support only state factories, enterprises, farms and cooperatives. Very limited funds were provided to private sector or individuals (Keomanisy, 2003).

Since early 1990s, the market-oriented policies of the Lao government have resulted in a substantial change to the financial sector of the country. The Central Bank (the Bank of Lao PDR or BOL) has gradually played an increasing role of macroeconomic policies to safeguard the foreign reserve of the Government, regulate the printing of currencies and transform the banks' branches in Lao and restructure the state owned banks. The BOL is also responsible for drafting the financial sector strategies to focus on macroeconomic stability and regulatory framework with provision of financial services from the state to market force and being monitored by the BOL (Keomanisy, 2003).

Formal Sector

The Bank of Lao PDR is in charge of the financial sector in Lao PDR and working as supervisory and regulatory of the public and private banks in the country. In 2010, there were four state owned commercial banks, compared to 11 branches of foreign banks and domestic private banks (Table 8). The private and foreign banks are concentrated mainly in non-agriculture and urban areas. They played limited roles in supporting the poor people. Development of formal financial sector in Lao PDR is still slow, particularly in supporting agricultural sector. This is mainly due to the relatively low business attractiveness of the sector. It is also partly due to the lack of effective collaterals of the farm households.

The only state-owned bank that is directly linked to rural households is the Agriculture Promotion Bank (APB). Its branches have been established in most districts to serves agricultural sector and farmers in rural areas. In 2007, the Lao government set up the Policy Bank to enhance financial access to the poor people living in 47 poorest districts in Lao PDR. The Policy Bank only provides loans to support agricultural production of specific farmers' groups (Latsavong and Biallas, 2007).

Table 8 Banks in Lao PDR, 2009

Category	Number of banks
State owned commercial bank	4
Joint venture bank	2
Foreign bank branch	11
Private bank	8

Source: Bank of the Lao PDR (2010)

Semi-formal Sector

The semi-formal financial sector is allowed to provide limited financial services, such as loans but not deposit or savings account. This semi-formal sector is mostly operated by NGOs (non-government organization) with specific objectives under different projects or programs. The funds are usually from international development cooperation. The operation is normally limited in certain areas with specific project periods. For instance, some semi-formal financial organizations were established in 2004 in three provinces of Lao PDR namely Vientiane, Luang Prabang, and Savannakhet and supported by the Asian Development Bank (ADB) and others such as French International Development Agency to support the commercial capacity-building of coffee growers in Bolaven plateau. UNDP also supported the government of Lao through the UN Development Assistance Framework (UNDAF) and the Government's National Socio-Economic Development Plan (NSEDP).

In addition to these semi-formal financial institutes, there were other support funds to different ministries or agencies in Lao PDR. In 1996 more than 20 international organizations provided financial support across 17 provinces and implemented through district levels with the Lao woman’s union, agriculture, forestry offices and other local government entities. Similarly, in 1997, more than 1,000 villages benefitted from supports of rice banks, livestock banks and revolving credit funds under 28 projects of NGOs and more than 500 villages benefitted from similar assistance by multilateral organizations (NERI and GIZ, 2011)

Informal Sector

This sector is the most important financial source of the poor urban and rural households. The operators range from money lenders to shop owners or traders. They provide all services as needed, especially loans or deposits. Nevertheless, loan service is probably the most important activity of this informal financial sector.

Poor and low income households are normally not served by formal financial institutions because of their high risks, high costs, and low profitability. These particular groups also lack collateral required by formal financial institutions. Hence, the poor and low income households have to rely on informal sources of microfinance.

In Lao PDR, VDF has been developed in the form of informal financial sector and is an important tool to assist the poor and low income households in the villages who lack access or capital for production and to run their business.

About 83% of rural households do not have access to any financial services or rely on friends, family, or moneylenders. Moneylender interest rates can reach 20% per month. The people living in rural areas are highly dispersed, and limited infrastructure adds to the cost of financial intermediation and inhibits information flows for lenders and borrowers (Coleman, 2003).

Village Development Fund

A village development fund is a small scale fund, which is set up by villagers, made up of members' properties and assets, which may either be in the form of cash or other kinds (rice, animals or other products). Members contribute to the fund based on their own capacity to afford a contribution, either on an individual, voluntary basis or through a collective agreement amongst several villagers to form a collective fund. In addition, this fund also aims at providing small scale financial services, such as

small scale banking (credit and saving). Members are entitled to borrow loans for production, consumption, education and health care.

The structures of VDFs in the villages of the Lao PDR are generally the same. Figure 9 shows the structure of VDFs in Champasak province. Similar to cooperatives concept, village development fund is governed by its members. The members elect the management committee and its advisory committee. The management committee is normally composed of 3-5 members responsible in five areas of work, as shown in Figure 9. The provincial authorities play the role of monitoring and evaluation at district and provincial level (Figure 9). Hence, management of village development fund is overseen by the members. This is quite important in terms of efficiency and sustainability of the fund. The members must realize their roles and sufficiently and effectively participate in the development of the fund. Knowledge and understanding on principles of the fund of the members are crucial.

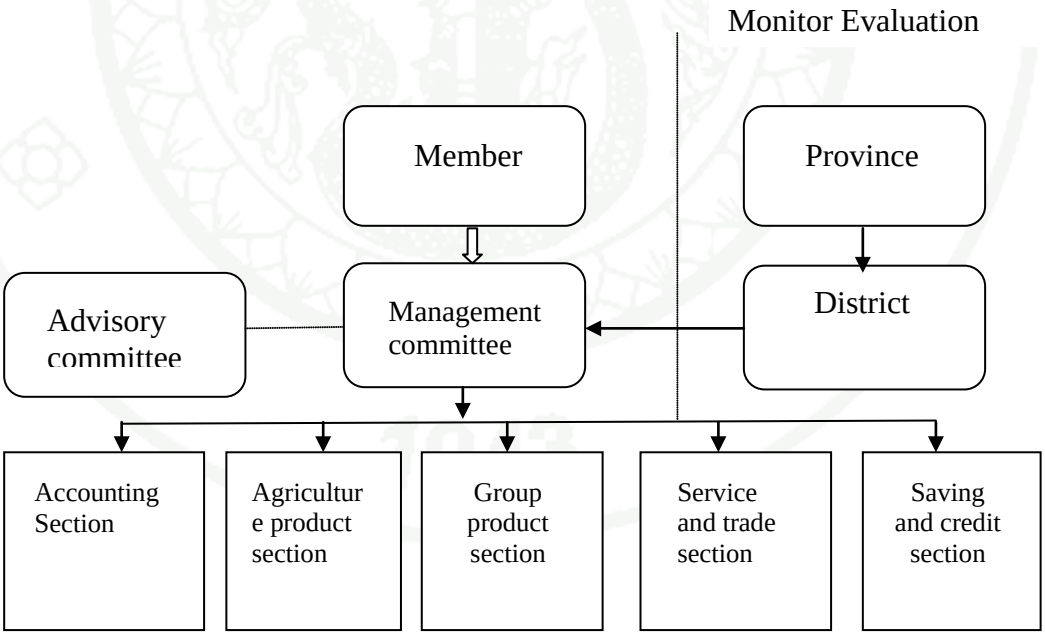

Figure 9 The Structure of Village Development Fund in Champasak Province, Lao PDR

Source: Office of Political and Rural Development (2000)

There are three sources of fund to village development fund – monthly deposit, registrations fee and income from interest (Figure 10). Of the three, the most important source of fund is the compulsory monthly deposit from the members. Note that in few villages, farmers are charged for water fees and the income is given to the village development fund.

