

**DETERMINANTS OF SUSTAINABLE  
MICROFINANCE PERFORMANCE THROUGH  
SOCIAL CAPITAL IMPROVEMENT TOWARDS  
RURAL DEVELOPMENT IN MYANMAR**

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**NOVEMBER 2016**

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MICROFINANCE PERFORMANCE THROUGH  
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RURAL DEVELOPMENT IN MYANMAR**

**A thesis presented by  
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**to**

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The thesis attached here to, entitled ‘**Determinants of Sustainable Microfinance Performance through Social Capital Improvement towards Rural Development in Myanmar**’ was prepared and submitted by Wah Wah Htun under the direction of the chairperson of the candidate supervisory committee and has been approved by all members of that committee and board of examiners as a partial fulfillment of requirements for the degree of **Doctor of Philosophy (Agricultural Economics)**.

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## **DECLARATION OF ORIGINALITY**

This thesis represents the original work of the author, except where otherwise stated; it has not been submitted previously for a degree or any other University.

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**DEDICATED TO BUDDHA, DHAMMA, SANGHA,  
PARENTS AND TEACHERS**

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## ABSTRACT

This study aims to explain how microfinance performances contribute the social capital improvement towards rural development in Myanmar. Eighty clients of Myanma Agricultural Development Bank (MADB) and 80 clients of Private Agency Collaborating Together (PACT) were selected by purposive sampling in three villages, Ayartaw Township. The same number of samples and sampling procedure were used in five villages, Bogale Township. Socioeconomic and social capital improvements of the clients were observed by using descriptive analysis. Regression function was used to examine the determining factors of loan allocation and repayment ability. Sustainability of microfinance institutions; MADB and PACT were calculated according to the formulas of operational self-sufficiency (OSS) and break-even analysis.

Concerning with socioeconomic status, there were both wet and dry land farming systems in Ayartaw. MADB households in Ayartaw had higher farm income as the high rice price and diversified cropping system. However, PACT client households in both places earned more or less same income level. Relating to social capital improvement of the clients, females participated in decision making due to practicing group lending and collection methods of MADB and PACT.

Regarding to loan allocation function, the major determinants were education level, experience years of the clients in joining MADB/PACT, female participation in decision making, right time of getting loan, household size and facing the shock. Regression of repayment ability by the clients showed that farm income, non-farm income, remittance money, female participation in the organizations, monitoring performance by the staffs significantly influenced upon repayment ability. The results of OSS were over 100% and those of break-even analysis were positive value showing that both institutions; MADB and PACT had sustainability in finance condition in rural credit market.

It is suggested that MADB loan amount could be increased corresponding with both wet and dry land crop production cost of the clients. Loans would be also disbursed at the time of harvest as there was high cost in harvesting and post harvest processes. Profit maximization technologies, quality seed of high yielding varieties, qualified extension services and incentive input output price ratio of rice production practices would be improved prominently. In long run, providing market assistance by linking rice farmers with potential buyers and conducting market research would be promoted. Furthermore, market and trade agreements between formal or informal groups of rice farmers (cooperatives or market clusters) and exporters with international buyers are essential. Group lending and collection method of MADB and PACT would be continued for females to participate in decision making and for the empowerment of the households leading to social capital improvement in rural society. OSS and break-even value of both MADB & PACT should be kept in good condition to improve rural credit market that is very important for rural development in Myanmar.

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## LIST OF ABBREVIATIONS

ACCU	Association of Asian Confederation of Credit Union
AFD	Agriculture Finance Division
ASA	Association for Social Advancement
ASC	Albanian Savings and Credit
ASEAN	Association of Southeast Asian Nations
BAAC	Bank for Agriculture and Agricultural Cooperatives
BASIX	Bhartiy Samruddhi Investments and Consulting Services Ltd. (BASICS Ltd) in India.
CB	Credit Beneficiaries
CBM	Central Bank of Myanmar
CSO	Central Statistical Organization
ECLOF	Environmental Conservation and Livelihood Outreach Foundation
FSS	Financial Self-Sufficiency
GRET	Groupe de Recherche et d' Exchanges Technologique
ha	Hectare
HIV	Human Immunodeficiency Virus
KBL	Khushhali Bank Limited
LIFT	Livelihoods and Food Security Trust Fund
MAB	Myanma Agricultural Bank
MADB	Myanma Agricultural Development Bank
MARDB	Myanma Agricultural and Rural Development Bank
MFI	Microfinance Institution
MMK	Myanmar Kyat
NACRDB	Nigerian Agricultural Cooperative and Rural Development Bank
NCB	Non-Credit Beneficiaries
NGO	Non Government Organization
No.	Number
NPL	Non-Performing Loan
OSS	Operational Self-Sufficiency

PACT	Private Agency Collaborating Together
SD	Standard Deviation
Sig.	Significant Level
SME	Small and Medium Enterprise
SHG	Self Help Group
IT	Information Technology
UBPB	Union of Burma People's Bank
UCI	Universal Childhood Immunization
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
USA	United States of America
USD	United States Dollar
WSC	Women Support Cooperative Limited
YAU	Yezin Agricultural University
YMCA	Young Men's Christian Association

**LIST OF CONVERSION FACTORS**

One hectare	=	2.47 acres
One basket of paddy	=	20.9 kg
One basket of pigeon pea	=	32.7 kg
One basket green gram	=	32.7 kg
One basket of groundnut	=	11.4 kg
One basket of sesame	=	24.5 kg

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background of the Study**

The economy of Republic of Union of Myanmar is well blessed and well positioned to grow as it is situating between the two huge regional markets of China and India. It also has easy access to buoyant markets in the Association of Southeast Asian Nations (ASEAN). There are over 50.28 millions of people live in Myanmar. Among them, 35.40 millions (70%) of people live in rural area (CSO, 2016). Economic development of Myanmar depends largely on rural development of the country. Moreover, there are both agricultural and non-agricultural activities in rural area. When rural development is considered, it is needed to think of both agricultural and non-agricultural activities in Myanmar. On the other hand, loan or credit has been identified as a major input in the development of agricultural and non-agricultural business for a long time. Sustainable microfinance performance can provide the clients required loan or credit for their business effectively and it can improve socioeconomic and social capital of the clients.

Sustainable microfinance performance is that “innovation of a microfinance institution that not only keeps the financial sustainability of the institution but also induces the outreach to the clients and welfare impact of the clients”, improved from (Meyer, 2002). Sustainable microfinance performance is “the balance” or “win-win situation” between the microfinance institution and the clients. Therefore, accessing sustainable microfinance performance is an essential thing leading to rural development in Myanmar.

#### **1.2 Concepts of Socioeconomic Status and Social Capital**

Improvement in socioeconomic status and social capital are main factors in considering rural development. Microfinance performance generally provides loan for the business of the clients to some extent that lead to improve economic condition of them. After that, socioeconomic status and social capital of the clients can be improved leading to rural development. Some concepts of socioeconomic status and social capital are discussed as follows.

Socioeconomic status is an economic and sociological combined total measure of a person's work experience and of an individual's or a family's economic and social position in relation to others, based on income, education, and occupation (<http://nces.ed.gov/programs/coe/glossary/s.asp>, 2008).

Social capital refers to the norms and networks that enable collective action. It encompasses institutions, relationships, and customs that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social capital is critical for societies to prosper economically and for development to be sustainable. Social capital, when enhanced in a positive manner, can improve project effectiveness and sustainability by building the community's capacity to work together to address their common needs, fostering greater inclusion and cohesion, and increasing transparency and accountability (<http://go.worldbank.org>, 2011).

Social capital is productive, but it can be reduced if strategies are not implemented to enhance it. The more communities and groups work together, the more social capital is produced; and the less people work together, the greater the depletion of community stocks of social capital (Halpern, 2005).

Social capital concerns the norms and values people hold; that result in, and are the result of, collective and socially negotiated ties and relationships. It is generally related to other forms of capital such as human (skills and qualifications), economic (wealth), culture (modes of thinking) and symbolic (prestige and personal qualities) (Padmaja. R, Bantilan. MCS, Parthasarathy. D and Gandhi. BVJ, 2006).

There are different forms of social capital such as bonding social capital which connects individual to groups and networks, bridging social capital which ties relationships between different socioeconomic and ethnic class and linking social capital which ties poor people with the other members of positions such as organization, development offices, etc. Social capital also acts as a catalyst for encouraging innovations due to increased trust, improving quality of life, taking local competitive advantages in global competition, mitigating economic development conflicts due to availability of common platform to discuss issues and development of social economies (Bourdieu, 1986).

### 1.3 Microfinance Institutions in Myanmar

Microfinance institutions in Myanmar are categorized into three sectors. They are formal, semi-formal and informal sectors (Kaino, 2006). The formal financial institutions are legally authorized institutions such as Myanma Agricultural Development Bank (MADB), savings and credit cooperatives, public licensed pawn shops and private licensed pawnshops. The semi-formal sector is composed of local non-government organizations microfinance institutions (NGO-MFIs) including NGOs supported by UNDP under Human Development Initiative program. The informal sector is composed of illegal activities such as the use of illegal pawnshops (the pawnshops that are running without licenses), borrowing from money lenders who charge usurious rates, the use of advanced payment contracts for agricultural crops between traders and farmers, and lending and borrowing without interest among relatives (Kaino, 2006).

However, Myanmar government passed the new “Microfinance Law” in November 2011, leading the way for expansion of microfinance services by allowing local and foreign investors to establish wholly privately owned MFIs in Myanmar. This law also provided a legal foot hold for the existing microfinance providers that had been operating illegally before the law’s passage. Moreover, according to this law, NGOs could be assumed to become formal sectors as they got the licenses in doing microfinance performances.

Generally, microfinance institutions help micro or small enterprises to meet production needs or enable poor households to meet primary needs. These microfinance services include income generating loans, agricultural loans, consumer loans, healthcare loans, education loans, client welfare schemes, and voluntary savings.

Among the government institutions, the main microfinance provider is Myanma Agricultural Development Bank (MADB) in terms of both the number of clients and the amount of loan disbursed. Among the NGOs, the main microfinance provider as well as the international non-governmental organization is Livelihoods and Food Security Trust Fund (LIFT). According to the end of 2014, LIFT had provided institutional support to 15 microfinance organizations as shown in Table 1.1. Among these 15 organizations, Private Agency Collaborating Together (PACT) had achieved in terms of number of clients and outstanding loans (LIFT, 2015).



Therefore, in real situations, microfinance in Myanmar is characterized by two major types: Myanmar Agricultural Development Bank (MADB) among the government microfinance institutions and Private Agency Collaborating Together (PACT) among the non-government microfinance institutions. The general information of MADB and PACT are shown in Table 1.2.

History of Myanmar Agricultural Development Bank was simple and interesting. Before independence of Myanmar in 1947, there was a great conference named “Burma Rehabilitation Conference” in Yangon led by General Aung San who is father of Myanmar independence. In this conference, he discussed and adopted to establish a “State Agricultural Bank” to solve the financial problems of farmers. According to his adoption, Mr. J.S Marnival who was an expert in planning proposed a plan to constitute initial committee of State Agricultural Bank in 1948. After that, an initial committee of “State Agricultural Bank” was constituted in 1948 and plans to establish “State Agricultural Bank” was written in 1952. Then, “State Agricultural Bank” was established on 1<sup>st</sup> June, 1953. Then, it became “Agriculture Finance Division” (AFD) under the “Union of Burma People’s Bank” (UBPB) from 1970 to 1975. It was reconstituted as “Myanmar Agricultural Bank” (MAB) in 1976. With the enactment of the “Central Bank of Myanmar Law” in 1990, the MAB was reorganized as “Myanmar Agricultural and Rural Development Bank” (MARDB). It was transferred under the “Ministry of Agriculture and Irrigation” on 14<sup>th</sup> August, 1996 and it was renamed as “Myanmar Agricultural Development Bank” (MADB) in 1997.

The main aim of MADB is to effectively support the development of agriculture, livestock and rural socio-economic enterprises in country by providing banking services. MADB disburses loans to farmers who are household heads of the families. The main requirement to get MADB loan is just to show land ownership certificate describing owning acres of the farmer. Based on the farmers’ land holding acres, loans are disbursed up to 10 acres. Then, another requirement is group liability: 5-10 members of farmers in a group until 2015 and only 3 members in a group starting from 2016. MADB take group liability as collateral collective responsibility. Mostly, household heads are male and so MADB clients are male. The maximum loan amount of MADB was 100,000 MMK/acre for rice and 20,000 MMK/acre for dry land crops such as groundnut, sesame, chick pea, green gram, black gram, and a

farmer can borrow for a maximum of 10 acres started from 2013 until 2015. In 2016, the loan amount for rice increases up to 150,000 MMK/acre but it is not changing in dry land crops.

Another one is “Private Agency Collaborating Together” (PACT) among the semi-formal microfinance institutions. PACT was founded in 1971 and established itself as a non-profit corporation registered in Washington D.C. PACT’s program reach has greatly expanded and has offices in more than 20 countries in Asia and Africa. PACT microfinance project in Myanmar, originally named the “Sustainable Livelihoods through Microfinance for the Poor”, was introduced in 1997. PACT’s longstanding microfinance operations in Myanmar were turned over in 2012 to the new government-licensed entity “Pact Global Microfinance Fund” (PGMF) as a result of new national microfinance regulations that PACT played a leading role in developing. PGMF began working in 2013 with nine Myanmar-based NGOs to develop their own microfinance operations in particularly remote areas of the country. The main aim of PACT is to promote income-generating activities among the poor, especially, small and medium enterprises (SME), stockbreeding and non-agricultural business as well as agricultural business. The requirement to get PACT loan is just to apply the business plan and the clients can borrow loan within maximum limit of loan size. Another requirement is group liability: 10 members of clients in a group. Mostly, PACT disburses loans to females who are non-farmers. Loan disbursement rate of MADB is shown in Table 1.3 and that of PACT is shown in Table 1.4.

On the other hand, both these MFIs use the group lending methods and have achieved good performances during the last decade. Therefore, in this study, two major microfinance institutions: MADB which represents the government microfinance sector and PACT which represents the fastest-growing and outstanding non-government microfinance sector in Myanmar are focused.

**Table 1.1 List of LIFT microfinance partners and achievements by end of 2014**

No	LIFT microfinance partners	Total No. of clients	Outstanding loans (USD)	Total assets (USD)
1	PACT <sup>a</sup>	630,398	117,674,440	165,228,021
2	Proximity finance	36,929	6,891,834	7,435,469
3	GRET <sup>b</sup>	47,079	8,591,834	9,510,556
4	BASIX <sup>c</sup>	628	61,190	171,648
5	ASA <sup>d</sup>	6,295	367,933	605,220
6	ACCU <sup>e</sup>	5,160	69,934	91,796
7	Ar Yone Oo	5,254	536,218	619,125
8	Ratana Matta	5,360	548,877	586,974
9	ECLOF <sup>f</sup>	6,783	593,713	632,509
10	Border Areas Development Association	5,525	538,897	606,939
11	Social Vision Service	4,135	310,101	347,970
12	Myanmar Heart Development Organization	4,709	364,239	432,003
13	Wun Lark	1,525	60,777	80,000
14	The SUN Institute	1,220	21,532	48,469
15	YMCA <sup>g</sup>	2,715	300,544	335,764
Total		728,075	130,201,798	179,552,342

Note: <sup>a</sup> = Private Agency Collaborating Together

<sup>b</sup> = Groupe de Recherche et d' Exchanges Technologique

<sup>c</sup> = BASIX is the brand name of a group of companies which are Bhartiya Samruddhi Investments and Consulting Services Ltd. (BASICS Ltd) in India.

<sup>d</sup> = Association for Social Advancement

<sup>e</sup> = Association of Asian Confederation of Credit Unions

<sup>f</sup> = Environmental Conservation and Livelihood Outreach Foundation

<sup>g</sup> = Young Men's Christian Association

Source: LIFT, 2015

**Table 1.2 General information on MADB and PACT (2014-2015)**

<b>Particulars</b>	<b>MADB</b>	<b>PACT</b>
Loan amount (million MMK)	1,248,000.15	120,000.00
No of clients (million)	2.80	0.90
Charged interest rate per annum (%)	5.00	15.00 <sup>a</sup>
Charged interest rate per month (%)	0.41 <sup>b</sup>	1.20 <sup>c</sup>
Charged interest rate biweekly (%)		0.60

Note: <sup>a</sup> = calculation of Aye Aye Tun, 2015

<sup>b</sup> = own calculation based on per annum interest rate of MADB

<sup>c</sup> = calculation of Aye Aye Tun, 2015

Source: MADB (Head Office), 2015 and PACT, 2015

**Table 1.3 Loan disbursement rate of MADB**

<b>Type of loan and crops</b>	<b>Loan rate (MMK/acre)</b>		
	<b>2014-2015</b>	<b>2015-2016</b>	<b>2016-2017</b>
<b>Monsoon loan <sup>a</sup></b>			
Rice	100,000	100,000	150,000
Groundnut	20,000	20,000	20,000
Sesame	20,000	20,000	20,000
Peas and beans (pigeon pea, green gram, black gram, chick pea, etc)	20,000	20,000	20,000
Long-staple cotton	20,000	20,000	20,000
Corn	20,000	20,000	20,000
<b>Winter loan <sup>b</sup></b>			
Rice	100,000	100,000	150,000
Groundnut	20,000	20,000	20,000
Sesame	20,000	20,000	20,000
Peas and beans (pigeon pea, green gram, black gram, chick pea, etc)	20,000	20,000	20,000
Long-staple cotton	20,000	20,000	20,000
Corn	20,000	20,000	20,000
Mustard	20,000	20,000	20,000

Note: <sup>a</sup> = Disbursement period of monsoon loan is May-Sept. Collection period of monsoon loan is Dec-March (following year).

<sup>b</sup> = Disbursement period of winter loan is Oct-Jan (following year). Collection period of winter loan is Feb-June.

Source: MADB (Head Office), 2016

**Table 1.4 Loan disbursement rate of PACT**

Type of loan	Loan rate (MMK)		
	2014-2015	2015-2016	2016-2017
SME loan <sup>a</sup>	300,000-500,000	300,000-1,000,000	300,000-1,000,000
Regular loan <sup>b</sup>	100,000-200,000	100,000-200,000	100,000-200,000
Vulnerable loan <sup>c</sup>	50,000	50,000	50,000
Consumer loan <sup>d</sup>	50,000-100,000	50,000-100,000	50,000-100,000
Agriculture loan <sup>e</sup>	100,000-500,000	100,000-500,000	100,000-500,000
Education loan <sup>f</sup>	10,000-50,000	10,000-50,000	10,000-50,000
Health loan <sup>g</sup>	50,000	50,000	50,000

Note: <sup>a</sup> = Collect loan as 25 equal installments.