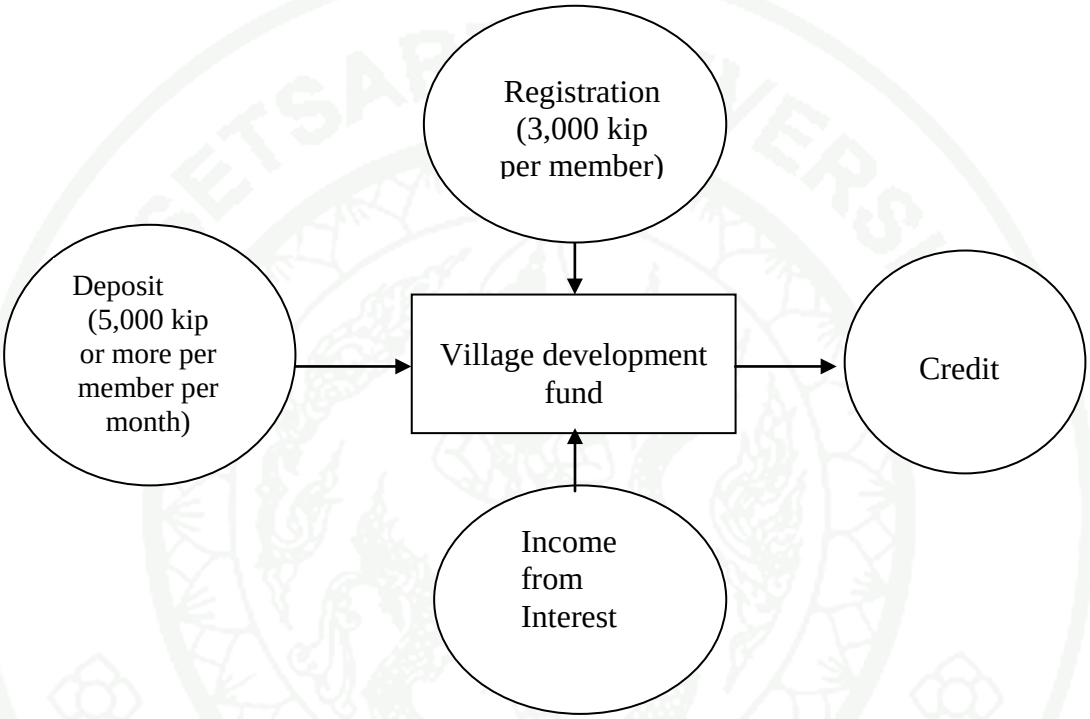

Figure 10 Flow of Village Development Fund in Champasak Province
Source: Office of Political and Rural Development (2000)

Rules and regulations of village development fund are guided by the financial authorities. They are as follows:

(i) People/villagers make their own choices/ plans and implement the village development fund independently; the local government authorities should provide consultation and advice on technical issues only;

(ii) The development fund is a fund to provide credit or mobilize savings for its members only. Members must also abide by the rules and regulations of the village

development fund and the amount borrowed must be repaid back into the village development fund with interest within agreed period, stated in the loan contract.

(iii) The village development fund members will receive dividends according to their shares and members who deposit saving into the village development fund will receive interest according to the village development fund rules and procedures (Darachanthra, 2003).

Village Development Fund in Champasak Province

Champasak province is located in the southern part of the Lao PDR and shares border with Thailand and Cambodia. It consists of 10 districts with a total population of 667,305 people in 2010. Agriculture is a dominant sector of the province with about 30% share of total provincial product. A notable amount of agricultural product is also exported to Thailand.

As people in a large part of Champasak province remains poor and subsistent, the Governor of Champasak, following the Decree of the Prime Minister of Lao PDR No. 09, regarding the development of villages and groups of villages in Lao PDR, has promoted the VDF across the province, among a variety of different sources of development fund. As shown in Table 9, in 2009, Villages with VDFs and NGOs' funding constituted the major sources of fund to the villages, while the funding from the government support and staff organization was relatively small. With the aggressive promotion of the local government, VDF became the most important source of fund to the local communities in the province with 372 establishments and more than 26.5 billion kip of fund in 2009 (Office of Political and Rural Development, 2010).

Table 9 The funds established by numbers and amount in different districts of Champasak Province, as of 2009

District	No of VDF (number)	Amount of VDF (mil.kip)	No of villages Receive fund from NGO (number)	Amount of fund from NGO (mil.kip)	Government (mil.kip)	Staff (mil.kip)
Pakse	42	9,334	12	260		225
Sanasomboun	32	1,395	36	1,678		43
Bachieng	39	984	67	2,358	807	
Paksong	26	477	58	2,368		
Pathoomphone	42	1,310	83	3,192		
Phonethong	71	7,930	44	574		
Champasak	30	440	29	451		2
Sukhuma	19	1,261	13	910	672	368
Moun	17	240	8	46		223
Khong	54	3,142	14	239		93
Total	**372**	**26,518**		**12,081**	**1,479**	**3,636**

Source: Office of Political and Rural Development (2010)

Table 9 shows the most updated sources of funds in Champasak province. As guided by the government policies, there were different types of funds initiated by public and non-public sectors. As shown in this table, VDF was the main microfinance institution at the village level, followed by other microfinance institution supported by non-government organizations (NGOs). In some villages, there are also specific government and staff microfinance organizations.

Among 10 districts, the government emphasized the Bachieng and Soukuma, the two poorest districts by providing initial funds of 1.23 billion kip for agricultural production as well as domestic consumption and infrastructure development. This support came as short and long-term loans with interest rates of 7% per year for 6-12 month loans and 8% per year for 1-3 year loans (Statistic Department, 2010).

Similar to the government supported microfinance, other microfinance supported by various non-government organizations were also for multi-purposes including agriculture and consumption. The main sources of funding include:

1. Agriculture Development Fund at Bolaven Plateau of Paksong district. This fund aimed at helping coffee and livestock farmers in the area. The main objectives of the fund are:

- Assisting farmers in marketing their products,

- Teaching farmers about new coffee production technologies and techniques,

- Generating income to poor households by providing loans for livestock rising.

2. Forestry fund aimed to poverty eradication and improve rural livelihood by providing financial support to to 79 villages.

3. ILO-ITIC fund aimed to help women and children. Forty-five villages were supported, the activities of this fund include :

- Occupational training for unemployed persons and assisting them in seeking employment,

- Reducing labor migration to other countries

4. Elderly fund aimed to help the retired government officials.

5. Staff fund initiated by staff of public offices aiming at each others for low-interest sources of fund.

As shown in Table 9, by 2009, 372 VDF were established in 639 villages of Champasak province with a total fund of about 26.52 billion kip. The trends of establishment over 2001-2009 are shown in Table 10. More than two-thirds of the VDF were established over the latter half of the period, with the diminishing trends in general. The rapid growth reflects the emphasis of the regional government in responding to the national government policy in recent years.

Table 10 Establishment of village development fund in Champasak province, Lao PDR, 2001-2009

No	District	Year					Total
		2001-2005	2006	2007	2008	2009	(fund)
1	Pakse	8	7	10	11	6	42
2	Sanasomboun	3	6	8	10	5	32
3	Bachieng	14	5	8	7	5	39
4	Paksong	3	4	7	7	5	26
5	Pathumphone	5	13	10	9	5	42
6	Phonethong	38	7	9	10	7	71
7	Champasak	1	5	8	9	7	30
8	Soukhouma	6	3	3	4	3	19
9	Moun	2	4	5	4	2	17
10	Khong	6	13	12	15	8	54
Total		**86**	**67**	**80**	**86**	**53**	**372**

Source: Office of Political and Rural Development (2010)

Following the principles of village development fund, the village leaders are responsible for consulting the village members and agreeing on rules and regulations of its own village fund. The government provided relevant training to the village leaders. The training generally lasts for one or two days for the preparation of the establishment of the fund. General guidelines for management and operation of the fund are provided. An annual meeting to assess the development and exchange experiences between village development fund management committees and the

provincial officials is also organized. With the self reliance policy, the village development funds are expected to be able to operate profitably and sustainability.

Probably one of the most important key players of village development fund in Lao PDR is the village development fund committee. The committee is composed of 3-10 members elected from the village development fund members.

The Management of the Fund

As the village development fund is solely managed by villagers whose financial management knowledge is very limited, the operation of village development fund is critically dependent on the capacity enhancement programs of the public sector at the initial stage and the participation of the stakeholders. This is especially true for financial management since knowledge on basic accounting and record keeping system must be well-understood. Types of training provided to the management committees are the important tools of the government to enhance the management operation capacity.

The experiences of village development fund in Champasak province suggest that the subjects generally cover the technical needs of the management. The issues are more on principles of the fund and ethical aspects and good governance as well as time allocated to the training, including exercises or practices. Development of curriculum on those aspects to enhance management capability should be considered.

Operation of the Fund

Operation of the fund is an important factor contributing to efficient fund management. The mobilization of fund, cost and return of deposit and loan and the turn-over period of fund are critical to the development.

Operation of the fund varies among villages. Basically, deposit and credit are opened in specific time of each month. Each time could last from one to three days depending on the size of the fund and either the beginning or the end of the month. Locations of offices of the village funds also vary among villages, some in the village headmen houses, others in the community centers, or temples.

As a general rule, the members are obliged to save monthly, at minimum of three consecutive months. The credit ceiling is subject to the amount saved with the fund. The loan periods and the interest rates are agreed by the members, within the ranges allowed by the government (between 2-5% per month). For example, the interest rate charged in Huayangkham village is 5% per month, compared to that of Nonsay village of 2% per month. The differences generally reflect the demand and supply of fund and partly reflect opportunity costs of investments in the villages. However, it is surprising to observe that loans for emergency cases are charged at lower rates than income generating loans. This reflects the effects of social tie within the rural communities in Lao PDR.

The interest earned by deposit to the fund depends on the profit of the operation of the fund. At the end of each year, 70% of the income will return to the members as interest earned from the deposit. Hence, the interest rate for deposit varies from year to year. Nevertheless, in general, the members expect the interest rate for deposit to the village development fund to be higher than that of commercial banks (at about 12% per year). According to the villagers, this village fund operation system enhances the household practices to monitor not only performance of the village development fund but also their own financial management, especially consumption and saving behaviors.

The loan periods also depend on the policies of different villages. Normally, loan period for business is shorter than that for agricultural production activities; this is reflected by shorter term of loan in villages in urban areas of Pakse district, compared to that of Bachieng district. For example, loan for purchasing of passenger tricycles or bamboo processing or pig farming in Pakse district is only for three to

four months while loans for agriculture or non-agriculture activities in Bachieng districts are between 4-6 months.

It is not only income generating activities that are supported by the village development funds, certain consumption needs, especially for education and health are also supported. While agriculture and business cover about three-quarters of the funds, education and health constitute the remaining one-quarter of them.

In summary, operation of the fund is generally similar among villages, although there are certain differences in interest rates charged and loan periods observed. Most loans are given to income generating activities, although some are provided for consumption needs. The deposit rate of interest is practically determined by performance of the village development fund. Hence, rates of interest for loans and repayment rates are important factors in this regards.

CHAPTER V

RESULT AND DISCUSSION

General Characteristic of Village Development Fund in Pakse and Bachieng District

Village development fund is important tools to help people living in the same village have access or capital to improve and expand their business and develop the village and community.

As of 2010, 429 villages in Champasak province have established village development fund with a total amount of fund of about 25 billion kip, or about 58 million kip/village (Table 11). Partly due to the rules and procedures, members saving with fund were larger than those receiving loans.

Table 11 Number of members and amount of savings and loans of the village development fund by district in Champasak province, 2010

No	Name of district	Village (number)	Members (persons)	Total deposit (million kip)	Members borrowing (persons)	Total loan (million kip)
1	Pakse	42	8,400	9,890.55	4,665	9,853.97
2	Sanasomboun	45	3,302	928.60	1,104	860.50
3	Phonethong	50	8,186	7,526.45	2,469	7,274.96
4	Bachieng	39	4,291	918.76	1,954	903.96
5	Paksong	52	2,612	334.923	2,326	331.00
6	Pathumphone	56	4,229	1,286.35	3,686	1,279.30
7	Champasak	24	777	382.34	249	380.00
8	Sukuma	34	1,196	138.53	709	135.40

Table 11 (Continued)

No	Name of district	Village (number)	Members (persons)	Total deposit (million kip)	Members borrowing (persons)	Total loan (million kip)
9	Munlapamok	25	1,449	481.73	282	460.25
10	Khong	62	7,260	3,248.56	1,461	3,109.63
	Total	**429**	**41,702**	**25,136.81**	**18,905**	**24,588.97**

Source: Office of Political and Rural Development (2011)

Comparing districts, it is notable that the size of fund in the capital district (Pakse district) and districts with border to neighboring countries (Phonethong and Khong district) are relatively large. This is due mainly to concentration of the economic activities, especially domestic and border trade in these areas. The funds in other districts are relatively small due to the relatively weak and limited economic activities which are mainly agriculture. Note also that these areas are also poor in terms of basic infrastructure and social services.

Development of village development fund between urban and rural areas varies. In urban area, village development fund has been set up in all villages. They are relatively large and strong due to active participation from high income group. This is the case of Pakse district of Champasak province. People living in the urban area are diversified and working in different occupations e.q. business, civil service, private sector ete. Even the village development fund in rural area in Pakse district is considered as a large fund with 8,400 members and about nearly 10 billion kip of loan size. The main use of the village development fund is loan for business with 5% per month of interest rate. On the other hand, loan for social welfare is only 1% per month. Village development fund in urban area has a high repayment rate.

In contrast, development of village development fund in rural area is relatively slow compared to those in urban area, as people in rural are mostly farmers and ethnic groups. They rely mainly on agriculture, livestock and forest products. The sizes of funds in rural areas are normally much smaller than those in urban areas. For example, in Bachieng district, one of the poorest districts in Lao PDR, most people are farmers with low income and limited investment capacities. The total village development fund of rural area in this district was only about 918 million kip with 4,291 members in year 2010. The loans provided were mainly for agricultural and livestock related activities, especially inputs with an interest rate of 3% per month.

Table 12 General characteristic of village development fund in Pakse and Bachieng district, 2010

No	Variable	Mean value in Pakse (v=42)	Mean value in Bachieng (u=39)	t-test
1	Total amount of fund	305,875,476.2	16,166,435.9	6.7*
2	Operating cost	15,940,583.33	685,641.02	4.3*
3	Number of staff	6.1	4.8	3.7*
4	Financial revenue	89,806,333.33	3,948,333.33	5.0*
5	Repayment money	226,889,452.40	16,175,641.03	6.8*
6	Contribution money	3,756,238.09	248,538.46	3.9*

Note: * is significance at 5% level

Table 12 shows the general characteristic of village development fund in Pakse and Bachieng districts in 2010. The results indicate that:

(1) The mean value of the total amount of fund in Pakse and Bachieng is 305 million kip and 16 million kip respectively. The t-test result shows that the total amount of fund in Pakse is significantly larger than in Bachieng at 5% level.

(2) Average operating cost of village development fund in Pakse and Bachieng is 15 million kip and 0.7 million kip, which is equivalent to 5% and 4% of the total amount of fund, respectively. The compared mean (t-test) result shows that the operating cost of village development fund in Pakse is significantly higher than in Bachieng at 5% level.

(3) The average number of staff used in Bachieng is about 5 persons per village development fund, while in Pakse it is about 6 persons per village development fund.

(4) For the financial revenue, village development fund in Pakse and Bachieng have about 89 and 4 million kip of revenue per village in 2010, respectively. The results point that the village development fund in urban area (Pakse) has the financial revenue about 5 times larger than the village development fund in rural area (Bachieng).

(5) The average repayment money of village development fund in Pakse and Bachieng is about 23 and 2 million kip, respectively. Although the repayment money in Pakse is greater in Bachieng, the repayment rate (repayment money / the total amount of fund) of Bachieng (10%) is greater than Pakse (7.4%).

(6) The mean value of contributed money in Pakse is nearly 4 million kip and in Bachieng is 0.24 million kip. The results show that the contribution money of village development fund in Pakse is significantly higher than in Bachieng at 5% level. However, it is found that the contribution rate to the social (contribution money / financial revenue) of village development fund in Bachieng (6.29%) is higher than in Pakse (4.18%).

The results above indicate that the village development fund in Pakse is larger and used more input than the village development fund in Bachieng and also yields better results in terms of financial revenue, repayment money and contribution money. However, it does not reveal the efficiency of the village development fund.