<sup>b</sup> = Collect loan as 25 equal installments.

<sup>c</sup> = Collect loan as 25 equal installments.

<sup>d</sup> = Collect loan as 12 equal installments.

<sup>e</sup> = Collect interest as 10 equal installments and collect principal at the last installment.

<sup>f</sup> = Collect interest as 12 equal installments. Collect half of principal at 6<sup>th</sup> installment and the remaining half of principal at the last installment.

<sup>g</sup> = Collect interest as 12 equal installments. Collect half of principal at 6<sup>th</sup> installment and the remaining half of principal at the last installment.

Source: PACT (Head Office), 2016

#### **1.4 Rationale of the Study**

“Microfinance” is often defined as financial services for poor and low-income clients offered by different types of service providers or microfinance institutions. These institutions commonly deliver very small loans to borrowers, taking little or no collateral using methods of group lending and liability, pre-loan savings requirements, gradually increasing loan sizes, and an implicit guarantee of ready access to future loans if present loans are repaid fully and promptly. Therefore, microfinance process simply includes disbursing loans, repayment of loans in time and disbursing loans and so on. More broadly, microfinance refers to a movement that envisions a world in which low-income households are provided not only to improve socioeconomic status but also to build social capital development.

Microfinance institutions are essential on the creation of improvement in socioeconomic status and social capital. Both MADB and PACT have increase in client numbers and loan disbursement amount every year. It can be guessed that loans from MADB and PACT help the clients to improve their socioeconomic status to some extent and the clients were interested in group lending method of these two institutions. Therefore, in this research, how the role of microfinance performances on the creation of socioeconomic and social capital improvement had been observed.

Agricultural development alone should not be considered in economic development of Myanmar. This is because economic development of Myanmar depends on both agricultural and non-agricultural sectors. In general, as microfinance is an essential component of the business development, percentage of loan allocation in the business becomes an important variable. Therefore, regarding with the loan performance of two major microfinance institutions; MADB which disburse loans to farmers specifically and PACT which disburse loans to mostly non-farmers are needed to be observed. When the loans can be allocated in the business effectively, it can be considered as productive loans which lead to economic development. However, in real situations, most of the clients divert their productive loans to fulfill their subsistence living requirements, social purposes, education expenses, health problems, to repay for debt, etc. Therefore, the factors influencing the loan allocation in the business: education level of the client, experience years of the client in joining the respective microfinance institutions, gross farm income ratio of household, household size, female participation in decision making of loan allocation, household

facing the shock and the right time of getting loan for specific business were studied as determinants to examine the required loan is effective or not in the business.

Then, repayment ability of the loans in time by the clients could be an important factor which can run future loan disbursement activities efficiently and continuously. This means that percentage of repayment ability can affect future disbursement loan amounts of the institutions for the clients. Besides, repayment rate is a key determinant of whether a MFI is successful or not. One of the major problems for MFIs has been bad debts. Bad debts certainly influence the ongoing viability of a credit scheme. Sometimes, some clients cannot repay their loans in time. For example, production of crops has many risk and uncertainties. In most cases, such hazards in farming cannot be avoided. Flood, storm, fire, fall in price and pest and diseases can destroy the growing crops and the clients are helpless. This simply means economic loss for them. It is extremely difficult for farmers to repay their loans under these circumstances. Farm income resulting from the yield of crops and the price of crops could be considered as a main determinant of repayment ability. Furthermore, getting non-farm income that affecting annual gross income could be as one of the determinants of the repayment ability. However, non-farm income could be considered as a main determinant of repayment ability for non-farmers and getting farm income could be one of the determinants of repayment ability. Family labor ratio, working household member ratio, number of jobs in the household were important variables which can influence repayment ability of the clients. Another real situation was that some of the clients repaid loans regularly if at least one of their family members worked in other local places where they got better income and in abroad such as Malaysia, Thailand and Singapore as they remitted money to their family. Therefore, money remittance to the clients from other places could be considered as an important variable. Furthermore, female participation in decision making, female participation in the organizations in the village and monitoring performances of MFIs' staffs at the collection time could be important variables in the consideration of repayment ability.

Financial sustainability of a microfinance institution is an important item that creates economic and social development of the clients for the long term leading to rural development. Therefore, sustainability of these two major microfinance institutions was studied by using break-even analysis and operational self-sufficiency

(OSS) formulas. Therefore, break-even analysis and operational self-sufficiency (OSS) of these two institutions; MADB and PACT for five years (2010-2015) were calculated to determine how these two institutions were running as sustainable way in rural credit market leading to rural development in Myanmar.

### **1.5 Objectives of the Study**

The general objective of this study aims to investigate the extent in which MADB and PACT help the clients in developing their business towards rural development in Myanmar.

Specific objectives of the study are:

1. to observe the impact of microfinance performances of MADB and PACT on socioeconomic and social capital improvement in rural society
2. to examine the determinants of MADB and PACT loan allocation in crop production and other business for the livelihoods of the selected rural households
3. to expose the influencing factors of repayment ability on MADB loan and PACT loan by the respondent households
4. to investigate the sustainability in financial condition of microfinance institutions (MADB and PACT) leading to rural development in Myanmar



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Socioeconomic and Social Capital Improvement through Microfinance

As a welfare impact, the role of socioeconomic status and social capital could also be considered. More than any other development programs, the link between microfinance and socioeconomic status and social capital is stronger and clear.

Socioeconomic status is an individual's or group's position within a hierarchical social structure. Socioeconomic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence. Sociologists often use socioeconomic status as a means of predicting behavior (<http://www.dictionary.com/socioeconomic-status>, 2015). Socioeconomic status is often measured as a combination of education, income and occupation.

Dzisi, S. and Obeng, F. (2013) studied “Microfinance and the Socio-economic Wellbeing of Women Entrepreneurs in Ghana”. This study examined the impact of microfinance providing valuable insights into micro financing in a developing economy context on the socio-economic lives of women entrepreneurs in Ghana. A multi-method approach was used in data collection and analysis. Eight hundred and forty women beneficiaries of microfinance loans were surveyed; and personal interviews conducted with 35 of them. The overall results suggested that the women’s enterprises have expanded while their socioeconomic status such as income and occupation has improved prominently after taking the loans.

Adhikari, D.B. and Shrestha, J. (2013) studied “Economic Impact of Microfinance in Nepal: A Case Study of the Manamaiju Village Development Committee, Kathmandu”. In this study, microfinance program of Women Support Cooperative Limited (WSC) in Manamaiju Village Development Committee of Kathmandu district was focused. Concerning with WSC microfinance program, 186 clients in which 121 loanees and 65 non-loanees were interviewed. Loanees were credit-taking group and non-loanees were not credit-taking group; rather they were depositors/savers. Sources of non-loanees were independent of WSC. Hence, a comparison of changes in the sources of incomes between loanees and non-loanees would make an interesting analysis. The economic status of loanees improved

consequently when they started small business with loan. Moreover, it was found that their socio-economic status was higher than that of non-loanees. It was concluded that microcredit is an effective tool for raising the socio-economic status of the poor people, particularly the women. The extra income allowed the loanees to buy nutritious food, access to modern health care services and they can afford to send their children to the school. This study revealed that economic status of women had risen due to income generating activities and they were socially empowered due to group solidarity created by microfinance program.

Haq, M.Z.U. and Kamran, M. (2009) studied “Role of Microcredit in Women’s Empowerment” in Pakistan. The major part of this research was to examine the impact of Khushhali Bank Limited (KBL), the largest microfinance bank with a huge network of branches all across the country on the socioeconomic characteristics of clients, women. Based on qualitative research, the data is collected through in-depth interviews from borrowers and National Distribution Manager of Khushhali Bank Limited. The findings suggested that microcredit has positive impact on women socioeconomic status and empowerment. It increased to some extent self-confidence and feelings of identity for women in the society. Moreover, microfinance helped them to provide better education to their children. The clients felt much independence and decision making power in routine life. It increased their prestige and status in their family and society.

The broad meaning of social capital is facilitating collective action for mutual benefit. In social capital, the relation between individuals and its impact can be seen on individual level as well as on community or group level. It refers to quality of human relationship existing within social groups which has impact on achieving mutual benefits. Putnam (1995) described social capital as those features of social organization such as trust, norms and networks that can improve efficiency of society by facilitating coordinated action.

Basrgekar (2010) studied “Measuring Effectiveness of Social Capital in Microfinance: A Case Study of Urban Microfinance Program in India.” In this study, the meaning and role of social capital is analyzed and tried to measure its impact on social empowerment of women with the help of empirical findings. The paper is based on primary data collected of 217 women Self Help Group (SHG) members by using random sample method from the SHGs organized by Forbes Marshall Co. Ltd, a

leading manufacturing company in Pune, Maharashtra, India as an initiative of corporate social responsibility. In this study, some parameters of social capital improvement related to awareness building, capacity building and active and collective participation of the SHG members were used to find the perceptions of SHG members on microfinance program. The paper concluded that microfinance program implemented by the organization has created a social capital which has an empowering effect on SHG members. This paper suggested that creation of social capital is not an automatic outcome and the organizations have to create and take care of it consciously by implementing specific policies such as capacity building programs, developing decision making abilities etc.

Pronk, P. et al., (2008) studied the impact of social capital in health intervention programs in South African villages by providing HIV training and reducing women's vulnerability. The experiment was conducted in few villages where group microfinance showing the evidence of social capital while comparison villages with no evidence of social capital. This study showed that the impact of social capital conducting by microfinance performance was significantly high in bringing out desirable change.

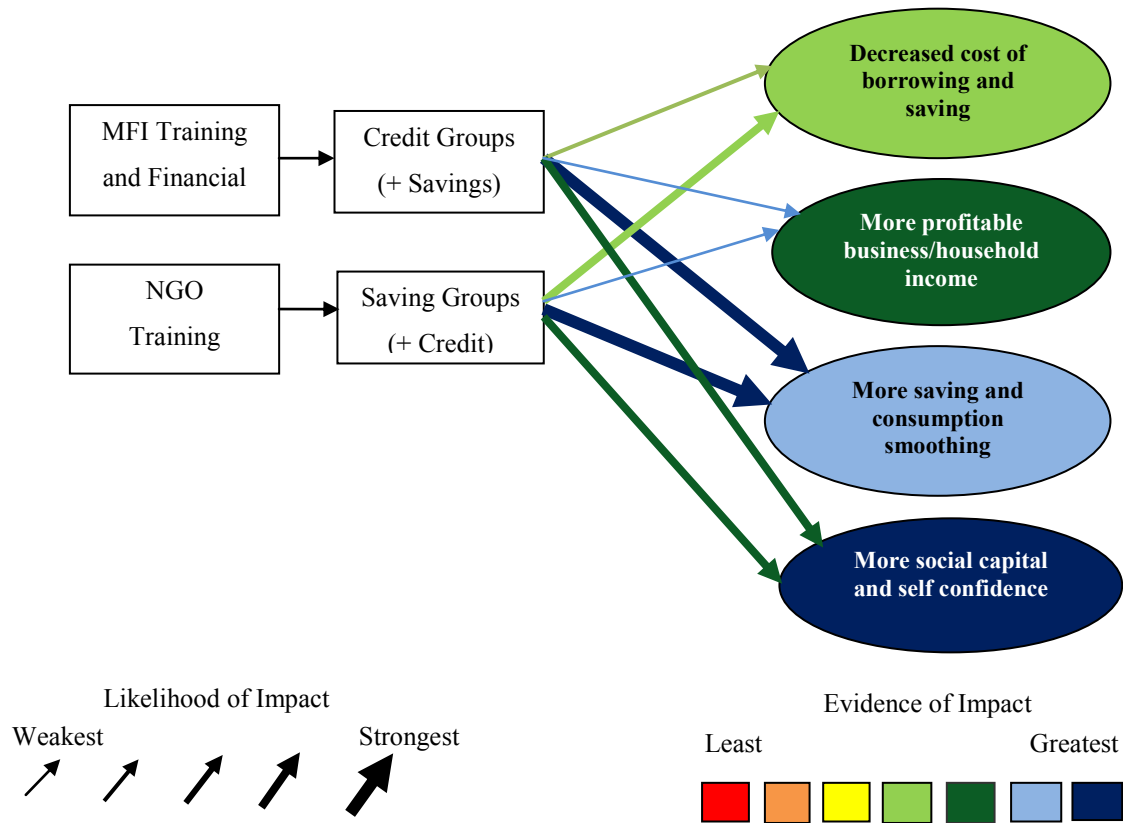
The study undertaken by Brata (2004) in Javanese village threw light on the impact of social capital on access and repayment of rural credit where social capital is assessed as number of membership in a group, meeting attendance and participation in decision making. This study found out that regularity in attendance meetings and the higher positions in the group have positive influence over the amount of formal credit repayment by the group.

Olomola (2002) tried to assess the impact of social capital on performance of microfinance projects in Nigeria. Mobilization of savings, repayment of loans and regularity of meetings were held by groups. He found that social capital is significantly higher in the groups which are autonomously developed emerging groups when compared to well-established organized groups which are assisted by NGOs. In case of the latter, the ability of the NGOs to build credibility and confidence among the members is very crucial for building social capital.

Dunford (2013) described that "for 25 years, Freedom from Hunger has designed, tested and taught independent partner organizations worldwide, mostly in West Africa, the Andes, Mexico, India and the Philippines. Microfinance performances that

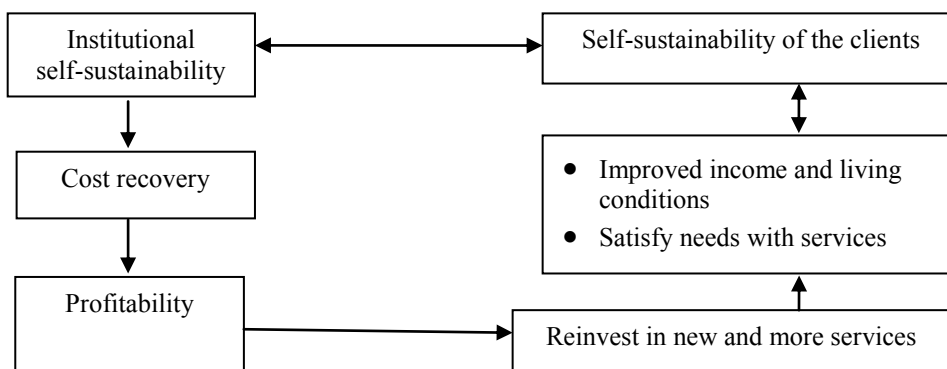
deliver credit and savings services to and through groups of 10–30 women living in very poor, rural areas are conducted. Some of these groups are trained and offered credit and savings opportunities by microfinance institutions of various types such as, rural banks, and credit unions. This is most often called “Credit with Education”. Others are trained by NGOs to become independent saving groups that provide credit from their own savings only. This is “Saving for Change” which is developed jointly with Oxfam America and the Strømme Foundation of Norway”. According to these performances, he showed and explained the effectiveness of social capital in microfinance (Figure 2.1).

These both groups: “Credit with Education” called Credit Groups (+saving) and “Saving for Change” called Saving Groups (+credit) had the strongest and greatest impact on more saving and consumption smoothing. This meant that saving and consumption increased most in both groups. Furthermore, both groups had stronger impact on social capital and self-confidence. This meant that social capital and self-confidence increased strongly when the groups are organized and performed as Credit Groups (+ saving) and Saving Groups (+ credit). Concerning with decreased cost of borrowing and/or saving, Saving Groups (+ credit) had stronger and greater impact than Credit Groups (+ saving). However, both groups had weakest likelihood impact on more profitable business / household income. This meant that there would not be more profitable business and household income although Credit Groups and Saving Groups were organized, trained and delivered credit and saving services. However, social capital and self-confidence increased over time according to this organized group method (Figure 2.1).



**Figure 2.1 Effectiveness of social capital in microfinance**

Source: Dunford, 2013



**Figure 2.2 Win-Win model: balance between social and financial return**

Source: Velasco, 2005

In measuring changes in client lives as social capital improvement through microfinance for the long term, the simple “Win-Win model”: balance between social and financial return was indicated by Carmen Velasco (2005) as in Figure 2.2. This figure showed that there is win-win situation between Pro Mujer organization and its clients. Pro Mujer in Bolivia is a women’s development organization that provides its clients with access to microfinance, business and empowerment training and preventive health. Goobich (2010) studied the microfinance performance of Pro Mujer according to that Figure 2.2 indicated by Carmen Velasco (2005).

Pro Mujer was founded by two educators, Carmen Velasco and Lynne Patterson in 1989. Pro Mujer’s microfinance model is based on the community banking model, in which clients were self-organized into communal banks, which typically consist of 20--30 women, and guarantee one another’s loans. These groups were further broken down into smaller solidarity groups of approximately five borrowers. Each group elected a President, Secretary and Treasurer to run its meetings and approved loans. Groups met biweekly or monthly in “focal centers” where disbursement and repayments of loans are conducted, participated in trainings on business, health, and gender empowerment topics among clients.

According to these microfinance performance plus education especially on health care, women had access to loans and savings to start and grow their business. Moreover, clients and their families could access health services at no cost, including basic check-ups, gynecological and obstetric health, pediatric care etc. Health personnel such as doctors and nurses were present at the focal meeting and educated and discussed preventive health as health training. Furthermore, clients could discuss their business problems each other and found how to solve it. By doing these ways, they became to participate in the economic and social development of their communities successfully. This microfinance performance plus health program was successful in Bolivia and almost completely financially self-sustaining. This was consistent with win-win situation. When microfinance institutions are self-sustainable, all operational costs such as wages and salaries are covered by income, there will be profitability. When the MFIs are profitable, reinvestment in new and more services occurs. This can lead to improved income and living conditions of the clients and they can satisfy their needs. Finally, there will be self-sustainability of the clients and microfinance institutions and vice versa. Better health results on clients, problem

solving ways in the clients' business, empowerment of the women are the items to determine the self-sustainability of the borrowers. These items can be discussed by comparing the conditions before microfinance performance and the improved conditions within microfinance performance years. This can explain the social capital improvement through microfinance performance.

Sum up, creation and use of social capital is considered to be one of the emerging tools of development programs. Some of the components such as access to small savings and credits, conducting monthly meetings, creating awareness about local issues and implementing capacity building trainings are common in all the microfinance programs. In the end, it can be concluded that the existing literature and present studies show that there is a positive and strong relationship in social capital and social empowerment. It is also seen that in most cases, microfinance has helped creating and sustaining positive social capital where women have benefitted by enhancing their level of consciousness, awareness, decision making abilities and improvement in wellbeing through collective action. It is expected that sustainable microfinance performances through social capital improvement can lead to rural development (Figure 2.2).

## **2.2 Loan Allocation in the Business**

Credit or loan is considered as a tool for business development. However, accessibility to credit alone cannot guarantee the expected improvement in production level, income and livelihoods of the clients. Credit or loan can be considered as productive loan exactly only if it can be allocated in the business effectively and efficiently. Most of the studies relating with loan allocation to the business usually use multiple regression analysis by using primary data as follows.

Oboh, V.U. and Ekpebu, I.D. (2010) studied "Determinants of Formal Agricultural Credit Allocation to the Farm Sector by Arable Crop Farmers in Benue State, Nigeria." Primary data were obtained from 300 randomly selected client members of Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB). Data were analyzed using frequency counts, percentages, t-test and multiple regressions. Results showed that only about 56% of the loans were invested directly in farm activities implying that the balance of 44% of the loan was diverted and spent on non-farm activities. The percentage of credit allocation to the farm sector

is positively related and significant with age of the clients, education level of the clients and bank visits to the villages. It is negatively related and significant with household size and loan delay. Based on these results, the paper recommended increasing flow of capital to the bank for on-lending to clients. In addition, loans should be disbursed on time and banks officials should do regular supervisory visits to the clients were commended. Finally, the clients should be given basic training on efficient management of loans in order to use loans in their business effectively was also recommended.

John, K.M. K., Isaac, D.O.N. and Samuel, A.B. (2011) studied “Agricultural Credit Allocation and Constraint Analyses of Selected Maize Farmers in the Upper-Manyra Krobo District in the Eastern region of Ghana.” In this research, primary data were randomly collected from 130 maize farmers through a structured questionnaire. The paired sample t-test was used to describe significant differences between the amounts of credit demanded and the amount received by farmers. It was revealed that the amount of credit received was significantly lower than the amount of credit demanded by farmers. The Probit regression model was then used to estimate the parameters of the determinants of credit constraint condition of the farmers. The empirical results revealed that gender, household size of farmers, annual income of farmers were positively significant with credit constraint condition of the farmers. The results also showed that farm size was negatively significant with it. The tobit regression model was also used to estimate the parameters of the determinants of the rate of agricultural credit allocated to the farm business of the farmers. The empirical results of the tobit regression model revealed that age-squared, bank visits before credit acquisition and the amount of credit received had positively significant influence on the rate of agricultural credit allocation to the farm business and age had negatively significant with it. This study provided the following recommendations: it is imperative that bank officials visit farmers on their farms before granting the loans, and also farmers must be granted the required amounts of loan to enhance the rate of agricultural loan allocation to the farm business to ensure increased productivity of crops grown leading to increased welfare and livelihood of those farmers.

Girabi, F. and Mwakaje, A.E.G. (2013) studied loan allocation by the clients as the “Impact of Microfinance on Smallholder Farm Productivity in Iramba District, Tanzania.” In this study, a total of 98 respondents were selected randomly from credit



beneficiaries (CB) and non-credit beneficiaries (NCB). The collected data were analyzed through descriptive statistics and multiple regression analysis. Descriptive findings revealed that CB realized high agricultural productivity compared to the NCB respondents. This is partly because the CB were relatively better in using credit in the business effectively as applying inputs efficiently and adoption of improved farming technologies and in accessing markets for agricultural commodities. According to the regression analysis, amount of output from farm (yield) was positively related and significant with inputs such as fertilizer, improved seeds and hired labor. It was also positively related but not significant with technology and land. The major factors hindering smallholder farmers' access to credit were reported to be lack of information, inadequate credit supply, high interest rates and defaulting.

Odoemenem, I.U. and Asogwa, B.C. (2010) studied "Capital Resource Use and Allocation in Cereal Crop Enterprise: Empirical Evidence from the Cereal Crop Farmers of Benue State, Nigeria". Field data were collected from 370 respondents using structured questionnaire. The data were analyzed using simple descriptive analysis as well as multiple regression analysis. The findings of the descriptive analysis indicated that the cultivated farm size of the surveyed cereal crop farmers ranged between 0.5-10 (ha) with a mean of 3.01 (ha). Eighty-four percentages of the surveyed farmers utilized their agricultural credits for the purchase of improved seeds, agro-chemicals and hiring of farm labor, while sixteen percentages of surveyed farmers used part of their agricultural credit for family health services and the payment of school fees. The influence of interest charges, collateral value, and annual cost of production, annual crop output and total credit received on rate of return to investment were analyzed using the multiple linear regressions. The changes in the rate of return to investment of the sampled farmers with respect to rice, maize and sorghum respectively are explained. The result showed that interest charges, collateral value, annual cost of production, annual output and total credit received had positive and significant effect on the rate of return to investment of the rice and maize producers, while only collateral value had positive and significant effect on the rate of return to investment of the sorghum producers.

### 2.3 Repayment Ability of Loans by the Clients

Most of the microfinance institutions take group liability as collateral collective responsibility. This leads repayment ability of the loans in time by the clients. Repayment ability can affect future loan requirements for the clients. Besides, repayment rate can determine not only how much MFI is successful or not but also how much clients value the rules and regulations of microfinance performances. Studying on the factors affecting the repayment ability of loans by the clients is essential to point out the microfinance performances of MFIs and their clients. There are many studies concerning with repayment ability of loans by the clients as it is really one of the viability items of a microfinance institutions. These studies usually use multiple regression analysis by using primary data as follows.

Uneze, C. (2013) studied “Influence of Household Factors on Repayment of Group Loans in Farmers’ Multipurpose Cooperative Societies in Anambra State, Nigeria.” Data were collected from 296 members of farmers’ multipurpose cooperative societies randomly by using structured questionnaires. Frequency distribution, percentages and means were used to analyze the socioeconomic characteristics of the selected farmers. The regression coefficients from the regression function showed that rate of group loan repaid by the farmer was positively related and significant with the value of assets and off farm income. It was negatively related and significant with household size, dependency ratio and total value of loan. The study had provided empirical evidence supporting borrowers’ household characteristics as significant contributors to group loan repayment. Another conclusion from this study was that the unwillingness to repay loans by the group farmers is observed due to the program factors of debt forgiveness, absence of physical collateral as possible foreclosure of assets, perception of loans as grants and failure of some farmers in joint liability to repay their loans.

Wongnaa, C.A. and Awunyo-Vitor, D. (2013) observed “Factors Affecting Loan Repayment Performance among Yam Farmers in the Sene District, Ghana.” Random sampling technique was used to select 100 respondents in the district and structured questionnaire was administered to collect data. Descriptive statistics and the regression model were employed. The results showed that 42% of yam farmers in Sene district are illiterates. More males (93%) were involved in yam farming than females (7%) and most of the farmers are married (91%). Most of the yam farmers in

the district had a family size of 6-10 household members and 54% of them had 1-10 years of yam farming experience. The regression results showed that education, experience, profit, age, supervision and off-farm income have positive effects on loan repayment performance. Conversely, gender and marriage have negative effects on loan repayment while the effect of household size was found to be ambiguous.

Tundui, C. and Tundui, H. (2013) studied “Microcredit, Micro Enterprising and Repayment Myth: The Case of Micro and Small Women Business Entrepreneurs in Tanzania.” The aim of this article was to examine the sources and determinants of loan repayment among women clients in Tanzania. A random sample of 286 PRIDE microfinance program clients in Morogoro and Iringa towns were surveyed. This study focused on loan conditions, household characteristics and business management experience, skills and management practices of the clients. Loan repayment difficulties were reported among 19.6 % of the clients. Logistic regression results had shown that loan size, interest rate and duration of membership in the program do not predict loan repayment. The results had demonstrated that business skills and management practices play a very significant role. It was found that number of household members with fixed salaries, decision making regarding loan use, business skill and management practices had positively related and significant with rate of loan repayment. Household size was negatively significant with it. From the results, it was established that the factors that limit growth of women businesses are also liable for their repayment difficulties. This further suggested that there is a need for an integrated and holistic policy approach in supporting and promoting micro enterprising among the women rather than piecemeal initiatives.

Ezihe, J.A.C., Oboh, V.U. and Hyande, A.A. (2014) studied “Loan Repayment among Small-holder Maize Farmers in Kanke, Plateau State, Nigeria.” A sample of 90 farmers was randomly selected and analyzed using percentages, means, and multiple regression analysis. A large proportion of the farmers adopted mixed varieties of maize. Regression analysis showed that rate of loan repayment was positively related and significant with formal education, farming experiences and negatively related and significant with age of farmer, household size, dependents and farm size. Untimely loan disbursement, low market price of farm products, and high interest rate were the major constraints of loan repayment. It was recommended that more credit from formal sources should be made available in large loan size to

farmers. In addition, loan disbursement should be timely to avoid diversion in the use of loans while successful applicants should be trained on proper loan management.

#### 2.4 Break-Even Analysis

Break-even analysis is an analysis to determine the point at which revenue received equals the costs associated with receiving the revenue. Break-even analysis calculates what is known as a margin of safety, the amount that revenues exceed the break-even point. This is the amount that revenues can fall while still staying above the break-even point (<http://www.investopedia.com/terms/b/breakevenanalysis.asp>, 2015).

Break-even analysis is calculating the odds of viability in determining the financial sustainability of microfinance institution. Gow, K.M. (2001) describes that Hassan and Renteria-Guerrero (1997) elaborated on a formula that enables planners to calculate the likely viability of a credit program. It is a simple method to compute the break-even point. It can be calculated the formula as follows.

$$\begin{array}{ccc} \text{(Cost of funds + other annual operating} & & \text{(the amount of loans to be disbursed} \\ \text{costs + bad debts + pilferage)} & & \text{annually)} \\ \\ X & = & X \\ \text{(1 + annual rate} & & \text{(the rate of interest charged to} \\ \text{of inflation)} & & \text{loanees)} \end{array}$$

Roy, D. and Ghosh, K. (2010) described relating to break-even analysis as break-even condition for any financial institution over a period of time is that the net income must be at least equal to the total expenditure. In other words, the difference between income and expenditure must be positive value. The formula for break-even analysis is as follows.

$$\begin{array}{ccc} \text{Income from loans} & & \text{cost of borrowing (principal and} \\ & & \text{interest)} \\ + & & + \\ \text{other income} & \geq & \text{interest paid against savings} \\ & & + \\ & & \text{Other expenditures.} \end{array}$$

Break-even analysis is one of the major methods in determining the viability of the microfinance performance. According to the above equation, the left hand side should be greater than or at least equal to the right hand side to run microfinance performance sustainably. If the left hand side is smaller than the right hand side, the institution could be suffered losses. By using break-even analysis, how to continue the microfinance performances of institutions could be decided.

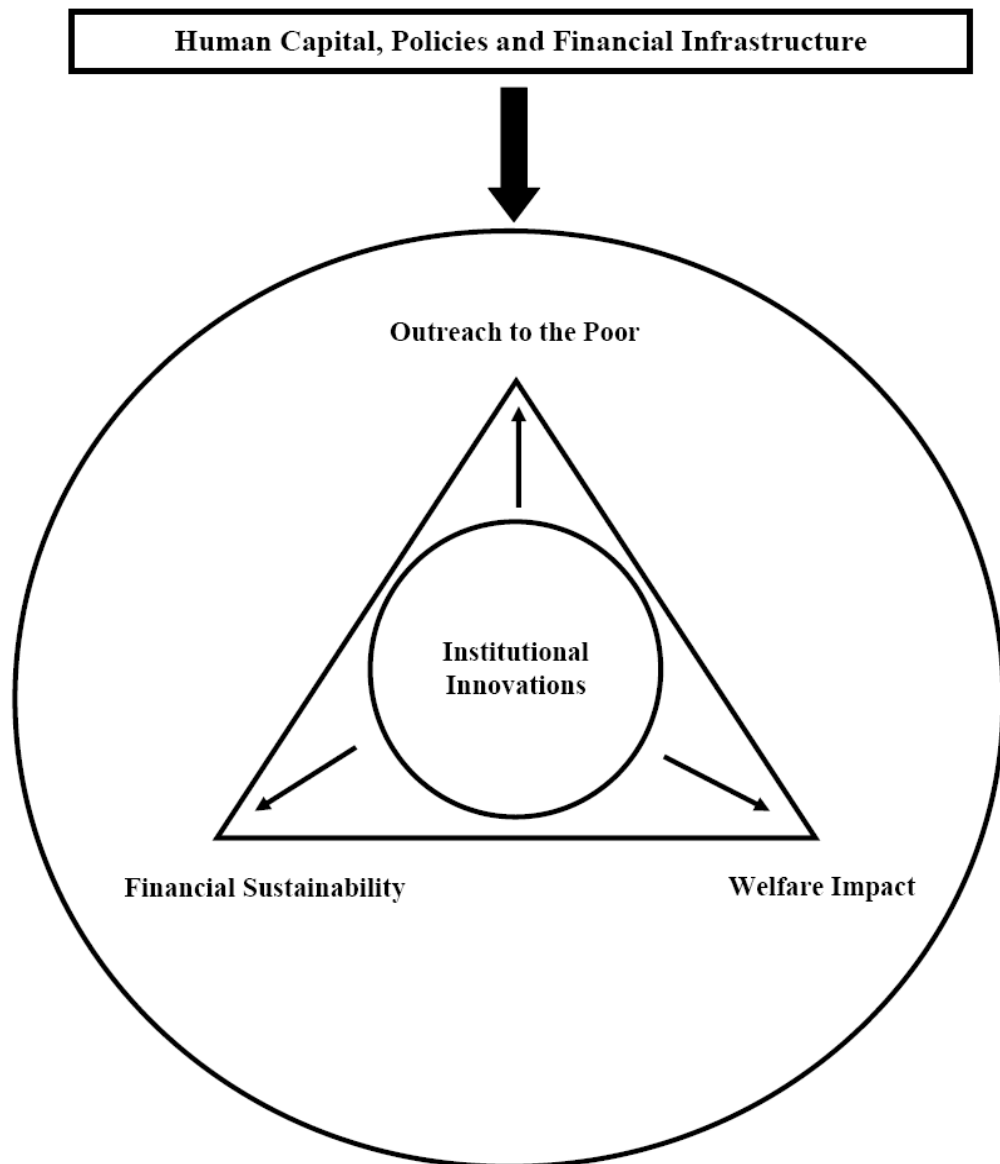
## **2.5 Critical Microfinance Triangle and Microfinance Institutions**

There are different arguments concerning how to evaluate the performance of microfinance institutions is sustainable or not. There is "Critical Microfinance Triangle" that looks at to evaluate microfinance institutions based on their objectives. The triangle is depicted in Figure 2.3.

The triangle presents a conceptual framework for thinking about three policy objectives: (i) outreach to the poor, (ii) financial sustainability, and (iii) welfare impact. All three must be measured to thoroughly evaluate microfinance performance is sustainable or not. The inner circle in Figure 2.3 represents MFI innovations in technology, policies, organization, and management that affect how well each objective is met. The outer circle represents the environment including the human capital, policies and financial infrastructure. Improvements in the environment (human and social capital) make MFIs to reach the three objectives. The three policy objectives of the triangle: outreach to the poor, financial sustainability, and welfare impact relating to sustainability of microfinance programs are discussed as follows. (Meyer, 2002)

### **(i) Outreach to the Poor**

The first objective to evaluate MFI performance is outreach to the poor, commonly. Concerning with it, how much MFIs can penetrate to reduce poverty could be measured. In fact, the concept is multidimensional: four of which are emphasized as follows.



**Figure 2.3 Critical microfinance triangle**

Source: Zeller and Meyer, 2002

The first is simply “the number of persons” who was previously denied access to formal financial services. Most of these persons will be the poor because they cannot provide the collateral required. Women often face greater problems than men in accessing financial services, so number of women is often measured as second criterion. Although difficult to measure, depth of poverty is third criterion because the poorest of the poor face the greatest access problems. Some measure of depth of outreach is needed to evaluate how well MFIs reach to the very poor. Finally, the variety of financial services provided is forth criterion because their welfare will be improved if efficient and secure savings, insurance, remittance transfer and other services are provided in addition to the loans.

Bangladesh is a leading microfinance country in Asia and has the most complete MFI data. At the end of 2015, the Grameen Bank reported 8.8 million members, 96.5 percent of which were women, with USD 1223.94 millions in outstanding loans. This microfinance industry reached the greatest penetration rate of any country in the world. (<http://www.grameen.com>, 2016)

Thailand has achieved impressive outreach in agricultural lending through the Bank for Agriculture and Agricultural Cooperatives (BAAC). Wealthier farmers borrow individual loans, while poorer farmers borrow directly from BAAC through joint liability groups or indirectly through farmer cooperatives and associations. BAAC reported that it had almost USD 6 billion in loan outstanding and 2.7 millions of farmers in 2014 (Malaengpoothong, 2014).

## **(ii) Financial Sustainability**

Financial sustainability of MFI consists of the concept of operational self-sufficiency (OSS) and financial self-sufficiency (FSS). OSS means that income is sufficient to cover operating costs, including salaries and wages, supplies, loan losses, and other administrative costs. It is calculated by United Nations Capital Development Fund (UNCDF) in 2009 simply as follows:

$$\text{OSS} = \text{Total income} / \text{Total operating cost}$$

If this ratio is greater than 100 percent, the MFI is covering all of its costs through own operations and is not relying on contributions or subsidies from donors to survive.

Financial self-sustainability is a higher standard because it means that the MFI can also cover the costs of funds and other forms of subsidies received when they are valued at market rates. Achievement to reach this level is important because it means that MFI would still break even if all subsidies would be withdrawn. Measuring financial sustainability requires that MFIs maintain good financial accounts and follow recognized accounting practices that provide full transparency for income, expenses, loan recovery, and potential losses. Many MFIs cannot meet this standard. UNCDF distinguishes financial self-sufficiency (FSS) from OSS only by the fact of an adjusted basis. The equation for FSS is as follows.

$$\text{FSS} = \text{Adjusted total income} / \text{Adjusted total operating cost}$$

Inflation adjustments is used in calculating from total income and total operating cost to adjusted total income and adjusted total operating cost. Consumer price index (CPI) is used to adjust inflation. Adjusted figures show how MFIs would look like on an unsubsidized basis with funds on the commercial market plus inflation adjustments.