Efficiency Measurement

Efficiency Value

Using DEA approach, the efficiency values are obtained for different indicators, under variable return to scale assumption. The results in Table 13 show the average efficiency value of the total 81 village development funds (42 urban and 39 rural) is very close to 1. Under CRS assumption, the average efficiency for 2010 is 0.875 and increased slightly to 0.904 under the VRS.

The average efficiencies between urban and rural areas are different with village development fund in rural area being surprisingly more efficient (Table 13). It can be said that village development fund in Champasak province is generally efficient with most of the fund higher than 0.61. Despite its disadvantages in social and physical infrastructure and economic opportunities, village development fund in rural areas is more efficient than that in urban areas.

Table 13 The efficiency values of village development fund in Pakse and Bachieng districts, 2010

District	Efficiency value	CRS (constant return to scale)	VRS (variable return to scale)	SE (scale efficiency)
Pakse (42 villages)	1	17	17	32
	0.81-0.99	11	11	10
	0.61-0.80	7	8	0
	0.41-0.60	5	4	0
	0.21-0.40	2	2	0
	0.00-0.20	0	0	0
	Mean	0.750	0.824	0.988

Table 13 (Continued)

District	Efficiency value	CRS (constant return to scale)	VRS (variable return to scale)	SE (scale efficiency)
Bachieng (39 villages)	1	33	35	36
	0.81-0.99	2	3	0
	0.61-0.80	1	1	0
	0.41-0.60	0	0	0
	0.21-0.40	2	0	2
	0.00-0.20	1	0	1
	Mean	0.936	0.965	0.983
Mean		**0.875**	**0.904**	**0.969**

As shown in Table 13, compared to the mean of efficiency for 2010, slightly less than one-half of the village development funds in Pakse district were fully efficient, about one-third was less efficient and the remaining was considered not efficient. The same conclusion is obtained for both constant and variable returns to scales. On the other hand, most village funds in Bachieng district were fully efficient. Only one or two village funds were not efficient. If variable return to scale is used, it could be said that all village development fund in Bachieng district operated very well.

Factor Affecting Village Inefficiency

Factors affecting inefficiency of village development fund in Champasak province could be seen from the input and output perspectives. Table 14 shows input and output factors affecting the operation and management efficiency. For this particular analysis, variable return to scale and output oriented are used.

Table 14 Input and output factors affecting the operation and management efficiency, Pakse and Bachieng districts, 2010

Input type	**Inefficiency due to amount of fund too high**	**Inefficiency due to Number of staff too high**	**Inefficiency due to operating cost too high**
Pakse	3 villages	17 villages	9 villages
Bachieng	1 village	2 villages	1 village
Output type	Inefficiency due to revenue too low	Inefficiency due to repayment too low	Inefficiency due to contribution money too low
Pakse	16 villages	5 villages	17 villages
Bachieng	2 villages		1 villages

Note: Unless indicated, numbers in the cells refer to number of VDF establishment

Based on inputs contributing to the efficiency of village development fund, number of staff is the main factor causing inefficiency to village development fund in urban area. About 40% of the funds experienced inefficiency due to number of staff. Some village funds also encountered operating costs as a burden to efficiency. It is notable that very few cases experienced total amount of fund to be the input factor affecting inefficiency. For village development fund in rural area, in 2010, it can be said that all three input factors performed well to support efficiency of the fund, with very few exceptions (Table 14).

The major outputs contributing to the inefficiency of village development fund in Pakse district were money contributed to social welfare and financial revenue. The contribution money represents the importance of the village development fund to social economic development at village level and hence it is an important indicator to measure village development fund efficiency. However, the share of village development fund in some villages are too small or do not balance with the size of

fund or financial revenue and some villages spent less than average, compared to total profit for village development fund. This is the case of inefficiency for 17 villages in Pakse district.

Village development fund should not only contribute to the community but also needs to operate profitable financially. The numbers of inefficient village by financial revenue are 16 villages, or about 38% of total (42 villages). For the repayment money indicator, it is less problematic with about 12% of the total village fund that had the problem. Failure to repay for the loans is mostly due to agriculture or business failure, although some is due to misuse of loans.

In contrast, Bachieng district is less problematic than in Pakse in all aspects, as suggested by the overall efficiency in Table 13. Only three villages that have outputs as contribution money and financial revenue are causes of inefficiency. It is surprising to see that repayment for the loans is not the problem in Bachieng district, despite the fact that the areas are rural, rainfed and vulnerable to climate variability. This could be due to the social factors in such small villages in rural areas that positively assist to repayment effort and negatively deter to default.

According to the results from Table 13, the mean values of factors affecting the efficiency of village development fund for both efficiency and inefficiency villages are computed and compared. The results of Pakse and Bachieng districts are presented in Table 15 and 16, respectively.

Table 15 The values of input and output factors comparing between efficiency and inefficiency village in Pakse district, 2010

No	Variable	Mean value in village efficiency (v=17)	Mean value in village inefficiency (u=25)	t-test
1	Total amount of fund	420,527,882	227,911,840	2.1*
2	Operating cost	25,928,617	9,148,720	2.1
3	Number of staff	5.5	6.5	-1.8
4	Financial revenue	148,626,764	49,808,440	2.7*
5	Repayment money	344,437,823	146,956,560	3.3*
6	Contribution money	6,730,411	1,733,800	2.6*

Note: * is significance at 5% level

Table 15 shows that the mean values of the input and output factors comparing efficiency and inefficiency village in Pakse district. The t-statistic for the two-sample mean is also presented. For the output factors (financial revenue, repayment money and contribution money), it is found that the mean values of efficiency village are significantly greater than inefficiency village at 5% level.

For the input factors (total amount of fund, operating cost and number of staff), the results indicate that the mean values of efficiency village are also significantly greater than inefficiency village at 5% level, except for the number of staff. The results also show that total amount of fund and operating cost of efficiency village are about 2 times higher than inefficiency village, while financial revenue, repayment money and contribution money of efficiency village are about 3 times larger than inefficiency village.

Table 16 The values of input and output factors comparing between efficiency and inefficiency village in Bachieng district, 2010

No	Variable	Mean value in village efficiency (v=36)	Mean value in village inefficiency (u=3)	t-test
1	Total amount of fund	16,986,388	6,327,000	2.0*
2	Operating cost	718,611	290,000	2.0*
3	Number of staff	4.8	5.0	-0.1
4	Financial revenue	4,135,416	1,670,000	1.8*
5	Repayment money	17,129,694	4,727,000	2.6*
6	Contribution money	258,694	126,666	0.9

Note: * is significance at 5% level

Table 16 shows that in Bachieng district, total amount of fund, operating cost, financial revenue and repayment money of efficiency village are significantly greater than inefficiency village at 5% level. For the other factors, the mean values of efficiency and inefficiency village are not significantly different from zero at 5% level. However, it should be noted that there are only 3 inefficiency villages in Bachieng, which could imply that the operation efficiency of village development fund in Bachieng district is relatively better than in Pakse district.

Table 17 The value of output and input needed to increase and decrease, respectively, in 28 villages (25 villages in Pakse and 3 villages in Bachieng)

No of villages	Repayment	Contribute	Financial revenue	Total amount of fund	Number of staff	Operating cost
			Pakse district			
1	0	6,681,721	0	0	0	0
3	35,434,239	0	7,150,487	0	1	2,667,827
4	0	273,744	0	0	0	3,647,943
8	0	10,266,758	0	24,473,195	3	0
10	0	5,207,625	86,233,120	0	0	0
11	0	0	24,254,382	0	2	0
12	0	542,937	9,669,635	0	3	0
13	0	2,522,269	37,525,306	0	1	317,788
14	0	737,651	0	0	3	1,736,023
15	0	1,270,771	22,666,239	0	4	0
17	13,255,043	0	0	20,897,315	3	0
21	0	5,563,721	0	0	2	0
22	0 47,805,377	0	0	0	0	0 1,032,116
23	0	449,881	5,450,171	0	0	0
25	0	0	875,923	0	0	0
26	13,692,396	0	0	0	2	0
27	0	1,823,840	18,191,294	0	0	1,999,329
30	0	436,416	0	0	0	356,703
33	0	0	34,762,600	0	8	2,295,050
34	0	212,107	3,099,903	0	0	0
37	0	8,864,089	0	0	0	0
38	0	428,885	8,481,726	0	4	1,640,786

39	0	0	5,056,339	0	0	0

Table 17 (Continued)

No of villages	Repayment	Contribute	Financial revenue	Total amount of fund	Number of staff	Operating cost
Pakse district						
41	210,661,102	2,588,046	0	0	5	0
42	0	256,990	4,309,233	62,323,407	0	0
Bachieng district						
63	0	48,456	286,668	0	2	89,561
65	0	0	0	31,000	0	0
67	0	0	1,262,030	0	0	0

For the inefficiency villages, to improve the efficiency of their village development fund, the values of output and input needed to increase and decrease, respectively, are presented in Table 17. The results in Table 17 show that some villages need to increase their level of output, and some villages need to decrease their level of input used, while some villages need to do both to enhance their operational efficiency. It is also found that on the average, the inefficiency village needed to increase their financial revenue, repayment money and contribution money by 45%, 41%, and 53%, respectively, to meet the efficiency target level (Table 18).