### **(iii) Welfare Impact**

Welfare impact of the services of MFIs is another indicator to evaluate the performance of the institutions. The objective of MFIs is reducing poverty. Hence, it is needed to assess the impact of the microfinance programs on reducing poverty to evaluate their performance. As defined in World Bank (2000/01) report, poverty is viewed as lack of money, lack of adequate food, shelter, education and health and the poor are vulnerable to ill health, economic upset and natural disaster.

Meyer (2002) noted that assessment of impact of the MFIs on their clients is a very difficult and controversial way of evaluating the institutional performance. This is because of the methodological difficulties and high costs involved in conducting robust studies. It has been argued that the most important evidence impact should be whether or not MFI clients continue to use the services. Therefore, impact analysis should focus to understand the impact on MFIs programs offering services to the poor rather than impacts on the clients of such services.



## 2.6 Empirical Studies on Critical Microfinance Triangle Concept

There are empirical studies concerning with three policy objectives of critical microfinance triangle concept: outreach to the poor, financial sustainability, and welfare impact leading to sustainability of microfinance programs are discussed as follows.

Dib, J.B., Shore, E. and Nikolla, M. (2013) studied “Evaluating the Performance of Albanian Savings and Credit (ASC) Union” in Albania. This research paper aimed to evaluate the role of ASC Union through three main poles: microfinance performance in relation to outreach, financial sustainability of the institution, and welfare impact on the clients. One hundred clients in Tirana region, Albania were interviewed. This study was based mainly on a descriptive analysis and focused on an accurate event, trying to answer questions such as: what, where, how, who and when, through the use of different information and already existing theories. Moreover, based on the critical microfinance triangle, interviews, questionnaires and observations were applied in order to analyze the microcredit impacts. From the outreach angle, it was found that ASC Union's outreach has shown an increment over the period of study with different rates of growth from 2003 to 2010 on average by 14.7% in terms of active clients.

On the other hand, the operational sustainability measured by return on assets and return on equity showed instability over the period of the study, making the ASC Union financial sustainability doubtful. This is because although the number of clients is rising, the credit union is risking its sustainability. The average outstanding loan is not able to cover the needs of the clients for future microloans due to the data from 2003 to 2010. This can bring high costs in the future as depending on other loans or subsidies. However, in concerning with welfare impact, the clients confirmed that ASC Union helped them to improve their work and income: 87 out of 100 clients discussed that their income increased in the last 3 years, while 31 clients out of 100 who have 8-10 experience years in joining the ASC Union proclaimed that microcredit helped them to expand their work activities. Furthermore, 56 clients out of 100 confirmed that microcredit helped them not only in improving their income, but also their production increment and work expansion.

Anuchachart, E.U.S. (2011) studied “Measuring Performance of Bank of Agricultural and Agricultural Cooperatives (BAAC), Thailand; Relationships between

Institutional Goals and Future Trend.” This report measured the performance of Bank of Agricultural and Agricultural Cooperatives (BAAC) based on conceptual framework of “Critical triangle of microfinance”: outreach, financial sustainability and impact by using secondary data from annual reports of BAAC from 2003 to 2009. The results showed that BAAC is doing very well in managing credit risk to develop sound financial performance and financial sustainability. At the same time, it was expanding their outreach. However, BAAC failed in depth of outreach in government secured loans for truly poor farmers but rather better off farmers who are more informed farmers by the officers of the Agricultural Extension Service. In other words, it was evidence that a number of government secured loan projects were benefitting only to concentrated groups of interests. For future development of BAAC, depth of outreach can be expanded to be more demand oriented and it should be better designed towards the marginal group of farmers or clients.

Befekadu (2007) observed “Outreach and Financial Performance Analysis of Microfinance Institutions in Ethiopia.” This paper examined the performance of MFIs in relation to outreach and financial sustainability based on the Critical Microfinance Triangle concept: outreach to the poor, financial sustainability and welfare impact. The welfare impact assessment is not covered in this paper due to time and money limitations. Both primary and secondary data obtained from questionnaire distributed to representative sample MFIs has been employed in the study. From the outreach angle, it was found that individual MFI's outreach has shown increment over the period of the study with different rates of growth, leading the industry's outreach to rise in the period from 2003 to 2007 on the average by 22.9 percent. It was also identified that while MFIs reach the very poor, their reach to women is limited, only 38.4 percent. From financial sustainability angle, it was found that MFIs in Ethiopia are hopeful. They were operational sustainable and the industry's profit performance was also improving over time. Using non performing Loan (NPLs) to loan outstanding ratio indicator, this study found out that MFI financial sustainability was in a comfort zone with average NPLs ratio of 3.2 percent for the period from 2005 to 2007. The study also found that there was low default rate but increasing. This study also identified that there was no evidence of trade-off between outreach and financial sustainability for Ethiopian case, rather positive relation was observed between them.

In general, the study identified various challenges that constrain MFIs from efficient operations.

Meyer, R. L. (2002) observed “Track Record of Financial Institutions in Assisting the Poor in Asia”. There are different kinds of microfinance institutions in Asia and these financial institutions pursue different objectives, so it is difficult to assess how well microfinance is actually contributing to poverty alleviation. There is little systematic data available on which to make global or regional generalizations. The objective of this paper is to provide some insights into how well the industry is performing by summarizing and evaluating key studies and data for the region. Criteria are defined for these three objectives: outreach, sustainability and impact as well as methodological problems are discussed for each item. The results revealed that outreach is quite impressive, especially in Bangladesh and Indonesia. Millions of poor households in the region are receiving formal financial services because of the expansion of microfinance performances. However, financial unsustainable condition is an important problem facing the industry in most countries. Many microfinance institutions still depend on government and donor subsidies for their existence. The welfare impact studies reviewed and reported some positive benefits but they vary by gender, type of program and country. Several implications of these findings may help decision makers to choose and conduct the best ways for the improvement of microfinance performances in the region.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### **3.1 Conceptual Framework of Sustainable Microfinance Performance towards Rural Development**

Sustainability of microfinance performance and development in rural community are much related and reinforcing each other. When the rural community develops, there are three factors concerning with loans from microfinance institutions could be created. They are outreach of the loans to the clients, financial sustainability of the institutions and welfare impact of the rural community.

In considering outreach of the loans to the rural community, percentage of loan allocation in the business of the clients and repayment capacity of the clients at the collection time are needed. Furthermore, number of clients and the amount of loan disbursement provided by the microfinance institutions are also important items. In the financial sustainability of the institutions, operational self-sufficiency and break-even condition of the institutions are needed to be calculated. Moreover, break-even analysis can be used to calculate cost recovery and profit of the institutions. In the view of welfare impact of the rural community, there are loan services and programs of the institutions as providing seasonal loans and income generating loans that can improve economic and social welfare of the clients.

Social capital development of the rural community is related to the above mentioned factors. In microfinance processes, loan or credit is provided to the households. Regarding with this process, decision making of females in loan allocation, loan repayment and family expenses occur consequently. Moreover, client households are interested in performing group activities due to group liability of microfinance performances. Therefore, higher participation in collective action for gender related issues and other social issues are also main variables in measuring social capital improvement.

There will be sustainability of rural community if there is social capital development of the rural community and vice versa. Sustainability of financial institutions is the result of the sustainability of rural community and vice versa. Then, sustainability of the microfinance performance is the outcome of sustainability of both

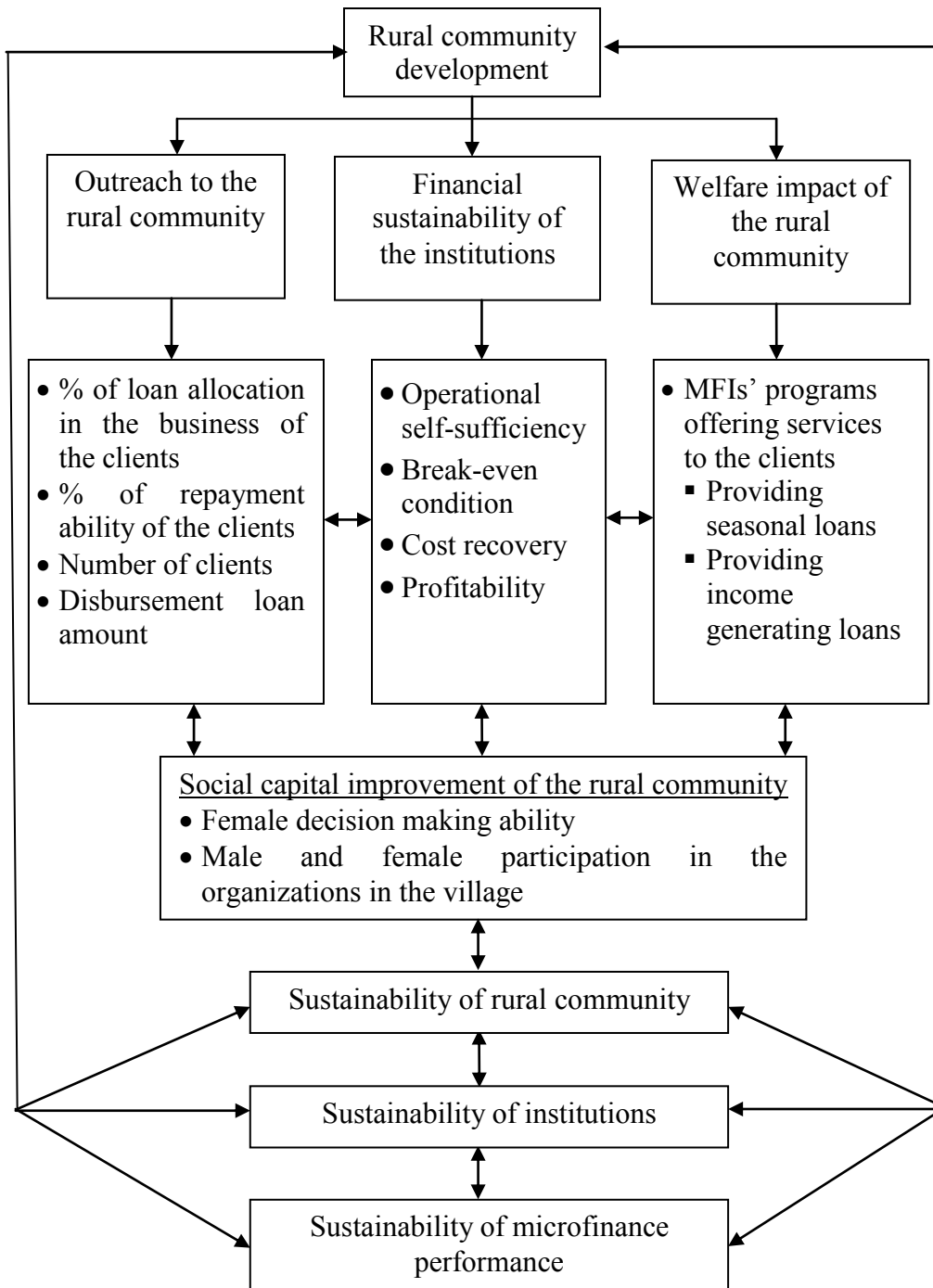
rural community and microfinance institutions. Finally, sustainability of the rural community, microfinance institutions, microfinance performances and rural community development are relating and reinforcing each other. This conceptual framework of the study shapes the rural community development according to microfinance performances as shown in Figure 3.1.

### **3.2 Study Areas and Data Collection**

In this study, the two Townships in which both Myanmar Agricultural Development Bank (MADB) and Private Agency Collaborating Together (PACT) disburse loans to the clients were chosen: Ayartaw Twonship in dry zone and Bogale Township in delta region. Each of eighty sample respondents from MADB as well as PACT was selected by purposive sampling for three villages in Ayartaw Township. The same sampling procedure was conducted for five villages in Bogale Township. Therefore, total 320 respondents were selected in this study. Rice was mainly cultivated in Bogalay Township. In Ayartaw Township, rice, pulses and oil-seed crops were grown. In the selection of clients, it was focus on clients who were representing the MADB or PACT. It was not focus on crops.

In Ayartaw Township, 160 households including 80 farmers (MADB clients) and 80 non-farmers (PACT clients) from 630 households of three villages were selected to collect primary data. The names of the villages were Nay Yar Khinn, Hin Thar and Ywar Thit (Table 3.1). Similarly, in Bogale Township, 160 households including 80 farmers (MADB clients) and 80 non-farmers (PACT clients) from 617 households of five villages were selected to collect primary data. The names of the villages were Phoe Shwe Lonn, Kan Kone, Tae Pin Hnit, Nyi Nounng Wa and Ma Yan Kawe (Table 3.2). Study areas are also shown in Figure 3.2.

Primary data were gathered through personal interviews using pre-tested semi-structured questionnaires. Data and information were collected from MADB clients and PACT clients separately. The available data were analyzed by using descriptive analysis and regression analysis.



**Figure 3.1 Conceptual framework shaping the rural community development due to microfinance performances**

**Table 3.1 General features on surveyed villages in Ayartaw Township**

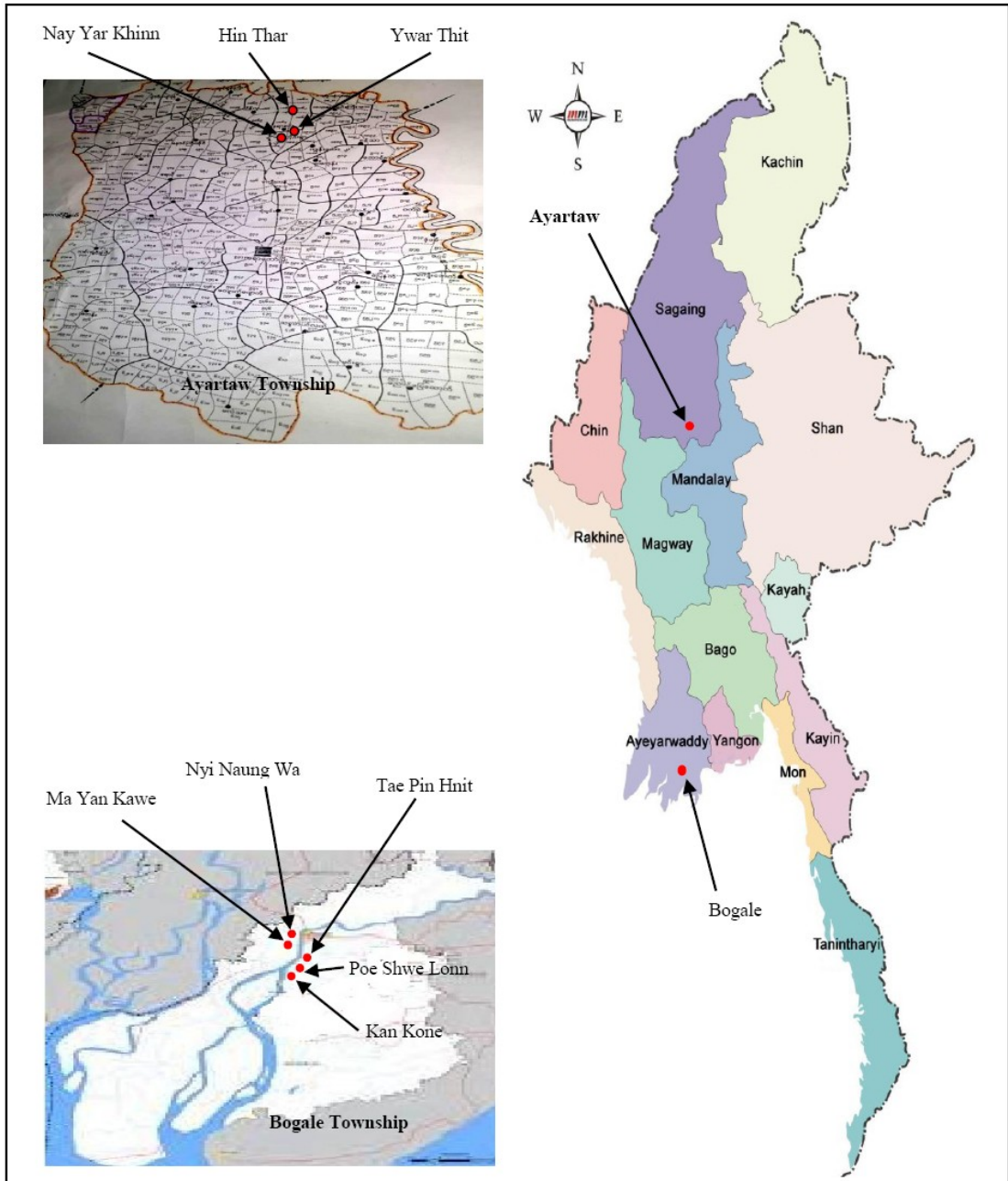
Particulars	Name of the villages					Total size	Sample size
	Nay Yar	Hin	Ywar				
	Khinn	Thar	Thit				
No. of household	297	180	153			630	160
No. of total population	1102	937	796			2835	
Male	583	429	403			1415	
Female	519	508	393			1420	
No. of farmers	128	119	98			345	80
No. of non-farmers	103	121	87			311	80
Cultivable land (ha)	533	445	398			1377	

Source: Respective Village Head Offices, 2015

**Table 3.2 General features on surveyed villages in Bogale Township**

Particulars	Name of the villages						Total size	Sample size
	Phoe	Kan	Tae	Nyi	Ma			
	Shwe	Kone	Pin	Noung	Yan			
	Lonn		Hnit	Wa	Kawe			
No. of household	84	184	97	120	132		617	160
No. of total population	279	648	398	420	433		2178	
Male	136	326	202	217	205		1086	
Female	143	322	196	203	228		1092	
No. of farmers	32	90	52	84	83		341	80
No. of non-farmers	52	94	45	46	47		284	80
Cultivable land (ha)	89	192	96	141	149		668	

Source: Respective Village Head Offices, 2015



**Figure 3.2 Map of Myanmar showing study areas**

Source: The Myanmar Information Management Unit (MIMU), 2013



### 3.3 Data Analysis Methods

#### For objective (1)

The descriptive analysis was used to explain the specific objective (1): to observe the impact of microfinance performances of MADB and PACT on socioeconomic and social capital improvement in rural society.

In socioeconomic status of the clients, occupation of the clients, land ownership conditions of the clients, average annual income of respondent households and saving conditions of the respondents were expressed by using descriptive analysis. In social capital improvement of the clients, the parameters: female decision making ability and collective action with respective variables were expressed by using descriptive analysis as follows.

<b>Parameters</b>	<b>Variables</b>
Female decision making ability	Female participation in decision making in loan allocation/ loan repayment/ family expenses
Collective action	Female participation in the organizations in the village Family member (both male and female) participation in the organizations in the village

#### For objective (2)

The following multiple regression models (1) and (2) explained on the specific objective 2: to examine the determinants of allocation of MADB loan and PACT loan in the business for the livelihoods of the selected rural households.

#### For MADB clients

$$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \alpha_7 X_7 + \mu_i \text{ -----(1)}$$

Where,

Y = Percentage of loan allocation in the related business by MADB client (%)

X<sub>1</sub> = Education level of the client (schooling years)

X<sub>2</sub> = Experience years of the client in joining MADB (years)

$X_3$  = Gross farm income ratio of household (%)

$X_4$  = Household size (number of people in household)

$X_5$  = Female participation in decision making of loan allocation (%)

$X_6$  = Household facing the shock (facing shock= 1, not facing shock=0)

$X_7$  = Right time of getting MADB loan for the business  
(right time= 1, delay= 0)

$\alpha_0$  = Constant       $\alpha_1$  to  $\alpha_7$  = Regression coefficients       $\mu_i$  = error term

### For PACT clients

$$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \mu_i \text{ -----(2)}$$

Where,

$Y$  = Percentage of loan allocation in the related business by PACT client (%)

$X_1$  = Education level of the client (schooling years)

$X_2$  = Experience years of the client in joining MADB (years)

$X_3$  = Gross non-farm income ratio of household (%)

$X_4$  = Household size (number of people in household)

$X_5$  = Female participation in decision making of loan allocation (%)

$X_6$  = Household facing the shock (facing shock= 1, not facing shock=0)

$\alpha_0$  = Constant       $\alpha_1$  to  $\alpha_6$  = Regression coefficients       $\mu_i$  = error term

### For Objective (3)

The following multiple regression models (3) and (4) explained on the specific objective 3: to expose the influencing factors of repayment ability in MADB loan and PACT loan by the respondent households.

### For MADB clients

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \mu_i \text{ --(3)}$$

Where,

$Z$  = Percentage of repayment ability in MADB loan by the client (%)

$X_1$  = Ratio of net farm income (%)

$X_2$  = Getting non-farm income (getting= 1, not getting= 0)

$X_3$  = Price of paddy (MMK)

$X_4$  = Family labor ratio (%)

$X_5$ = Number of jobs in the household (number)

$X_6$ = Remittance money from other places (transfer=1, not transfer=0)

$X_7$ = Female participation in decision making of loan repayment (%)

$X_8$ = Female participation in social organizations in the village

(participation= 1, not participation= 0)

$X_9$ = Monitoring performances of MADB staffs

(monitoring =1, not monitoring=0)

$X_{10}$ = Household facing the shock

$\beta_0$  = Constant       $\beta_1$  to  $\beta_9$ = Regression coefficients       $\mu_i$  = error term

### For PACT clients

Where,

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu_i \text{ -----(4)}$$

$Z$  = Percentage of repayment ability in PACT loan by the client (%)

$X_1$  = Ratio of net non-farm income (%)

$X_2$  = Getting farm income (getting= 1, not getting= 0)

$X_3$  = Working household member ratio (%)

$X_4$  = Number of jobs in the household (number)

$X_5$  = Remittance money from other places (transfer=1, not transfer=0)

$X_6$  = Female participation in decision making of loan repayment (%)

$X_7$  = Female participation in social organizations in the village

(participation= 1, not participation= 0)

$X_8$  = Household facing the shock

$\beta_0$  = Constant       $\beta_1$  to  $\beta_7$  = Regression coefficients       $\mu_i$  = error term

### For Objective (4)

Calculations of operational self-sufficiency (OSS) ratio and break-even condition explained the specific objective 4: to investigate the sustainability in financial condition of microfinance institutions (MADB and PACT) leading to rural development in Myanmar.

Time series data from 2010-2011 to 2014-2015 budget year on income from loans (amount of interest received) and other income, cost of borrowing (principal and interest), interest paid for saving and other expenditures were gathered from head

offices of MADB and PACT to calculate the break-even financial conditions of the institutions. The formulas of OSS and break-even analysis were as follows.

**OSS= Total income/Total expenditure**

Source: UNCDF (2009), described by Guntz (2011)

**Break-even analysis**

$$\begin{array}{rcl}
 \text{Income from loans} & & \text{cost of borrowing (principal and} \\
 & & \text{interest)} \\
 + & & + \\
 \text{other income} & = & \text{interest paid against savings} \\
 & & + \\
 & & \text{Other expenditures}
 \end{array}$$

Source: Roy, D. and Ghosh, K. (2010)

In break-even analysis, if total income of the institution is at least equal to or greater than total expenditure of it, or the difference between total income and total expenditure shows positive value, the institution had sustainability in running its own operation. Moreover, in the calculation of operational self-sufficiency, if the ratio of total income and total expenditure shows 100%, microfinance institution is operating in sustainable finance condition in credit market. However, if total income and total expenditure conditions of microfinance institutions do not agree with break-even point as well as OSS ratio is lower than 100%, they cannot retain sustainability of finance condition in rural credit market.

## CHAPTER 4

### RESULTS AND DISCUSSION

#### 4.1 General Information of Respondent Households

##### 4.1.1 Demographic characteristics of MADB and PACT respondents in sample households

MADB male headed household numbers were similar in both places: 70 in Ayartaw and 78 in Bogale. Similarly, PACT male headed household numbers were 64 in Ayartaw and 68 in Bogale. There were 88% of male headed households in Ayartaw MADB clients and 98% of male headed households in Bogale MADB clients. In the case of PACT clients, 80% and 85% of male headed households were found in Ayartaw and Bogale respectively (Table 4.1).

However, MADB female headed household numbers were different in both places: 10 in Ayartaw and 2 in Bogale. In the case of PACT female headed household numbers, it was not too different in both places: 16 in Ayartaw and 12 in Bogale. This means that MADB female headed households were 12% in Ayartaw and only 2% in Bogale. PACT female headed households were 20% in Ayartaw and 15% in Bogale (Table 4.1).

Relating to education level, 69-71% of the clients in both places had secondary education level, 18-19% of the clients had primary education level, 9-11% got high school education level and only 1% graduated from regional universities in both places (Table 4.1).

Concerning with marital status, 79-95% were married and 4-8% were single in both places. There were 2 widowers (3%) in Ayartaw MADB clients and 1 widower (1%) in Bogale PACT clients. Although there were 7 widows (8%) in Ayartaw MADB clients, there was only 1 widow (1%) in Bogale MADB clients. In the case of PACT clients, 13% and 15% were widows in Ayartaw and Bogale respectively (Table 4.1).

**Table 4.1 Demographic characteristics of MADB and PACT respondents in sample households**

<b>Item</b>	<b>MADB households</b>		<b>PACT households</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
<b><u>Gender of household head</u></b>				
Male headed households	70 (88)	78 (98)	64 (80)	67 (85)
Female headed households	10 (12)	2 (2)	16 (20)	13 (15)
<b><u>Education</u></b>				
Primary	15 (19)	14 (18)	15 (19)	15 (19)
Secondary	56 (70)	57 (71)	55 (69)	57 (71)
High school	8 (10)	8 (10)	9 (11)	7 (9)
Graduated	1(1)	1 (1)	1(1)	1 (1)
<b><u>Marital status</u></b>				
Single	6 (8)	3(4)	5 (6)	4 (5)
Married	65 (81)	76 (95)	65 (81)	63 (79)
Widower	2 (3)	-	-	1(1)
Widow	7 (8)	1 (1)	10 (13)	12 (15)

Note: Sample size of each group is 80.

Value in parentheses is percentage.

#### **4.1.2 Gender of household members in study areas**

In Ayartaw, 44% and 56% of MADB household members were males and females respectively. In Bogale MADB household members, male and female ratios were 50% each. In PACT clients, male and female ratio varied as 44% and 56% in Ayataw and 47% and 53% in Bogale. Therefore, male and female ratios were similar in both places and varied proportionately (Table 4.2).

#### **4.1.3 Respondents' age in study areas**

The average age of MADB clients in Ayartaw and in Bogale were 49 and 47, those of PACT clients in Ayartaw and in Bogale were 47 and 44. Maximum age of Ayartaw MADB clients and Bogale MADB clients were 65 and 67. Maximum age of PACT clients in Ayartaw was 67 and that in Bogale was 68. Minimum age of Ayartaw MADB clients and Bogale MADB clients were 27 and 26. Minimum age of PACT clients in Ayartaw was 27 and that in Bogale was 23. So, respondents' ages in both townships were not too different (Table 4.3).

#### **4.1.4 Household size of the respondents**

Average household sizes in Ayartaw and Bogale MADB households were 5 and 4, those in Ayartaw and Bogale PACT households were 4 each. Maximum household size in Ayartaw MADB households was 11 and that in Bogale MADB households was 9. However, maximum household sizes in Ayartaw and Bogale PACT households were 8 each. Minimum household sizes were the same, 1 in Ayartaw MADB households as well as in Ayartaw PACT households and 1 in Bogale MADB households as well as in Bogale PACT households (Table 4.4).

**Table 4.2 Gender of household members in study areas**

<b>Gender</b>	<b>MADB household members</b>		<b>PACT household members</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
Male	167 (44)	174 (50)	150 (44)	158 (47)
Female	212 (56)	176 (50)	194 (56)	179 (53)
Total	379 (100)	350 (100)	344 (100)	(100)

Note: Value in parentheses is percentage.

**Table 4.3 Respondents' age in study areas**

<b>Age (year)</b>	<b>MADB clients</b>		<b>PACT clients</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
Average	49	47	47	44
Maximum	65	67	67	68
Minimum	27	26	27	23
SD	11	12	10	12

Note: Sample size of each group is 80.

**Table 4.4 Household size of the respondents**

<b>HH size</b>	<b>MADB households</b>		<b>PACT households</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
Average	5	4	4	4
Maximum	11	9	8	8
Minimum	1	2	1	2
SD	2	1	2	1

Note: Sample size of each group is 80.



#### **4.1.5 Working condition of the respondent households**

Although average family labor number was 1 in both places, it was 23% of family labors in Ayartaw MADB clients and 19% of family labors in Bogale MADB clients, 32% of family labors in Ayartaw PACT clients and 28% of family labors in Bogale PACT clients respectively. Average working family members were not too different; 50-52% in both places. Average dependent family members did not differ; 48-50% in both places. “Family labors” mean “family members who help and work in family farm work”. “Working family members” mean “family members who help in family farm work and work in other farms/ did non-farm work or who did non- farm work only” (Table 4.5).

### **4.2 Socioeconomic conditions of respondent households**

#### **4.2.1 Primary and secondary occupations of MADB and PACT clients in study areas**

All selected farmers in both study areas were working in their own farm as their main occupation. Secondary occupation of Ayartaw MADB clients were varied such as weaver/tailor (25%), grocery/street vendor (13%), carpentry/masonry (13%), animal husbandry (9%) and agricultural laborer (8%). Secondary occupation of Bogale MADB clients were animal husbandry (11%), agricultural laborer (9%), motor-bike taxi/boat-man (9%), and carpentry/masonry (8%) etc. Therefore, Ayartaw MADB clients had more occupation condition to earn income (Table 4.6).

The primary occupation of Ayartaw and Bogale PACT clients were agricultural laborer (75%) and (74%) respectively. Secondary occupation of Ayartaw and Bogale PACT clients varied grocery/street vendor (49%) and (39%), agricultural laborer (13% each) and others. Therefore, PACT clients had not too different occupation conditions (Table 4.6). Primary and secondary occupations of MADB and PACT household members in the study areas are shown in Appendix 1.

**Table 4.5 Working condition of the respondent households**

Item	MADB households		PACT households	
	Ayartaw	Bogale	Ayartaw	Bogale
Average family labor no. <sup>a</sup>	1(23)	1(19)	1(32)	1(28)
Average working family member <sup>b</sup>	2(50)	2(50)	2(52)	2(50)
Average dependent family member	2(50)	2(50)	2(48)	2(50)

Note: Sample size of each group is 80. Value in parentheses is percentage.

<sup>a</sup> = no. of family members who help family farm work

<sup>b</sup> = no. of family members who help in family farm work and work in other farms/ did non-farm work or who did non- farm work only.

**Table 4.6 Primary and secondary occupations of MADB and PACT clients in study areas**

Occupation	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Primary occupation				
Farming	80 (100)	80 (100)		
Agricultural laborer	-	-	60 (75)	59 (74)
Animal husbandry/fisheries	-	-	7 (9)	5 (6)
Grocery/mobile vendor	-	-	7 (9)	5 (6)
Weaver/tailor	-	-	4 (5)	4 (5)
Family labor	-	-	2 (2)	1 (1)
Factory worker	-	-	-	3 (4)
Motor-bike taxi	-	-	-	3 (4)
Secondary occupation				
Weaver/tailor	20 (25)	-	-	-
Carpentry/masonry	10 (13)	6 (8)	-	-
Grocery/mobile vendor	10 (13)	-	40 (49)	32 (39)
Animal husbandry	7 (9)	9 (11)	2 (3)	6 (8)
Agricultural laborer	6 (8)	7 (9)	10 (13)	10 (13)
Motor-bike taxi/boat-man	-	7 (9)	-	-
Farming	-	-	4 (5)	2 (3)
Private tuition teacher	1 (1)	-	-	-
Motor-bike workshop and others	-	3 (4)	-	-
No secondary job	26 (31)	48 (60)	24 (30)	30 (37)

Note: Sample size of each group is 80.

Value in parentheses is percentage.

#### **4.2.2 Income sources diversification of the respondents' households**

Income source is related to the job opportunity and capacity of household. Income source from one job was found in Ayartaw MADB households (23%) and that of Bogale MADB households (13%) respectively as there was only farming job in those households. In PACT households, one job income source was found in Ayartaw (14%) and Bogale (11%) as those clients were doing as agricultural laborers.

The households which have two income sources were found in Ayartaw MADB households (56%) as there was farming and cloth weaving businesses and Bogale MADB households (46%) as there was farming and animal husbandry. In the case of PACT clients, two income sources were 39% in Ayartaw and 33% in Bogale as clients were doing agricultural laborers and street vendors mostly.

There were three income sources in Ayartaw MADB households (18%) as they did farming, cloth weaving, grocery business or carpentry/masonry mostly and Bogale MADB households (40%) as they did farming, agricultural laborers, carpentry/masonry or animal husbandry mostly. In the case of PACT clients, three jobs households were 28% in Ayartaw as they did agricultural laborers, cloth weaving, street vendor or animal husbandry and 53% in Bogale as they did agricultural laborers, street vendor, carpentry/masonry and animal husbandry.

There were four income sources in Ayartaw MADB households (4%): doing farming, agricultural laborers, cloth weaving or grocery business, carpentry/masonry or animal husbandry; Bogale MADB households (1%): doing farming, agricultural laborers, carpentry/masonry, and fishing/animal husbandry. In PACT households, there were four income sources in Ayartaw (20%) as they did agricultural laborers, cloth weaving, street vendors and animal husbandry mostly; Bogale (4%) as they did agricultural laborers, carpentry/masonry, animal husbandry/fishing and street vendors (Table 4.7).

#### **4.2.3 Remittance money from other places**

Some of both MADB and PACT households got remittance money from other places because there was one or two of their family members work in other local places or abroad and they often transfer money to the families. In MADB clients, 9% in Ayartaw and 5% in Bogale got remittance money from other places. In PACT clients, 11% in Ayartaw and 5% in Bogale got remittance money from other places (Table 4.8).

**Table 4.7 Income sources diversification of the respondents' households**

<b>No. of job/household</b>	<b>MADB households</b>		<b>PACT households</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
One job	18(23)	10(13)	11(14)	9(11)
Two jobs	45(56)	37(46)	31(39)	26(33)
Three jobs	14(18)	32(40)	22(28)	42(53)
Four jobs	3(4)	1(1)	16(20)	3(4)

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.8 Remittance money from other places**

<b>Particulars</b>	<b>MADB households</b>		<b>PACT households</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
Remittance money	7(9)	4(5)	9(11)	4(5)
Not remittance money	73(91)	76(95)	71(89)	76(95)

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.9 Farm size of respondent households in study areas**

<b>Farm size (hectares)</b>	<b>MADB clients</b>		<b>PACT clients</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
Average	3.62	3.10	1.05	1.00
Maximum	11.34	18.22	2.02	2.02
Minimum	0.61	0.40	0.40	0.40
SD	5.75	6.23	1.37	1.37

Note: Sample size of each group is 80.

#### **4.2.4 Farm size of respondent households in study areas**

Although average farm sizes of MADB client households in both Townships were slightly different: 3.62 ha in Ayartaw and 3.10 ha in Bogale, those of PACT client households in both townships were similar: 1.05 ha in Ayartaw and 1.00 ha in Bogale. Maximum farm size of MADB client households in Ayartaw was smaller (11.34 ha) than that in Bogale (18.22 ha). Minimum farm size of MADB client households in Ayartaw was larger (0.61 ha) than that in Bogale (0.40 ha). In the case of PACT clients, maximum farm sizes in both places were the same, 2.02 ha respectively as well as minimum farm sizes in both places were the same, 0.40 ha respectively (Table 4.9).

Total crop production areas of MADB clients were 287.80 ha in Ayartaw and 234.98 ha in Bogale. In PACT clients, total production areas in Ayartaw were 36.96 ha and that in Bogale were 18.42 ha. Land holding and land utilization by the respondents in study areas was shown in Appendix 2.

#### **4.2.5 Cultivated varieties of crops, cost of inputs and crop prices in the study areas**

Being both wet and dry land there, clients in Ayartaw Township cultivated different kinds of crops: rice, pigeon pea, groundnut, sesame, broad bean, betel and Thanakhar. The cultivated rice varieties in Ayartaw were Shwebo Pawsan and Ayeyarmin. Cost of inputs for rice (average of Shwebo Pawsan and Ayeyarmin) in Ayartaw ranged from 130,000-170,000 MMK/ac (321,110-419,900 MMK/ha). The price of rice in Ayartaw in 2014 was 6,000-10,000 MMK/basket (287,081-478469 MMK/ton) (Table 4.10).

However, clients in Bogale Township cultivated only rice as there was only wet land. The cultivated rice varieties in Bogale were Hnankar, Pawsan and Theehtatyin. Cost of inputs for rice (average of Hnankar, Pawsan and Theehtatyin) in Bogale varied 120,000-190,000 MMK/acre (296,400-469,300 MMK/ha). The price of rice there was 3,800-6,500 MMK/basket (181,818-311,005 MMK/ton) in 2014 (Table 4.11).