Table 18 Magnitude of output factors needed to increase to enhance operational efficiency of village development fund in Champasak province, 2010

Output	Number of villages	Money needed to increase* (kip/fund)	Target value to be efficient (kip/fund)	Proportion of money needed to target value (%)
Financial revenue	18	15,530,260	34,682,984	44.7
Repayment money	5	64,169,631	156,329,087	41.0
Contribution money	18	2,106,544	3,959,260	53.2

* Calculated from the inefficiency villages.

In short, the operational efficiency of village development fund in Champasak province is considered as good, especially in variable return to scale (0.904). The scale efficiency 0.969 means there is no problem with scale efficiency of village development fund in Champasak province. Village development fund in rural area of the province is more efficient than those in urban area. This is because the number of full efficiency village development fund is about 84% in rural area, while it is about 40% in the urban area.

Furthermore, the DEA analysis could also identify the factors that needed to improve to enhance operating efficiency of the fund. As shown in Table 17, to improve operational efficiency of the village development fund, especially in urban area of Champasak province, about 45% and 53% of financial revenue and contribution to social welfare money, respectively, have to be increased. Similarly, the repayment money would also need to increase by about 41% to reach the efficiency target.

Sustainability Measurement

General Information of Village Development Fund in Pakse and Bachieng, 2007-2009

The general information of village development fund in Pakse and Bachieng districts during 2007-2009 are presented in Table 19. The results show that the size of village development fund in Pakse and Bachieng are significantly different for all 6 factors. The results indicate that on the average, village development fund in Pakse is larger than village development fund in Bachieng, and the size of village development fund in both districts has grown from year to year.

In Pakse, total amount of fund increased about 55.2% and 66.75% in 2008 and 2009, respectively, when comparing with the previous year, while in Bachieng, total amount of fund increased about 88.51% and 87.65%, respectively. Although it is found that the total amount of fund in Pakse is larger than in Bachieng, the size of the fund in Bachieng grows faster than in Pakse.

Table 19 Comparing village development fund in Pakse and Bachieng district, 2007-2009

Year		2007			2008			2009		
No	Variable	Mean value in Pakse (v=20)	Mean value in Bachieng (u=20)	t-test	Mean value in Pakse (v=20)	Mean value in Bachieng (u=20)	t-test	Mean value in Pakse (v=20)	Mean value in Bachieng (u=20)	t-test
1	Total amount of fund	117,683,550	14,701,550	3.2*	212,980,575	16,609,550	5.3*	319,045,350	18,948,700	5.0*
2	Operating cost	5,945,700	637,750	2.9*	13,572,900	713,000	3.8*	16,987,500	769,000	3.2*
3	Number of staff	6.2	4.7	3.1*	6.2	4.8	3.0*	6.3	4.7	3.5*
4	Financial revenue	43,553,962	3,482,350	3.2*	78,929,724	4,389,650	4.7*	113,000,975	5,064,850	4.7*
5	Repayment money	137,703,750	14,821,900	3.3*	197,834,000	16,328,050	4.7*	267,889,825	18,069,750	5.5*
6	Contribution money	1,299,775	132,800	2.9*	2,721,050	289,750	4.3*	4,639,500	273,300	4.1*

Note: * is significance at 5% level

For the financial revenue, a similar result with the total amount of fund was found. Even if, on the average, village development fund in Pakse had higher financial revenue than in Bachieng, the growth rate of financial revenue in Pakse is smaller than in Bachieng.

Although it was found that the contribution money of village development fund in Bachieng had slight decreased in 2009, the contribution money to the financial revenue ratio of village development fund in Bachieng was greater than in Pakse for all 3 years. This implies that small village development fund has a higher contribution to the society than large village development fund.

Analysis by Data Envelop Analysis (DEA)

To analyze the efficiency of village development fund during 2007 to 2009, 20 villages in Pakse district and another 20 villages in Bachieng distrist which had operated during this period, are taken as the samples, and the DEA technique is utilized to analyze the operational efficiency of the VDFs from year to year to investigate their improvement.

The results in Table 20 show that the average efficiency values of village development fund in 2007 to 2009 are 0.813, 0.999, and 0.972, respectively. In 2008, the efficiency value increased to relatively high when comparing with the efficiency value in 2007, which was the beginning year of most of village development funds in Champasak. A considerable improvement in 2008 was due to the accumulated experience of the management committee, a better understanding about the role of village development fund, some training related to financial and fund management provided by public sector and so on. Although in 2009 the efficiency value slightly decreased from 2008, it was still considered as high.

Table 20 The general efficiency value year 2007-2009

Efficiency Value	2007			2008			2009		
	CRS	**VRS**	**SE**	**CRS**	**VRS**	**SE**	**CRS**	**VRS**	**SE**
1	9	14	23	36	36	38	35	35	37
0.81-0.99	3	3	12	3	3	2	2	2	3
0.61-0.80	16	12	4	1	1	0	1	1	0
0.41-0.60	12	11	1	0	0	0	1	1	0
0.21-0.40	0	0	0	0	0	0	1	1	0
0.00-0.20	0	0	0	0	0	0	0	0	0
Mean	0.724	0.769	0.948	0.985	0.985	1.000	0.958	0.959	0.999
Mean		**0.813**			**0.999**			**0.972**	

Table 21 presents the efficiency values of village development fund in Pakse and Bachieng districts during 2007 to 2009 separately. The results show that in 2007 the average efficiency value of village development fund in Pakse (0.835) was slightly higher than in Bachieng (0.790). However, in 2008 and 2009, the average efficiency values of village development fund in Bachieng became fully efficient (1.00) in both years and higher than in Pakse (0.978 and 0.929, respectively). This implies that the village development fund in rural area (Bachieng) has more efficient and has a higher sustainability than in urban area (Pakse).

Table 21 The efficiency value of Pakse and Bachieng district, 2007-2009

District	Efficiency Value	2007			2008			2009		
		CRS	VRS	SE	CRS	VRS	SE	CRS	VRS	SE
Pakse	1	7	7	12	16	16	18	15	15	17
	0.81-0.99	1	2	8	3	3	2	2	2	3
	0.61-0.80	6	5	0	1	1	0	1	1	0
	0.41-0.60	6	6	0	0	0	0	1	1	0
	0.21-0.40	0	0	0	0	0	0	1	1	0
	0.00-0.20	0	0	0	0	0	0	0	0	0
	Mean	0.759	0.778	0.968	0.969	0.969	0.999	0.894	0.894	0.998
	Mean		0.835			0.978			0.928	
Bachieng	1	2	7	11	20	20	20	20	20	20
	0.81-0.99	2	1	5	0	0	0	0	0	0
	0.61-0.80	10	7	3	0	0	0	0	0	0
	0.41-0.60	6	5	1	0	0	0	0	0	0
	0.21-0.40	0	0	0	0	0	0	0	0	0
	0.00-0.20	0	0	0	0	0	0	0	0	0
	Mean	**0.685**	**0.757**	**0.928**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
	Mean		**0.790**			**1.000**			**1.000**	

According to Table 21, it is found that in 2007 the numbers of fully efficient village development fund in Pakse and Bachieng were very similar. However, in 2008 and 2009, all the village development funds in Bachieng became fully efficient, while in Pakse, there were about 16 to 18 fully efficient village development funds.