**Table 4.10 Input cost and price of crops in Ayartaw Township (2014-2015)**

<b>Crop</b>	<b>Cost of inputs</b>		<b>Crop price</b>	
	<b>MMK/acre</b>	<b>MMK/ha</b>	<b>MMK/basket</b>	<b>MMK/ton</b>
Paddy	130,000 -170,000	321,110-419,900	6,000-10,000	287,081-478469
Pigeon pea	50,000-80000	123,500-197,600	22,000-24,000	672,783-733,945
Groundnut	100,000-120,000	247,000-296,400	10,000-15,000	877,193-1,315,789
Sesame	70,000-120,000	172,900-296,400	23,000-29,000	938,776-1,183,673
Green gram	100,000-130,000	247,000-321,110	30,000-32,000	917,431-978,593

**Table 4.11 Input cost and price of crops in Bogale Township (2014-2015)**

<b>Crop</b>	<b>Cost of inputs</b>		<b>Crop price</b>	
	<b>MMK/acre</b>	<b>MMK/ha</b>	<b>MMK/basket</b>	<b>MMK/ton</b>
Monsoon rice	120,000-150,000	296,400-370,500	3,800-6,500	181,818-311,005
Summer rice	120,000-190,000	296,400-469,300	3,800-6,500	181,818-311,005

#### 4.2.6 Seasonal and cash crops grown by the respondents

There are 3 types of cropping season in Myanmar: winter, summer and monsoon. Winter and monsoon crops were grown primarily in Ayartaw and summer and monsoon paddy were grown in Bogale. There were both wet land and dry land in Ayartaw and only wet land in Bogale.

Among Ayartaw MADB clients, groundnut was grown by 49% of the clients. Sesame and green gram were cultivated by 11% of the clients and 3% of the clients respectively. Moreover, 4% of the clients produced black gram and another 4% of the clients produced broad bean as 2013 winter crops. In 2014 summer crops, rice was cultivated by only 1% of client. Sesame and green gram were grown by 11% of the clients and 3% of the clients respectively. In 2014 monsoon crops, all clients produced monsoon rice. Groundnut and sesame were cultivated by 10% of the clients and 3% of the clients respectively. Pigeon pea and broad bean were produced by 13% of the clients and 5% of the clients. Green gram was grown by only 1% of the clients.

Among Bogale MADB clients, all clients cultivated both summer paddy and monsoon paddy in 2014. Therefore, when MADB clients in Ayartaw and Bogale were compared, Ayartaw MADB clients had more farm income sources from crop production as they could diversify the crops (Appendix 3).

Based on the soil condition, different kinds of cash crops were grown. In the case of cash crops, 16% of MADB clients in Ayartaw cultivated betel vine and 5% of them established Thanakhar farm. Differently, only 1% of MADB clients in Bogale cultivated betel vine, 13% of Bogale MADB clients had coconut farms and another 13% had areca nut farms (Appendix 4).

Similarly with MADB clients, PACT clients cultivated winter and monsoon crops primarily in Ayartaw and summer and monsoon paddy were cultivated in Bogale. In Ayartaw, groundnut was grown by 8% of clients. Sesame and green gram were produced by 3% of the clients and 1% of the clients respectively as 2013 winter crops. Moreover, 6% of the clients cultivated sesame as 2014 summer crop. In 2014 monsoon crops, paddy was grown by 16% of clients. Groundnut, sesame and green gram were produced by 6% of the clients, 1% of the clients and 13% of the clients respectively. In Bogale, 20% of the clients cultivated summer paddy as well as monsoon paddy in 2014 (Appendix 5).

In the case of cash crops, 5% of Ayartaw PACT clients cultivated betel vine and only 1% of Bogale PACT clients planted coconut depending on soil condition and adaptability of crops and trees (Appendix 6).

#### **4.2.7 Annual household income**

In MADB households, the average farm income in Ayartaw (2.7 million MMK) was higher than that in Bogale (2.2 million MMK). The average non-farm income of Ayartaw MADB households (2.0 million MMK) was also higher than that of Bogale MADB households (1.1 million) (Table 4.12). The main occupations of all MADB households in both places were farming. Ayartaw MADB households earned farm income by cultivating not only paddy but also dry land crops MADB households in Bogale received farm income by growing paddy only. In the case of non-farm income, Ayartaw MADB households had better income sources as 13% of household members did cloth weaving, 7% were carpenters and masons, and 7% had grocery business. Bogale MADB households had income sources as 5% of household members did carpentry/masonry and 4% of household members earn non-farm income by doing motor-bike taxi/boat-man (Appendix 1).

In PACT households, the average farm income of Ayartaw households (0.5 million MMK) was lower than that of Bogale households (0.9 million MMK). However, the average non-farm income of Ayartaw households (2.3 million MMK) was higher than that of Bogale households (1.5 million MMK). Therefore, total average income in Ayartaw PACT households was higher than that in Bogale PACT households, but it was not too different (Table 4.12). PACT households in both places earned farm income by doing agricultural laborers and animal husbandry. In Ayartaw, 32% of household members were agricultural laborers and 4% of household members did animal husbandry. In Bogale, 29% of household members were agricultural laborers and 2% did animal husbandry/fisheries. PACT households in both places also earned non-farm income by doing grocery/ mobile vendor, weaver/tailor, carpentry/masonry businesses mostly. In Ayartaw, 8% of household members had grocery/mobile vendor businesses, 15% did weaver/tailor businesses. In Bogale, 13% of household members were carpenters/masons, 7% of household members had grocery/mobile vendor businesses (Appendix 1).



However, minimum farm income of both clients in Ayartaw showed negative sign; (-0.8 million MMK) and (-2.0 million MMK) in MADB clients and in PACT clients respectively. One of Ayartaw MADB clients and three PACT clients established Thanakhar farms and they had invested capital in them since the last three years ago. There was any production yield of Thanakhar until 2015. Therefore, their farm income from Thankhar farm showed negative. Although their farm income from annual crops showed the positive sign, their farm income from cash crop (Thankhar farm) showed negative sign. As their farm income from cash crop (Thankhar farm) was higher than their farm income from annual crops, the minimum farm income showed negative sign (Table 4.12).

**Table 4.12 Annual incomes of respondent households in study areas  
(million MMK)**

Income	MADB households				PACT households			
	Ayartaw		Bogale		Ayartaw		Bogale	
	Farm	Non-farm	Farm	Non-farm	Farm	Non-farm	Farm	Non-farm
Average	2.7	2.0	2.2	1.1	0.5	2.3	0.9	1.5
Maximum	6.8	7.8	5.8	5.4	2.2	7.4	2.3	4.4
Minimum	(0.8)	0.5	0.4	0.2	(2.0)	0.5	0.1	0.2
SD	1.4	1.5	1.3	0.9	0.7	1.4	0.5	0.8

Note: Sample size of each group is 80. Value in parentheses is negative.

**Table 4.13 Average expenditures of respondent households in study areas  
(million MMK)**

Expenditures	MADB households		PACT households		
	Ayartaw	Bogale	Ayartaw	Bogale	
<b>Expenditures in food items</b>					
Rice		0.2	0.3	0.2	0.2
Cooking oil		0.2	0.1	0.1	0.1
Miscellaneous food items		1.2	1.0	0.7	0.6
<b>Expenditures in non-food items</b>					
Education		0.6	0.4	0.5	0.3
Health		0.2	0.2	0.1	0.1
Cloth		0.2	0.1	0.1	0.1
Water, power and fuel		0.1	0.1	0.1	0.1
Social		0.7	0.4	0.3	0.4
Phone bill and others		0.3	0.2	0.2	0.1
Business expenses		1.4	1.8	0.2	0.1

Note: Sample size of each group is 80.

#### **4.2.8 Average household expenditures including business activities**

Expenses for food items and non-food items were main particulars of household expenditures. Expenses in food items were similar in both places. Ayartaw MADB households spent 0.2 million MMK for rice, 0.2 million MMK for cooking oil and 1.2 million MMK for miscellaneous food items. Bogale MADB households spent 0.3 million MMK for rice, 0.1 million MMK for cooking oil and 1.0 million MMK for miscellaneous food items. In the case of Ayartaw PACT households, 0.2 million MMK for rice, 0.1 million MMK for cooking oil and 0.7 million MMK for miscellaneous food items were spent. In the case of Bogale PACT households, 0.2 million MMK for rice, 0.1 million MMK for cooking oil and 0.6 million MMK for miscellaneous food items were spent (Table 4.13).

Relating to non-food items, education expenses were higher in Ayartaw MADB households (0.6 million MMK) than that in Bogale MADB households (0.4 million MMK). Education expenses in Ayartaw PACT households were higher (0.5 million MMK) than that in Bogale PACT households (0.3 million MMK). Therefore, both MADB and PACT households in Ayartaw invested more in education (Table 4.13).

Furthermore, another non-food expense was social dealings such as giving gifts and money in wedding receptions, donations in traditional ceremonies and funeral etc. Among them, MADB households in Ayartaw spent the highest amount (0.7 million MMK) in social dealings. Ayartaw MADB households also spent more in phone bill and others (0.3 million MMK). MADB respondents in Ayartaw said that relating to the social dealings, they had to spend phone bill in contacting with their relatives and friends who stay away from the villages. Other expenses of MADB households were not too different in both places. In the case of PACT households, expenses in social dealings were not too different in both places: 0.3 million MMK in Ayartaw and 0.4 million MMK in Bogale (Table 4.13).

Expenses in business was higher in Bogale MADB households (1.8 million MMK) than that in Ayartaw MADB clients (1.4 million MMK) because there were rice production in both monsoon and summer season in Bogale and the cost of rice production was higher than that of other crops. In the case of PACT households, business expenses in Ayartaw was higher (0.2 million MMK) than that in Bogale (0.1 million MMK) (Table 4.13).

#### **4.2.9 Balance of income and expenses in respondent households**

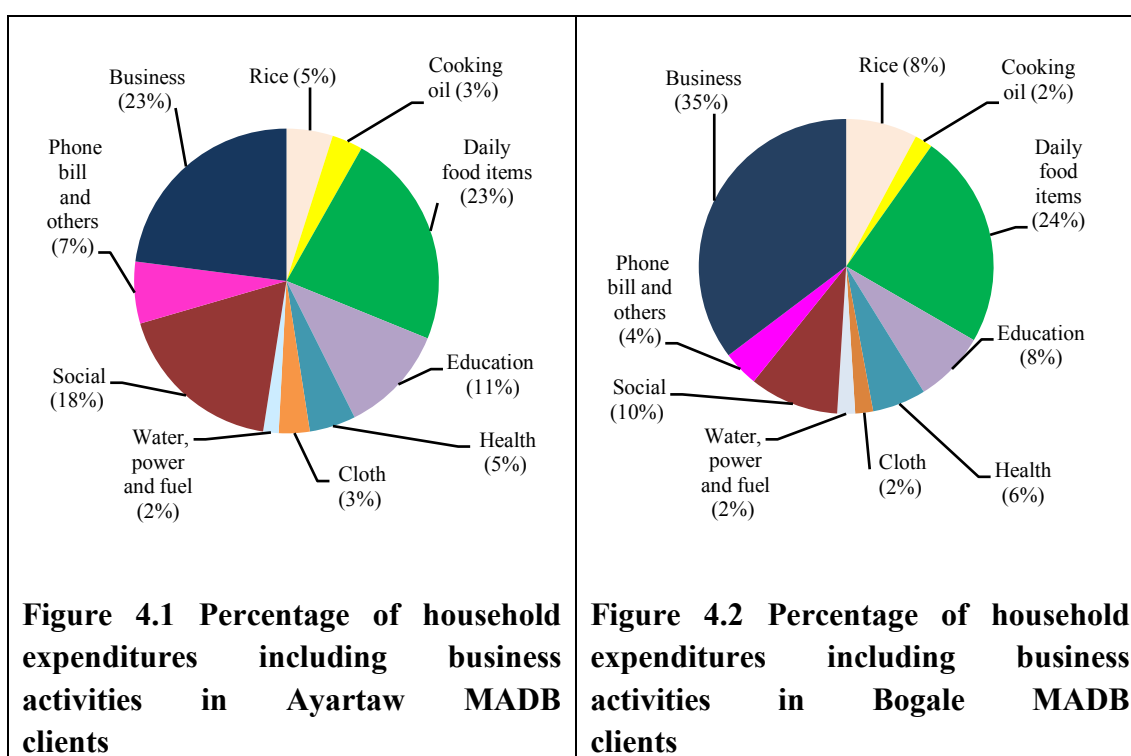
Income of Ayartaw MADB households (5.28 million MMK) was higher than that of Bogale MADB clients (4.67 million MMK). Household expense of Ayartaw MADB households (3.5 million MMK) was also higher than that of Bogale MADB households (2.8 million MMK). However, business expense of Bogale MADB households (1.8 million MMK) was higher than that of Ayartaw MADB households (1.4 million MMK). Ayartaw MADB households saved money (0.38 million MMK) more than Bogale MADB households (0.06 million MMK) (Table 4.14).

In the case of PACT households, Ayartaw households had slightly higher income (2.66 million MMK) than Bogale households (2.20 million MMK). Ayartaw PACT households had higher household expense (2.30 million MMK) than Bogale households (2.0 million MMK). Business expense of Ayartaw households was higher (0.2 million MMK) than that of Bogale households (0.1 million MMK). Saving money of Ayartaw households was rather higher (0.16 million MMK) than that of Bogale households (0.10 million MMK) (Table 4.14).

**Table 4.14 Balance of income and expenses in respondent households**  
(million MMK)

Items	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Average income	5.28	4.67	2.66	2.20
Average household expenses	3.50	2.80	2.30	2.00
Average expenses in business	1.40	1.80	0.20	0.10
Average saving	0.38	0.06	0.16	0.10

Note: Sample size of each group is 80.



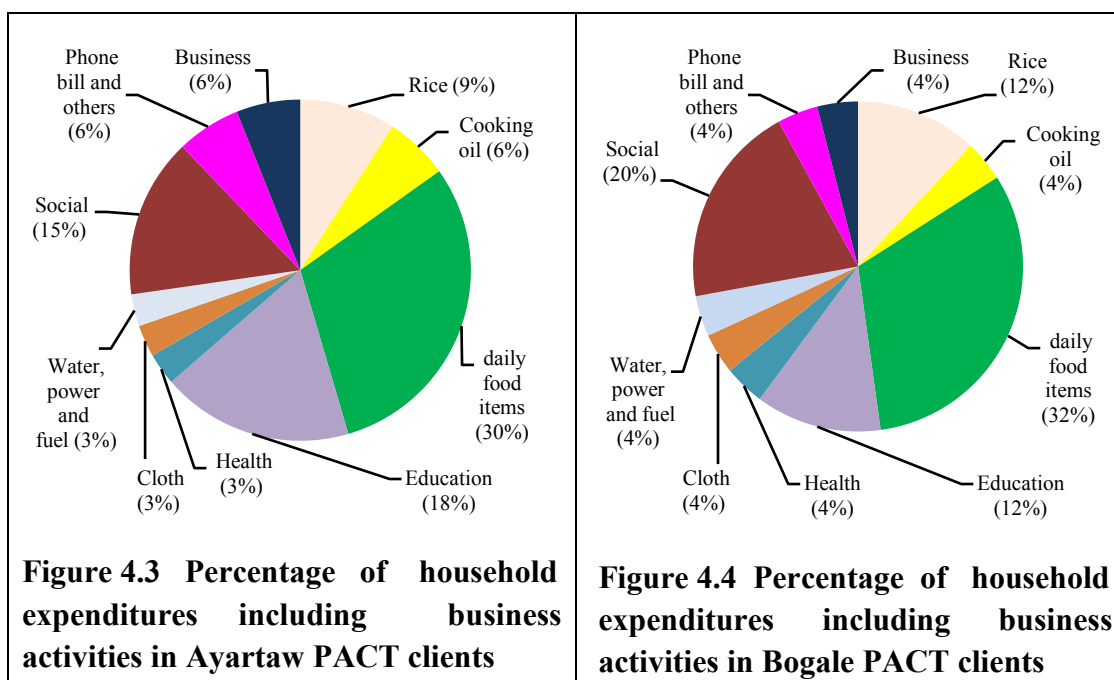
#### **4.2.10 Percentage of household expenditures including business activities of the respondent households**

Household expenditures were divided into two types: expenses in food items and expenses in non-food items. Food item expenses included expenses for rice, cooking oil and daily food items. Non-food item expenses included expenses for education, health, cloth, social dealings, etc. There was also expense in business activities in the respondent households.

There was not too much difference in food item expenses in both places. In non-food items, there were some differences for social expenses of Ayartaw MADB households and Bogale MADB households. Ayartaw MADB households spent 18% of total expenditures and Bogale MADB households spent 10% of total expenditures in social dealings. Ayartaw MADB respondents said that there were many traditional donation ceremonies in 2014 and so their expenses for social dealings were high (Figure 4.1 and 4.2).

In the case of business expenses, Ayartaw MADB households spent 23% of total expenditures in their business and Bogale MADB households spent 35% total expenditures in their business respectively. Bogale MADB households usually cultivated both monsoon and summer rice. Ayartaw MADB households cultivated only monsoon rice although they diversified the crops. The cost of rice production was higher than other dry land crops. Therefore, Bogale MADB households used business expenses more (Figure 4.1 and 4.2).

In PACT clients, Ayartaw clients used 15% and 18% of total expenditures for social dealings and education respectively. Bogale clients used 20% of total expenditures in social dealings and 12% of total expenditures in education. Therefore, it was found that Ayartaw households invested more expenses in education and Bogale households used more expenses in social dealings (Figure 4.3 and 4.4).



**Table 4.15 Saving condition of the respondents**

Saving style	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Buying farm land	1(1)	1(1)	1(1)	1(1)
Buying gold	3(4)	2(3)	2(3)	2(3)
In cash + buying gold	4(5)	2(3)	2(3)	1(1)
In cash	15(19)	5(6)	2(3)	1(1)
Voluntary saving at MADB/PACT	0(0)	0(0)	18(23)	16(20)
Compulsory saving at MADB/PACT	80(100)	80(100)	80(100)	80(100)

Note: Sample size of each group is 80. Value in parentheses is percentage.