Tables 22 Comparison of the efficiency and inefficiency villages in Pakse district, 2007-2009

Year		2007			2008			2009		
No	**Variable**	**Mean value efficiency (v=7)**	**Mean value inefficiency (u=13)**	**t-test**	**Mean value efficiency (v=17)**	**Mean value inefficiency (u=3)**	**t-test**	**Mean value efficiency (v=15)**	**Mean value inefficiency (u=5)**	**t-test**
1	Total amount of fund	173,610,571	87,569,000	1.0	226,536,176	136,165,500	1.7	379,006,067	139,163,200	2.5*
2	Operating cost	11,296,357	3,064,576	1.8	14,290,588	9,506,000	0.9	20,540,533	6,328,400	1.9
3	Number of staff	5.8	6.3	-0.6	6.4	5	3.6*	6.2	6.4	-0.2
4	Financial revenue	81,696,214	23,015,827	1.9	86,315,529	37,076,833	2.0*	138,698,833	35,907,400	3.1*
5	Repayment money	225,771,000	90,282,923	1.6	212,253,941	116,121,000	1.7	323,525,333	100,983,300	3.0*
6	Contribution money	2,757,834	514,666	2.5*	3,053,471	837,333	2.4*	5,804,867	1,143,400	3.4*

Note: *is significance at 5% level

The mean values of input and output factors for both efficiency and inefficiency villages in Pakse during 2007 to 2009 are presented in Table 22. Generally, the results show that the efficiency village has higher mean values of both input and output factors than the inefficiency village. The t-statistic for the two-sample mean indicates that contribution money pays a crucial role on the efficiency of village development fund. This is because the contribution money of efficiency village is significantly larger than inefficiency village for all 3 years, while other factors are significantly different only in some years.

Table 23 Comparison of the efficiency and inefficiency villages in Bachieng district, 2007

No	Variable	Mean value in village efficiency (v=7)	Mean value in village inefficiency (u=13)	t-test
1	Total amount of fund	8,211,142	18,196,384	-1.1
2	Operating cost	302,142	818,461	-1.5
3	Number of staff	3.5	5.3	-3.6*
4	Financial revenue	2,038,285	4,259,923	-1.0
5	Repayment money	8,085,000	18,449,461	-1.1
6	Contribution money	72,000	165,538	-1.5

Note: * is significance at 5% level

Table 23 presents the mean values of input and output factors for both efficiency and inefficiency villages in Bacheing in 2007. The result shows that the mean difference between efficiency and inefficiency villages is not statistically significant for all the factors, except the number of staff. Therefore, to improve the level of efficiency for village development fund in Bachieng, the number of staff should be decreased.

The values shown in Table 24 are the values of output and input factors needed to increase and decrease, respectively, for improving the efficiency level of inefficiency village development fund in Pakse in 2007. The results indicate that in Pakse, the crucial factors affecting efficiency value are contribution money, number of staff and financial revenue. In contrast, repayment and operating cost are not the major problem to the efficiency of village development fund as there are only 2 villages that need to adjust these two factors.

For Bachieng, the values of output and input factors needed to increase and decrease in 2007 are given in Table 25.The key factors affecting the efficiency level of village development fund in Bachieng district are quite similar to Pakse district. They are financial revenue, contribution money, and number of staff. In addition, it is found that operating cost is not an issue in Bachieng, where most of the village development funds are small funds. This is because voluntary workers are used in many activities of the fund.

Table 24 The name of village needed to increase and decrease indicators value in Pakse, 2007

No	Name of village	Repayment money	Contributed money	Financial revenue	Total amount of fund	Number of staff	Operating cost
1	Dongkalong	0	6,391	0	0	0	0
3	Nonsavang	0	613,131	0	0	2	0
4	Chatsan	0	24,628	1,309,624	0	0	0
5	Keosamphan	0	0	4,077,471	0	1	0
6	Houypun	0	132,150	0	0	0	1,801,080
8	Phonkung	0	269,649	0	0	2	120,301
10	Phonsavanh	0	117,964	560,914	0	0	0
12	Kokdua	0	0	806,323	0	4	0
13	Nahek	0	685,500	23,081,476	0	0	0
14	Phatana	0	142,773	4,942,603	0	3	0
15	Thahai	0	0	0	0	2	0
17	Donkho	68,203,564	367,854	0	0	2	0
18	Lakmuong	7,203,390	63,174	0	0	0	0

Table 25 The name of village needed to increase and decrease indicators value in Bachieng, 2007

No	Name of village	Repayment money	Contribution money	Financial revenue	Total amount of fund	Number of staff	Operating cost
2	Thongoudom	2,252,707	0	1,632,822	0	3	0
3	Khanlai	0	417,846	1,562,521	0	1	0
4	Koungsi	0	0	2,053,442	0	0	0
5	Kengkia	0	161,188	7,171,925	0	0	0
7	Phouthong	677,336	0	0	0	1	0
8	Phonsay	0	41,226	1,110,701	0	1	0
9	Thongthing	0	92,477	881,844	0	1	0
10	Oudomsuk	0	190,877	4,905,878	0	1	0
11	Lak 21	0	103,145	8,860,497	0	4	0
12	Lak 19	13,523,410	116,116	0	0	0	0
15	Merng	0	0	182,240	0	1	0
16	Lomsaktai	0	0	1,404,188	0	1	0
17	Kengyao	0	75,466	2,688,049	0	0	0

Since in 2008-2009 the inefficiency village development fund in Bachieng could not be found, only the values of output and input factors needed to increase and decrease for Pakse are presented. Table 26 shows that in 2008 there were only 3 inefficiency village development funds in Pakse. To enhance their efficiency level, all three villages should increase their contribution money and there were 2 villages that should decrease their operating cost, while only 1 village should increase its financial revenue. In 2009, 5 villages in Pakse were found to be inefficiency villages. The results in Table 27 confirm that contribution money and operating cost are vital obstructive factors to the efficiency of the village development fund, as it can be seen that there were 3 out of 5 villages that should adjust for these two factors.

Table 26 The name of village needed to increase and decrease indicators value in Pakse, 2008

No	Name of village	Repayment money	Contributed money	Financial revenue	Total amount of fund	Number of staff	Operating cost
7	Phonsikhai	0	2,471,768	0	0	0	1,632,494
10	Phonsavanh	0	1,417,773	8,915,971	0	0	7,951,384
13	Nahek	0	337,665	0	0	0	0

Table 27 The name of village needed to increase and decrease indicators value in Pakse, 2009

No	Name of village	Repayment money	Contributed money	Financial revenue	Total amount of fund	Number of staff	Operating cost
1	Dongkalong	0	0	0	0	0	1,222,552
11	Hae	0	0	342,492	0	1	133,493
12	Kokdua	0	62,431	5,720,073	218,705	3	0
13	Nahek	0	380,309	0	0	0	0
17	Donkho	10,277,443	534,787	0	0	4	5,710,213

CHAPTER VI

CONCLUSSION AND RECOMMENDATION

Conclusion

Lao is a poor country with a population of 6.3 million people and contains ethnic groups living throughout the country from the north to the west. In 1986, the Lao government adopted a policy to ensure self-sufficiency in food supply and transformed the economy from a centrally planned to a market-oriented one.

The urban sector in Lao PDR is relatively well developed in both economic and social aspects. The rural households, on the other hand, live in relatively poorly developed areas and rely on rain-fed agriculture and lack other economic opportunities or social support.

The Lao government has emphasized development efforts to improve the living standards and healthcare, and to enhance the education opportunities of these poor people.

The government of Lao launched the VDF across the country in the early 1990s as a mechanism to help the urban and rural poor access loans and hence act to remediate their poverty.

Village development fund is an important financial source for Lao people, especially in rural area, with the Lao government policy for support of financial source to poor and low income households in Laos to have access to produce and run their business, consumption and healthcare. Village development fund was set up form year 1997 and was set up in all of the country.

Champasak province has the large village development fund in the southern part of Laos and from the set up until now, village development fund is almost set up in each village and some villages have become the saving credit union under rules and regulations from The Bank of Lao (BOL).