#### 4.2.11 Saving condition of the respondents

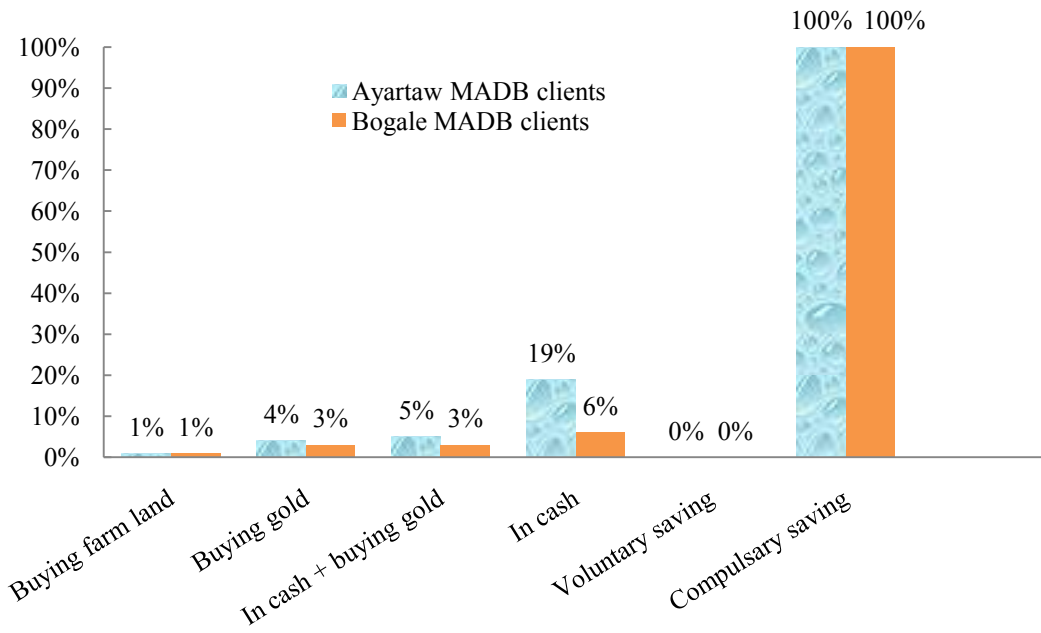
There were six types of saving styles: buying farm land, buying gold, saving in cash plus buying gold, saving in cash, voluntary saving at MADB/PACT and compulsory saving at MADB/PACT (Table 4.15).

Saving condition of buying farm land was the same in both places; only 1% of MADB clients as well as 1% of PACT clients behaved it. However, Ayartaw MADB clients had the highest percentage in the three saving styles: 4% of the clients bought gold, 5% bought gold plus saved money in cash and 19% saved money in cash. In the case of Bogale MADB clients, 3% of the clients bought gold as saving and another 3% did buying gold plus saved money in cash and 6% saved money in cash only. Moreover, MADB clients in both places had compulsory saving and did not have voluntary saving (Table 4.15).

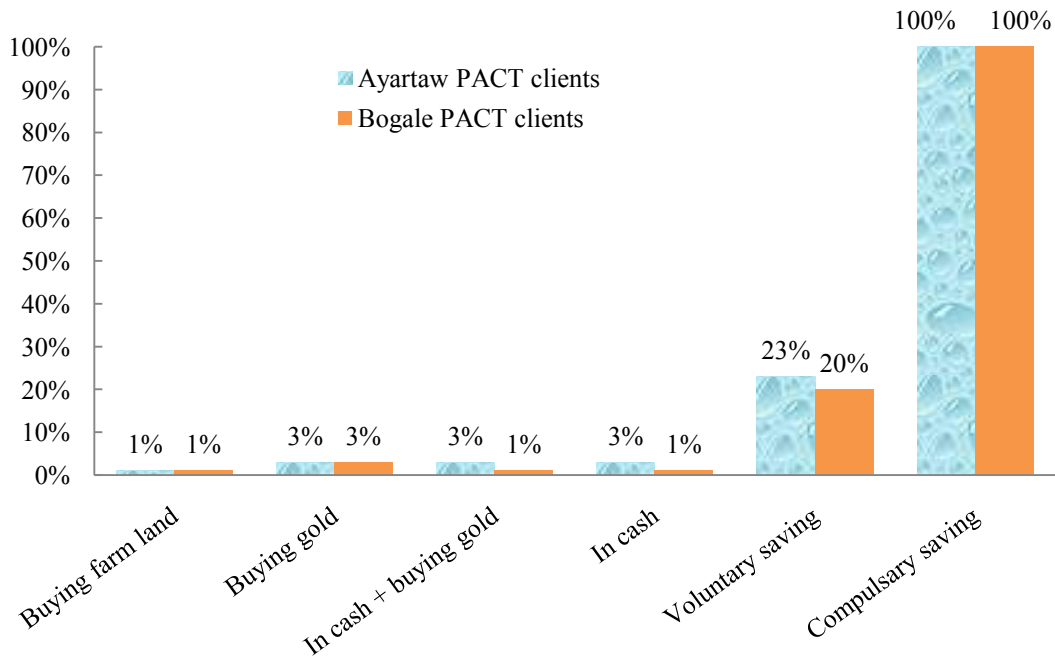
In the saving styles of Ayartaw PACT clients, 3% of the clients bought gold, followed by another 3% saved money in cash plus buying gold and another 3% saved money in cash only. In Bogale PACT clients, 3% of the clients bought gold, 1% bought gold plus saved money in cash and another 1% saved money in cash only. Furthermore, 23% of Ayartaw PACT clients and 20% of Bogale PACT clients had voluntary saving. All PACT clients in both townships had compulsory saving (Table 4.15).

Therefore, when saving conditions of Ayartaw MADB clients and that of Bogale MADB clients were compared, it was found that the former had better saving condition (Figure 4.5). Then, when comparing the saving conditions of Ayartaw PACT clients and Bogale PACT clients, it was seen that Ayartaw PACT clients had better saving condition (Figure 4.6).





**Figure 4.5 Saving condition of MADB clients in study areas**



**Figure 4.6 Saving condition of PACT clients in study areas**

#### **4.2.12 Power and fuel availability of respondent households**

Relating to power availability, around 70% of respondent households in both places used village own generator because power was delivered from 6pm to 10 pm daily and it costs only 1800 MMK/month. However, 15-16% of respondent households used solar plates and 13-15% of households used battery and candles in both places because the living buildings of those households were located in the farms and power from village own generator could not deliver to reach them.

Concerning with fuel, all MADB and PACT households in Ayartaw used firewood because of dry and hot weather condition in Ayartaw and firewood could be gotten easily from the farms. In the case of MADB and PACT households in Bogale, 25% of MADB households and 29% of PACT households used paddy husk. Besides, another 25% of MADB households and 19% of PACT households in Bogale used saw dust. The respondents said that they could buy rice husk and saw dust easily as there were rice mills and saw mills near the villages. However, 52% of households in Bogale used firewood because they could get firewood from their farms. There was no electricity availability due to government electric service in the survey villages (Table 4.16).

#### **4.2.13 Availability of drinking water and domestic use water**

Health conditions of household members are usually related to drinking and domestic used water quality. In the study areas, water sources were underground water, rain water and river water.

All MADB and PACT households in Ayartaw used underground water for drinking and domestic use because there was not river in Ayartaw, low annual rainfall and extraction of underground water was the only main source for drinking and domestic use for households.

In Bogale, 50% of MADB and PACT households in Bogale used underground water for drinking. The rest 50% of the households in Bogale used rain water for drinking. There was high annual rainfall and underground water could be extracted easily in Bogale. The respondents in Bogale said that according to their preferences, some households saved rain water to drink for the whole year and some used underground water for drinking.

In the case of domestic used water, 50% of both MADB and PACT households in Bogale used underground water because the respondents said that there were underground water sources as tube wells near their houses. The rest 50% of both MADB and PACT households used river water as domestic use because although there were underground water sources, they used river water as domestic use according to their preferences. Moreover, they felt that it was easier to use river water especially in taking a bath and washing clothes at the river bath gate area (Table 4.17).

With respect to drinking water management, all respondents in both places said that they used filter to be clean the drinking water because they had adopted this practice since they were young. In Ayartaw, 50% of MADB households and 25% of PACT households drank boiled water because these respondents said that they felt that drinking boiled water is good for their health especially for their stomach as staffs from Ministry of Health came and discussed them at the meeting yearly. In Bogale, 38% of MADB households and 25% of PACT households drank boiled water because they believed boiled water is a good medicine and they felt healthy by drinking boiled water daily as staffs from Ministry of Health and NGOs educated and discussed them to be healthy. In Ayartaw, respondents said that they do not manage specifically in domestic use water because they believed that the available domestic use water is clean and clear enough for them. However, in Bogale, 38% of MADB households and 13% of PACT households added alum to be clean the water because the respondents said that this is their traditional way or method as well as staffs from NGOs usually educates them to use this way to be clean and to reduce contaminations in domestic use water (Table 4.17).

**Table 4.16 Power and fuel availability of respondent households**

Source	MADB households		PACT households	
	Ayartaw	Bogale	Ayartaw	Bogale
<b>Power</b>				
Village own generator	56 (70)	55 (69)	57 (71)	56 (70)
Solar plate	12 (15)	13 (16)	13 (16)	12 (15)
Battery and candle	12 (15)	12 (15)	10 (13)	12 (15)
<b>Fuel</b>				
Firewood	80 (100)	40 (50)	80 (100)	42 (52)
Paddy husk	-	20 (25)	-	23 (29)
Saw dust	-	20 (25)	-	(19)

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.17 Water availability of respondent households**

Source	MADB households		PACT households	
	Ayartaw	Bogale	Ayartaw	Bogale
<b>Drinking water</b>				
Underground water	80 (100)	40(50)	80(100)	40(50)
Rain water	-	40(50)	-	40(50)
<b>Drinking water management</b>				
Using water filter	80(100)	80(100)	80(100)	80(100)
Boiling water	40(50)	30(38)	20(25)	20(25)
Adding alum	-	30(38)	-	10(13)
<b>Domestic use water</b>				
Underground water	80(100)	40(50)	80(100)	40(50)
River water	-	40(50)	-	40(50)

Note: Sample size of each group is 80. Value in parentheses is percentage.

### **4.3 Social capital of Respondents' Households**

#### **4.3.1 Access to education of the respondents' household members**

Education accesses of the respondents' household members were not different in both places. In MADB households, 26% in Ayartaw and 27% in Bogale finished primary level of education. In PACT households, 25% in Ayartaw and 27% in Bogale had primary level of education. In the case of secondary education level, 21% of Ayartaw MADB household members, 23% of Bogale MADB household members, 22% of Ayartaw PACT household members and 21% of Bogale PACT household members got it. In high school level education, 11% of Ayartaw MADB household members, 10% of Bogale MADB household members, 13% of Ayartaw PACT household members and 10% of Bogale PACT household members had it. Relating to graduated level, 2% of Ayartaw MADB household members and 1% of each Bogale MADB household members, Ayartaw PACT household members and Bogale PACT household members got it. Therefore, education levels of the respondent household members were not too different and 59-61% of the respondent household members in both places had education accesses at each level (Table 4.18).

#### **4.3.2 Female participation in decision making activities**

In both Townships, 50-80% female participation in decision making of loan allocation, loan repayment and family expenses was found in 40-56% of households. The respondents from those households in both places said that their household members (both males and females) usually decide together in decision making. Furthermore 100% female participation in decision making was found in 5% of Ayartaw and 1% of Bogale MADB client households, 8% of Ayartaw and 7% of Bogale PACT client households because household heads were females in those cases. There was no female participation in decision making was found in only 1% of Ayartaw and Bogale MADB client households respectively because the respondents said that females were not allowed in decision making by males in this case (Table 4.19).

**Table 4.18 Access to education of the respondents' household members**

Education access	MADB household		PACT household	
	members		members	
	Ayartaw (N=379)	Bogale (N=350)	Ayartaw (N=344)	Bogale (N=337)
Primary level	100(26)	95(27)	87(25)	90(27)
Secondary level	80(21)	80(23)	77(22)	70(21)
High school level	40(11)	35(10)	46(13)	33(10)
Graduated	8(2)	5(1)	5(1)	4(1)

Note: Value in parentheses is percentage.

**Table 4.19 Female participation in decision making activities**

Decision making (percent)	MADB household		PACT household	
	female members		female members	
	Ayartaw (N=212)	Bogale (N=176)	Ayartaw (N=194)	Bogale (N=179)
Not at all	3(1)	2(1)	-	-
Fifty	108(51)	92(56)	100(52)	92(51)
Fifty one to eighty	91(43)	70(42)	78(40)	75(42)
One hundred	10(5)	2(1)	16(8)	12(7)

Note: Value in parentheses is percentage.

### **4.3.3 Female participation in the organizations in the village**

Female household members (14-16%) of the respondent households in both places were participated in the village development activities such as working together in building and repairing of roads, bridges, public buildings such as clinics, schools, and so on. Female household members (31-38%) of the respondent households in both places were participated in the social activities such as helping in Universal Childhood Immunization (UCI) performances leaded by Ministry of Health and vaccination performances leaded by some NGOs, and participating in donation ceremonies in the village. The respondents in both places said that female household members are interested in doing team activities and they are getting willingness to participate in those activities because they get experiences to do team work from group lending and collection methods of MADB and PACT (Table 4.20).

### **4.3.4 Household member participation in the organizations of the village**

In both townships, 40-45% of household members (both male and female) of the respondent households could participate in the organizations (village development activities and social activities) in the village. The respondents discussed that their household members had willingness to do team activities due to the experiences of MADB and PACT loan performances respectively. Moreover, they were interested and like to do team activities: participating in village governance, participating in village development activities, and help in social activities (Table 4.21).

**Table 4.20 Female participation in the organizations in the village**

<b>Organizations</b>	<b>MADB household</b>		<b>PACT household</b>	
	<b>female members</b>		<b>female members</b>	
	<b>Ayartaw</b> <b>(N=212)</b>	<b>Bogale</b> <b>(N=176)</b>	<b>Ayartaw</b> <b>(N=194)</b>	<b>Bogale</b> <b>(N=179)</b>
Village governance	-	-	-	-
Village development activities	30(14)	28(16)	27(14)	26(15)
Social activities	65(31)	66(38)	63(32)	66(37)

Note: Value in parentheses is percentage.

**Table 4.21 Household member participation in the organizations in the village**

<b>Organizations</b>	<b>MADB household</b>		<b>PACT household</b>	
	<b>members</b>		<b>members</b>	
	<b>Ayartaw</b> <b>(N=379)</b>	<b>Bogale</b> <b>(N=350)</b>	<b>Ayartaw</b> <b>(N=344)</b>	<b>Bogale</b> <b>(N=337)</b>
Village governance	4(1)	3(1)	-	-
Village development activities	70(18)	63(18)	65(19)	67(20)
Social activities	88(23)	84(24)	81(24)	83(25)

Note: Value in parentheses is percentage.



#### **4.4 Loan allocation of the Clients**

##### **4.4.1 Loan allocation of the respondent households**

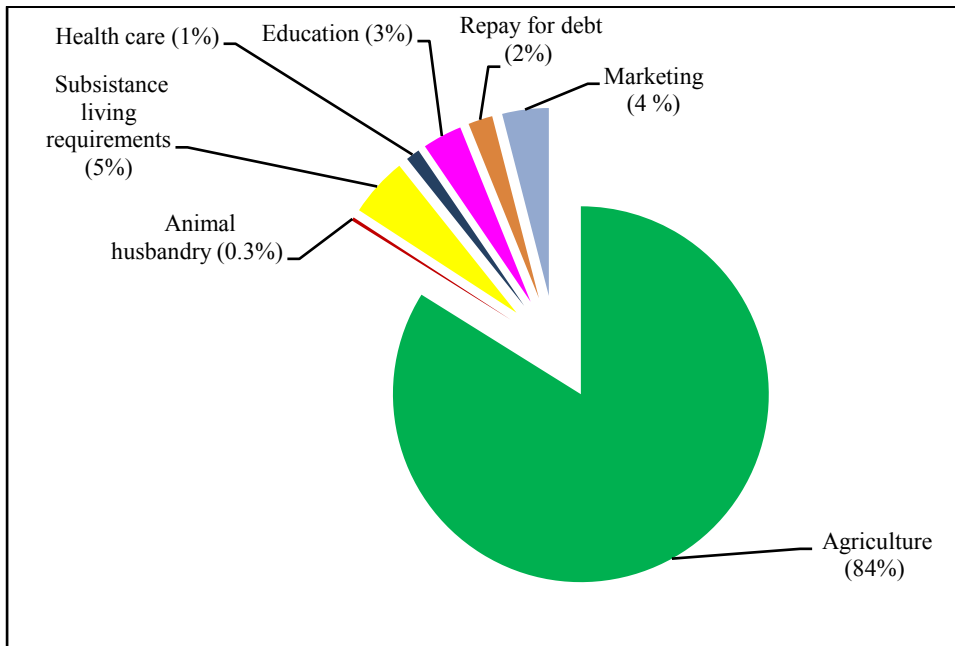
When MADB clients in both Townships were compared, Ayartaw clients used 84% of loan in agriculture, 5% in subsistence living requirements and 2% in repay for debt. Bogale MADB clients used 71% of loan in agriculture, 13% in subsistence living requirements and 10% in repay for debt. Loan allocations in other items were not too different. Therefore, Ayartaw MADB clients had slightly better condition in loan allocation (Table 4.22), (Figure 4.7) and (Figure 4.8).

When PACT clients in both Townships were compared, Ayartaw clients used 57% of loan in marketing which is the main occupation of the most of the clients, 4% in subsistence living requirements and no use to repay for debt. Bogale PACT clients used 55% of loan in marketing, 11% used in subsistence living requirements and 4% used to repay for debt. Therefore, Ayartaw PACT clients and Bogale PACT clients had more or less same condition in loan allocation (Table 4.22), (Figure 4.9) and (Figure 4.10).