The development of village development fund in Champasak province is different in each village and depends on the condition and regulation in each village.

In the case of Pakse, it is the capital of Champasak province and people living in this district are government staff, business and private sector, so the total amount of fund, number of members and benefit return are higher than other district.

Bachieng district is the poorest district with the small fund and majority of people living in this area are farmers and less percentage is government staff and business man, so the total amount of fund, number of members, loan size are smaller than in Pakse.

From the difference of characteristic in two areas, the objective of this study aims to compare operational efficiency and sustainability of village development fund in urban (Pakse) and rural (Bachieng) in Champasak province, Lao PDR.

This study covers all VDFs (81 establishments) established in Pakse and Bachieng districts of Champasak province, Lao PDR. Data are obtained from interviewing representatives of the management committees as well as from the business management records of the 81 establishments. The information collected is used to assess the operation and management especially on the structure, management rules, and operation and performance aspects.

The data record from the management committee from year 2007 to 2009 in Pakse 20 villages (set up before 2007) and in Bachieng 20 villages (set up before 2007) were used to assess the sustainability of VDF in Pakse and Bachieng district.

The results from interviewing the management committee of VDFs showed that with a good educational background of the management committee, the potential capacity to improve operational and management skill is high. The public sector also regularly provided technical supports to the village development fund.

However, management problems were mostly induced by personal relationships or social cohesion within the villages. When members ignored the rules, management was reluctant to enforce them.

Using DEA approach, the efficiency values were obtained for different indicators. Under variable return to scale assumption, the result shows that the village development fund in Champasak province is generally efficient with most of the fund score higher than 0.61, which considered as good, especially in variable return to scale which had the efficiency score of 0.904. For the scale efficiency, the average score of 0.969 means there was no problem with scale efficiency of village development fund in Champasak province.

The mean of efficiency score in Pakse district, less than one-half of the village funds were fully efficient, about one-third were less efficient and the remaining was considered not efficient.

On the other hand, most of the village development funds in Bachieng district were fully efficient. Only one or two village funds were not efficient. And if variable return to scale is used, it could be said that all village development fund in Bachieng district operated very well.

The results from this study point that village development fund in rural area of the province is more efficient than those in urban area. This is because the number of full efficiency village development fund is about 84% in rural area, while it is about 40% in the urban area.

According to DEA results, it was found that the main input factors contributing to inefficiency were number of staff and operating costs, while output factors contributing to inefficiency were the contribution money and financial revenue.

To measure sustainability of VDF in Pakse and Bachieng, DEA was used to estimate the efficiency scores of the VDF for three consecutive years 2007-2009 and later on the scores were compared. The results showed that the average efficiency value of village development fund in Pakse (0.835) was slightly higher than in Bachieng (0.790) in the year 2007. However, in 2008 and 2009, the average efficiency values of village development fund in Bachieng became fully efficient (1) in both years and higher than in Pakse (0.978 and 0.929, respectively). This implies that the village development fund in rural area (Bachieng) is more efficient and has a higher degree of sustainability than in urban area (Pakse).

Recommendation

The research results suggest that the majority of VDF in Champsak province is efficient. However, to improve the operational and management efficiency of VDF, there is need to improve skill in operation and reducing operating costs and number of staff, especially VDF in Pakse district which needs to reduce more than in Bachieng district. In addition, the output factors needed to increase are financial revenue and contribution money support to village or community to develop their village.

VDF was set up by government policy. Therefore, it needs provincial authority support for technical training, such as fund management, accounting and so on, and for improving rules and regulations in management of VDF. Furthermore, to increase the trustworthiness of VDF, there is need to enhance responsibilities and transparency among members, committee and advisors.

With the limitation on time and data support from the management committee, the results on this research were based only on two districts (Pakse and Bachieng) in Champasak province, Lao PDR. As a result, the findings from this study might not be able to generalize for the whole country. Therefore, it would be a great idea to increase the numbers of district and province, or comparing the efficiency of the VDF at the province level in the future study.

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APPENDICES

Appendix A

The regulation of village development fund in Champasak province, Lao PDR

Lao People's Democratic Republic

Peace Independence Democracy Unity Prosperity

****

Champasak province

Office of political and rural development

No. / ……

Pakse, Date …….

Regulation

For Village Development Fund

Based on the Notice of the Prime Minister on Microfinance Supervision No. 05/PM, dated

PART I

DIFINITION, POSITION

Article 1: Definition

- "Voluntary Deposit" means the deposit of a sum of money repayable on demand or as agreed with the village development fund.
- "Compulsory Deposit" means a sum of money that a borrower is obligated to deposit with a Microfinance Institution as a condition for receiving a loan or as collateral for a loan either as a percentage of the loan or as a nominal amount. The sum may be withdrawn by the borrower immediately upon repayment of the loan.
- "Kip" means the lawful currency of the Lao PDR.

- “Accounting Documents” means different types of general ledgers, bookkeeping, cash books and other accounting records and documents which are recorded manually or electronically used by management committee.
- "Non-Performing Loan" means a loan for which:
- (a) Either principal and/or interest in whole or in part are due and unpaid for more than thirty (30) days.
- (b) Either principal and/or accrued interest from 30 days has been added to an existing loan, new loan or restructured loan.

Article 2: Position of village development fund will be set up (name of village, group of village, district, and province).

Article 3: The meaning and level important of village development fund

Village development fund set up among member voluntary saving at the village level aims to help together and follow the Lao government policy to promote product and activity traditional in village and community.

Article 4: Requirements for member

- Residence in the village not less than two years
- 18 years old up
- Lao citizen
- Voluntary saving
- No have debt
- Actively in agriculture product or business
- Owner the land use, machine and equipment
- Follow the rule and regulation of fund
- Writing application form by them self
- Pay the fee for registration

Article 5: Rights and responsibilities of member

- Rights of the member
  - To participate to and cast their vote at the management committee.
  - To receive documents at least five (5) working days prior to the management committee
  - To be informed about operations of the fund
  - To raise questions and submit opinions in writing on the fund management committee.
  - To receive dividends in proportion with their shares.
  - To pay for subscribed shares in accordance with the specified timeframe.
  - Not to withdraw shares but only to transfer, sell and hand over such shares to other persons.
  - To be liable for the fund debts within the scope not exceeding the outstanding unpaid value of subscribed shares.
  - To appoint a proxy in writing.
  - Other rights and responsibilities in accordance with the law and the bye-laws of the fund.

- **Responsibilities of member**

- Follow the rule and regulation of the fund
- Participations the announce meeting
- Deposit each month
- Repayment money and pay the interest to the management committee on time
- To hear the board of directors' report on the fund operations and financial performance.
- To hear about the loss and proposals on the distribution of dividend.
- To hear the report of the auditor.
- To approve and adopt the annual operational report of the previous year.
- To approve and adopt the annual financial statements.
- To approve the distribution of dividends.
- To elect or remove members of the board of directors.

Article 6: Member withdraw

- Write the application from for withdraw and agreement with the committee
- Misused the money borrow from fund
- Repayment money to the fund
- And if the member withdraws want to return to the member of fund, the management committee consider again after one year.

PART II
RIGHT AND RESPONSIBILITY OF MANAGEMENT COMMITTEE

Article 7: Right and responsibility of management committee

- To hear the board of directors' report on the fund operations and financial performance.
- To hear about the loss and proposals on the distribution of dividend.
- To hear the report of the auditor.
- To approve and adopt the annual operational report of the previous year.
- To approve and adopt the annual financial statements.
- To approve the distribution of dividends.
- To elect or remove members of the board of directors.
- To appoint the external auditor and approve the auditing fees
- To authorise the board of directors to perform a specific tasks on behalf of the management committee.
- Other rights and responsibilities in accordance with the law and the bye rules of the fund.

Article 8: Structure of the management committee

- The management committee may consist of five (5) to seven (7) members including the chairman.

- Members are elected or removed by the chairman.
- 7 committee member responsibility in five sector
- The chairman general responsible of fund
- The vice chairman 1 responsible in agriculture sector
- The vice chairman 2 responsible in agriculture sector
- The management committee 1 responsible in business sector
- The management committee 2 responsible in handicraft sector
- The management committee 3 responsible in saving and credit sector
- The management committee 4 responsible in training and inspector sector
- The management committee 5 responsible in secretary

Article 9: Right and responsibility of the chairman

The chairman shall be responsible before the rule and regulation and have the following rights and responsibilities are below:

- Draft rule and regulation of fund with good condition and culture in the village
- To implement the resolutions of the member
- To report the activities of the operation and management to the member
- To be responsible before the law for any losses caused to the fund through the negligence of member
- To propose the distribution of profits to various reserves and dividends to the member for consideration;
- To appoint the committee member
- To appoint and fill any vacancy for a board member
- To appoint the Audit Committee;
- To appoint, dismiss or remove management committee
- To decide the objectives and business strategies of the fund and to approve business plans
- To fulfill other rights and responsibilities as defined in the bye-rule and regulation of the fund.

Article 10: Loan Agreement

At a minimum a loan agreement shall specify:

- The name and last name of the borrower.
- Amount of loan.
- Purpose and drawdown period of the loan.
- Maturity date and repayment schedule of interest and principal.
- The loan interest rate
- The total amount of fees to be paid
- The total amount of interest to be paid over the course of the loan.
- Penalties (in case a borrower is unable to fulfill a contract obligation).
- Security or collateral, if any.
- Procedures for settlement of disputes.
- 2 The loan agreement shall bear the names and signatures of the borrower and the lender.

Article 11: Write-Off

- Any loan classified as non-performing and overdue more than 180 days shall be written off from the balance sheet of the fund no later than the quarter following the quarter in which it was reported as a loss. The fund shall continue following up on collection of any loans which are written off.
- A fund shall record all loans written-off and all recoveries or payments received against these loans after write-off and shall write-back such recoveries as income.

Article 12: Meetings of the chairman

- The chairman shall have at least one meeting each month and shall have extraordinary meetings at the request of any member of the management committee and advisory.
- The schedule and agenda of meetings of the chair and management committee and advisory shall be notified in writing to management committee and advisory at least seven (7) days in advance of each ordinary meeting and at

least twenty four (24) hours in advance of each extraordinary meeting by the chairman.

- A meeting of the chairman may be held only in the presence of at least two-thirds of its total members. Where the quorum is not present at the first convocation of the meeting shall be reconvened by the chairman of the management committee and advisory within the next ten (10) working days. Resolutions of the meetings of the chairman are effective only when adopted by a majority of votes from members present at the meeting. In the case of tied votes, the chairman shall have the casting vote. Each meeting of the management committee and advisory shall be recorded in a minute book. The chairman of the fund shall be responsible for the accuracy and reliability of the minutes of meetings of the management committee and advisory. The minutes of meetings of the management committee and advisory shall be signed by all participants to the meeting.

Article 13: Right and responsibility of advisory

- ❖ The advisory shall be appointed or dismissed by the chairman from among its members. The advisory shall be comprised of at least three members of whom one member of the advisory shall have accounting and/or financial experience with a thorough understanding of standards and regulations on audit, accounting and finance.
- ❖ The advisory shall have the following rights and responsibilities:
- To audit expenses and operations of the fund
- To investigate and examine all documents it deems necessary in performing his functions
- To make recommendations for internal controls and the policies, procedures and systems for implementation
- To review and verify the accuracy of the daily, monthly, quarterly and annually financial accounts
- To prepare reports on the examination of the accounting and other operations of the year to the chairman for consideration and approval;

- To immediately prepare and submit reports to the party of chef village on finding any violations of rules and regulations.

Article 14: Right and responsibility of secretary

- Collected data of member saving and credit of fund
- Collected application form of the member
- Meeting record
- Promote fund about service and other activity
- Examined activity of member in loan use

PART III
REVENUE, EXPENDITURE, PROFIT AND LOSS

Article 15: Revenues and Expenditure

Revenues of a fund include:

- Revenues from interest.
- Revenues from service fees and charges.
- Other revenues.

Expenditures of a fund include:

- Interest.
- Compensate to management committee and advisory
- Provisions.
- Development village
- Other expenditures.

Article 16: Accounting and Reporting

- A fund shall utilize an accounting system, a chart of accounts and an accounting manual provided by the management of fund in provincial level.
- The funds shall summaries and submit the following reports monthly, quarterly and annually to the district or provincial level no later than the 15th of each month in accordance with form provided by the management of fund in provincial level.

- Information on assets and liabilities (Balance Sheets)
- Information on profit and loss (Income Statement)
- Information on loans and deposits (Loan and Deposit Report).
- Information on Non- Performing Loans and provisions (Loan Classification Report).
- Other reports as determined by the villager from time to time.

❖ Within ninety (90) working days of the end of the accounting year the fund shall submit to the provincial level.

- A report on the business operations of the previous accounting year.
- the externally audited financial statements for the previous accounting year
- A budget of upcoming accounting year.
- Staff statistics.
- An organization chart.
- The number and location of branches.
- Other reports as determined by the villager from time to time.

❖ The fund shall promptly report to the provincial level any circumstances or events that may materially or adversely affect the sustainability of its fund.

Article 17: Keeping Accounting Documents

The fund shall keep accounting documents in a secure place for at least ten (10) years.

Article 18: Repayment of Non-Performing Loans Classified as a Loss

For any received repayment from loans which are classified as non-performing and a loss, due to overdue principal or both overdue principal and unpaid interest, the fund shall first apply such repayment to any outstanding interest and any balance shall be deducted unpaid principal.

Article 18: Profit

The gross profit of a fund is the difference between the revenues and expenditures. The dividend may be distributed subject to chairman and management committee and advisory approval and only if capital adequacy ratios, provisions and reserve requirements have been met as outlined in this regulation.

Article 19: Regulatory Reserve

- The fund shall establish a regulatory reserve to offset the potential losses from business operations.
- The regulatory reserve shall be accumulated by the transfer to the reserve of at least three (3) percent of the annual.

Article 20: Loss

In the event of losses, a fund shall apply the regulatory reserve funds as decided by the chairman, if the reserve funds are insufficient to offset the losses, increase the share capital as recommended by the chairman and agreed by the shareholders.

PART IV
MANAGEMENT IN LOAN USE

Article 21: Management

- The total amount of fund saving from the member living in the village need to record in notebook or book keeper.
- Not allow keep the cash in fund, not less than……..kip, other cash have to saving in the bank nearby the village or allow member loan.
- The first of each month, chairman have to report the number of member, total amount of fund and total loan to the member.

Article 21: Loan use

The total amount of fund comes from the member and allow the member borrow money from fund to run their business, agriculture product, handicraft, service…through the application form to the chairman and management committee. Time borrow not more than 12 month.

Article 22: Interest rate

- Interest rate in agriculture activity…….%/month
- Interest rate in handicraft activity…….%/month
- Interest rate in business……%/month
- Interest rate for social welfare and emergency loan such as illness the management committees have to discussion with the condition and policy of village.

Article 22: Saving interest rate

The interest rate for saving depend on the operation of fund within one year and not higher than the interest rate in the public bank.

Article 23: Divided income to shareholder

The income from interest rate will divided to the shareholder and calculate in the end of year and divided to the member after 12 months (one year).

- Shareholder 70%
- Management committee and advisory 15%
- Administration 5%
- Reserve 5%
- Development village 5%

PART V

FINAL PROVISION

Article 24: The fund was registration from the public sector will get the seal for using in the fund.

Article 25: The chairman can application for change the rules and regulation of fund base on agreement with villager and sent to the district authority.

Article 26: Effectiveness

This regulation concerning the Establishment and Operations of fund in Champasak province and shall become effective as from the date of its signature.

The Governor of Champasak province Lao PDR

Appendix B

The picture interview from management committee of village development fund in Champasak province, Lao PDR

BIOGRAPHICAL DATA

NAME:	Bounthom Sisoumang
DATE OF BIRTH:	July 23, 1973
PLACE OF BIRTH:	Xayaboury province, Lao PDR
GRADUATION:	2013
CURRENT WORK:	Champasak University, Lao PDR