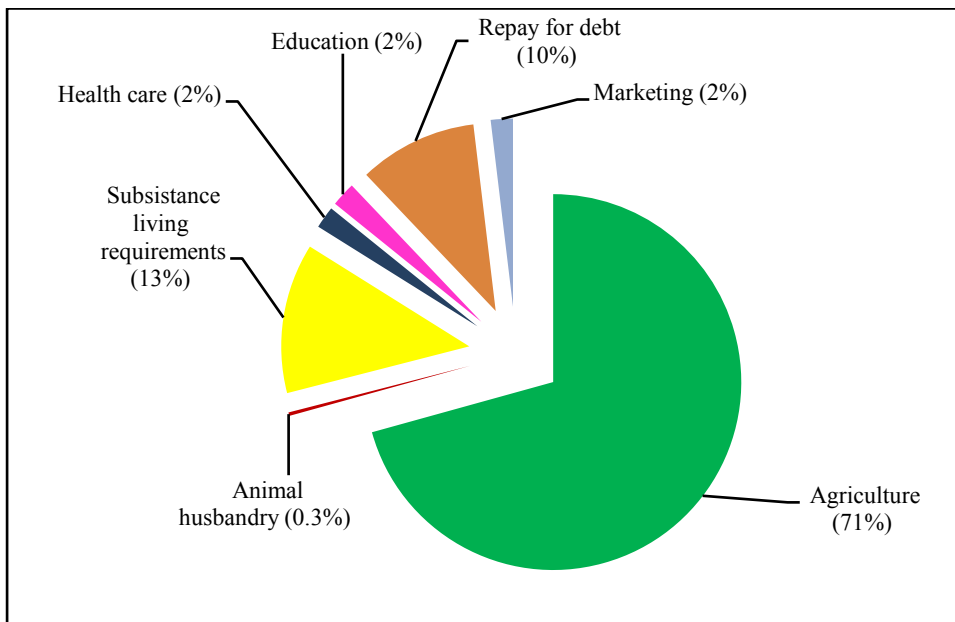
**Table 4.22 Loan allocation of respondent households (MMK)**

<b>Particulars (MMK)</b>	<b>MADB respondent households</b>		<b>PACT respondent households</b>	
	<b>Ayartaw</b>	<b>Bogale</b>	<b>Ayartaw</b>	<b>Bogale</b>
	Agriculture	483,256(84)	815,878(71)	27,716(6)
Animal husbandry	1,731(0.3)	3,464(0.3)	120,590(25)	90,233(21)
Subsistence living requirements	29,427(5)	148,866(13)	18,964(4)	46,819(11)
Health care	6,924(1)	21,926(2)	10,211(2)	2,554(1)
Education	19,618(3)	24,234(2)	32,579(7)	21,707(5)
Repay for debt	12,117(2)	117,708(10)	-	15,748(4)
Marketing	23,080(4)	21,926(2)	276,676(57)	235,371(55)
<b>Total</b>	<b>577,000(100)</b>	<b>1,154,000(100)</b>	<b>486,250(100)</b>	<b>425,625(100)</b>

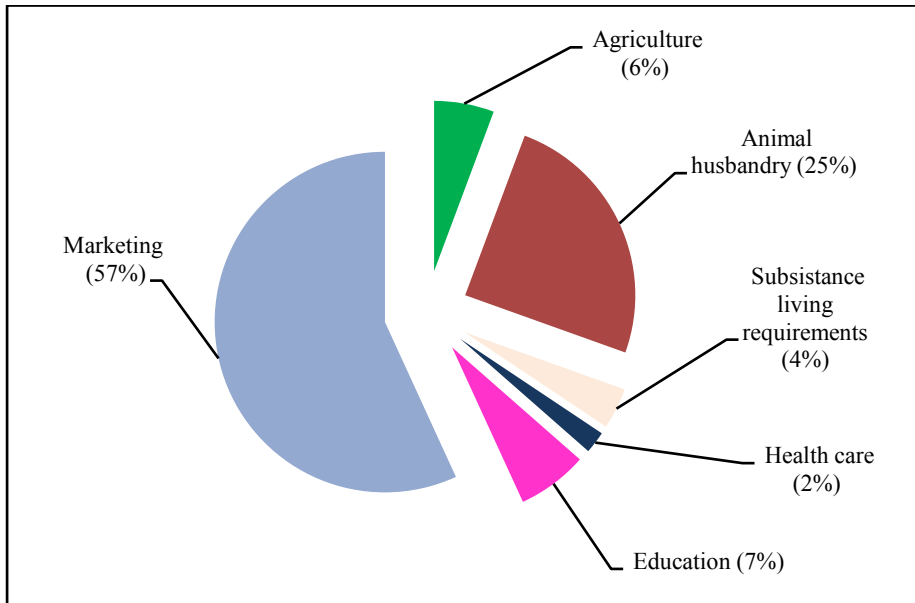
Note: Sample size of each group is 80. Value in parentheses is percentage.



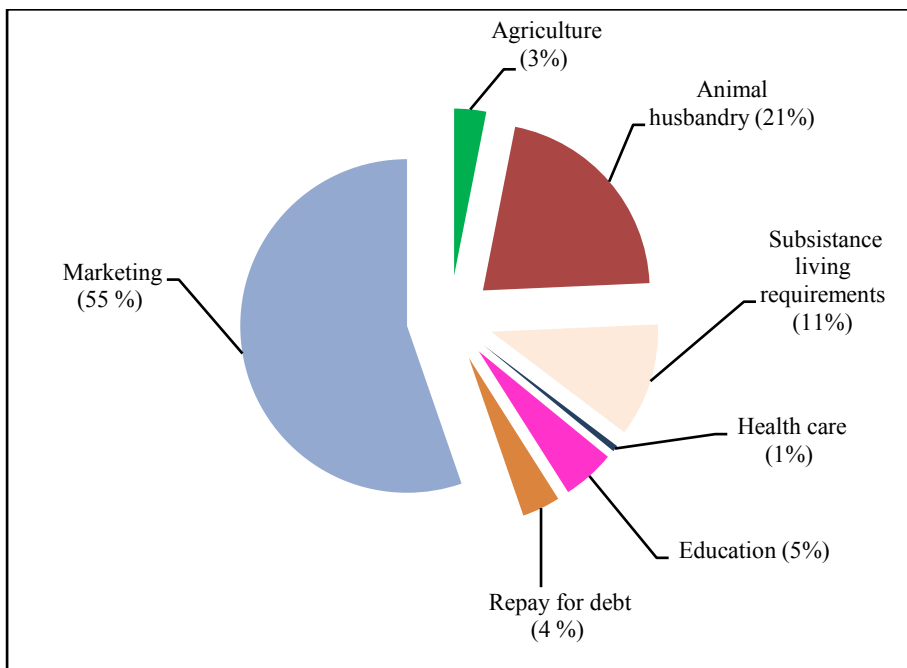
**Figure 4.7 Percentage of loan allocation of Ayartaw MADB clients**



**Figure 4.8 Percentage of loan allocation of Bogale MADB clients**



**Figure 4.9 Percentage of loan allocation of Ayartaw PACT clients**



**Figure 4.10 Percentage of loan allocation of Bogale PACT clients**

#### **4.4.2 Right time of getting loan for the respondents' related business**

Relating to the right time of getting loan for the respondents' business, 28% of Ayartaw MADB clients and 11% of Bogale MADB clients said that they got MADB loan at the right time for their business. Therefore, 73% of Ayartaw MADB clients and 89% of Bogale MADB clients did not get MADB loan at the right time for their business. However, all PACT clients in both places got PACT loan at the right time for their business (Table 4.23).

#### **4.4.3 Factors affecting the percentage of loan allocation in the related business by MADB clients**

According to the regression results on the percentage of loan allocation in the related business by MADB clients, the value of R-square was 0.703 in Ayartaw clients and 0.499 in Bogale clients implying that independent variables explained 70% in Ayartaw and 50% in Bogale respectively for loan allocation in the related business. Loan allocation in the related business was positively related with education level of the clients in both places, significant at 1% level in Ayartaw clients and 5% level in Bogale clients. Loan allocation in the related business increased if education level of the clients were high. It was also positively related with experience years of the clients in joining MADB in both places, significant at 1% level in Ayartaw clients and 5% level in Bogale clients.

Loan allocation in the related business increased as increasing experience years of the clients in joining MADB. Loan allocation in the related business was positively related but not significant with gross farm income ratio in both places. There was positive relationship and significant at 5% level between loan allocation in the related business and female participation in decision making in both places. If female participated in decision making of loan allocation, it was spent in the business more rather than other purposes. There was also positive relationship and significant at 5% level between loan allocation in the related business and right time of getting loan in both places. Loans were also allocated in the related business more if MADB disbursed loans to the clients coinciding with the required time of their farm business.

**Table 4.23 Right time of getting loan and not right time of getting loan for the respondents' related business**

Particulars	MADB client		PACT client	
	Ayartaw	Bogale	Ayartaw	Bogale
Right time getting number	22(28)	9(11)	80(100)	80(100)
Not right time getting number	58(73)	71(89)	-	-

Note: Sample size of each group is 80. Value in parentheses is percentage

**Table 4.24 Factors affecting the percentage of loan allocation in the related business by MADB clients**

Independent variables	Ayartaw MADB clients		Bogale MADB clients	
	Unstandardized		Unstandardized	
	Coefficients (B)	Sig.	Coefficients (B)	Sig.
Constant	43.796	.000	43.449	.003
Education level of client	2.324***	.000	1.297**	.046
Experience years in joining MADB	1.215***	.000	.565**	.031
Gross farm income ratio	.010 <sup>ns</sup>	.827	053 <sup>ns</sup>	.588
Household size	-1.503*	.057	-701 <sup>ns</sup>	.587
Female participation in decision making	.122**	.042	.349**	.005
Household facing the shock	-2.259 <sup>ns</sup>	.400	-11.141**	.003
Right time of getting loan	6.296**	.026	9.583**	.016
R-square	0.703		0.499	
Adjusted R-square	0.674		0.451	

Note: Dependent Variable: Percentage of loan allocation in the business

\*\*\*, \*\* and \* are significant level at 1%, 5% and 10%, ns = not significant

Sample size of each group is 80.

However, loan allocation in the related business was negatively related and significant at 10% level with household size of the clients in Ayartaw. The respondents said that if household size increased, loan allocation in the related business decreased and it may be used in other family expenses: in education purposes, health care purposes and subsistence living requirements etc. In the case of Bogale clients, although household size of the clients was negatively related with loan allocation in the related business, it was not significant. There was also negative relationship and significant at 5% level between loan allocation in the related business and household facing the shock in Bogale clients. Loan allocation in the related business decreased if household suffered shock conditions such as facing natural disasters, high cost in health care and cure purposes. In the case of Ayartaw clients, although there was negative relationship between loan allocation in the related business and household facing the shock, it was not significant (Table 4.24).

#### **4.4.4 Factors affecting the percentage of loan allocation in the related business by PACT clients**

According to the regression results on the percentage of loan allocation in the related business by PACT clients, the value of R-square was 0.752 in Ayartaw clients and 0.892 in Bogale clients showing that independent variables explained 75% in Ayartaw and 89% in Bogale respectively for loan allocation in the related business. Loan allocation in the related business was positively related with education level of Bogale clients and significant at 1% level. It was positively related with education level of Ayartaw clients but not significant. Loan allocation in the related business increased if education level of Bogale clients were high. Loan allocation in the related business was positively related with experience years of the clients in joining PACT in both places and significant at 1% level in Ayartaw and 5% level in Bogale. Loan allocation in the related business increased as increasing experience years of the clients in joining PACT. It was also positive relationship between loan allocation in the related business and gross non-farm income ratio in both places: significant at 10% level in Ayartaw and not significant in Bogale. Gross non-farm income ratio determined loan allocation in the related business more in Ayartaw than in Bogale. There was positive relationship between loan allocation in the related business and female participation in decision making in both places but not significant. There was

negative relationship between loan allocation in the related business and household size but not significant in Ayartaw; however there was positive relationship and not significant in Bogale. There was negative relationship and significant at 1% level between loan allocation in the related business and household facing the shock in both places. Loan allocation in the related business decreased when household suffered shock conditions such as facing natural disasters, high cost in health care and cure purposes (Table 4.25).

#### **4.5 Repayment ability of MADB/PACT loans by the respondents**

##### **4.5.1 Repayment ability of MADB/PACT loans by the respondents according to their business income**

Relating to repayment ability of MADB loans by the respondents, 80% of Ayartaw and 44% of Bogale MADB clients had full repayment ability in MADB loan in time according to the condition of their business income. Eighty percentage of repayment ability due to business income was found in 11% of Ayartaw MADB clients, 4% of Bogale MADB clients. Furthermore, 9% of Ayartaw MADB clients and 5% of Bogale MADB clients had 70% repayment ability respectively. Besides, 16% of Bogale MADB clients had 60% repayment ability and 31% of Bogale MADB clients had 50% repayment ability due to their business income (Table 4.26), (Figure 4.11) and (Figure 4.12).

In the case of PACT clients, 81% of Ayaratw and 75% of Bogale clients had full repayment ability due to their business income. Ninety percentage of repayment ability due to business income was found in 10% of Ayartaw and 6% of Bogale clients. Moreover, 14% of Bogale MADB clients had 80% repayment ability, 9% of Ayartaw and 5% of Bogale PACT clients had 70% repayment ability from their business income (Table 4.26), (Figure 4.13) and (Figure 4.14).



**Table 4.25 Factors affecting the percentage of loan allocation in the related business by PACT clients**

Independent variables	Ayartaw PACT clients		Bogale PACT clients	
	Unstandardized		Unstandardized	
	Coefficients (B)	Sig.	Coefficients (B)	Sig.
Constant	52.220	.000	55.102	.000
Education level of the client	.009 <sup>ns</sup>	.980	1.248***	.001
Experience years in joining MADB	6.028***	.000	1.938***	.000
Gross non-farm income ratio	.147*	.079	.022 <sup>ns</sup>	.513
Household size	-.004 <sup>ns</sup>	.996	.159 <sup>ns</sup>	.812
Female participation in decision making	.050 <sup>ns</sup>	.423	.076 <sup>ns</sup>	.254
Household facing the shock	-25.007***	.000	-20.685***	.000
R-square	0.752		0.892	
Adjusted R-square	0.732		0.883	

Note: Dependent Variable: Percentage of loan allocation in the business

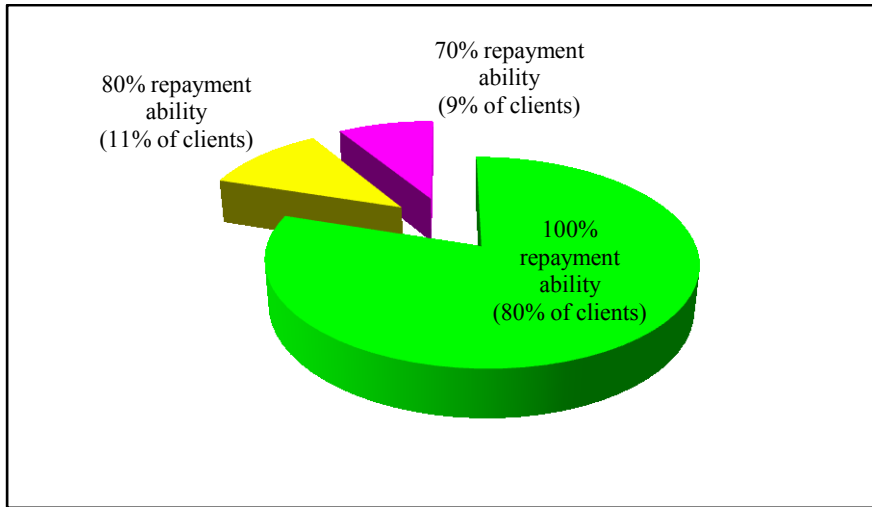
\*\*\*, \*\* and \* are significant level at 1%, 5% and 10%, ns = not significant

Sample size of each group is 80.

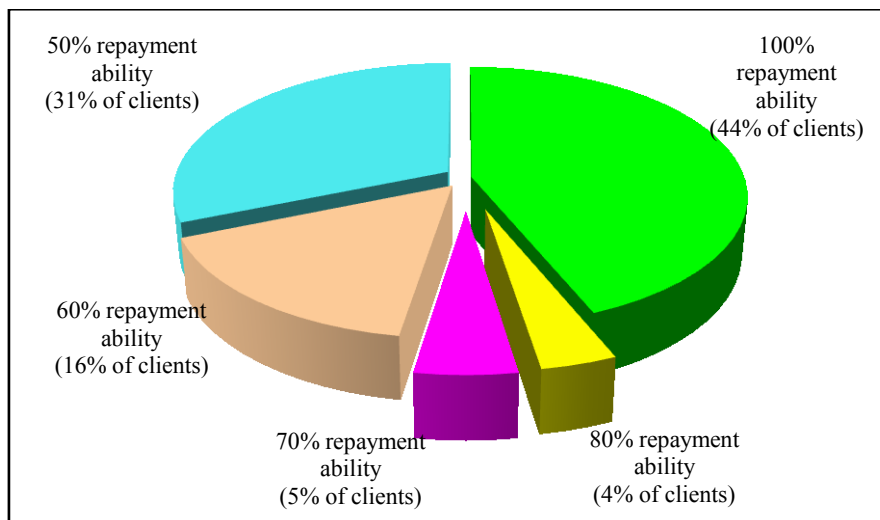
**Table 4.26 Repayment ability of MADB/PACT loans by the respondents according to their business income**

Repayment ability	MADB client		PACT client	
	Ayartaw	Bogale	Ayartaw	Bogale
100% repayment ability	64(80)	35(44)	65(81)	60(75)
90% repayment ability	-	-	8(10)	5(6)
80% repayment ability	9(11)	3(4)	-	11(14)
70% repayment ability	7(9)	4(5)	7(9)	4(5)
60% repayment ability	-	13(16)	-	-
50% repayment ability	-	25(31)	-	-

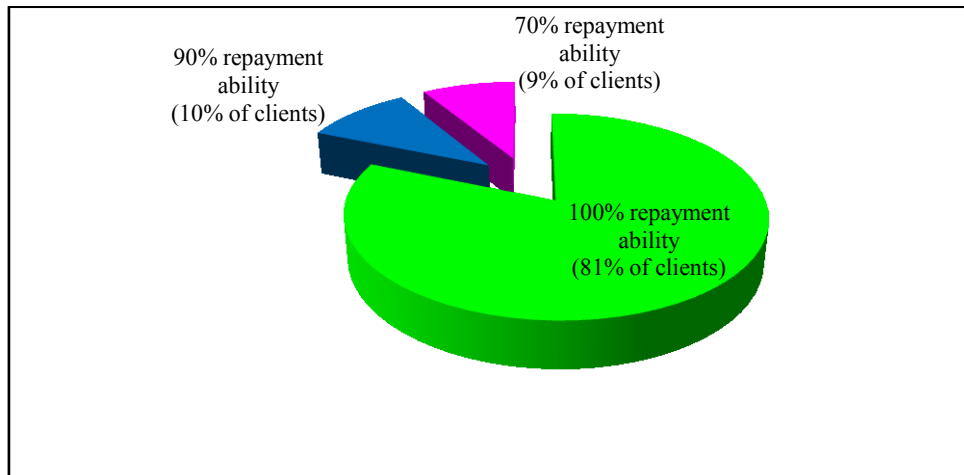
Note: Sample size of each group is 80. Value in parentheses is percentage.



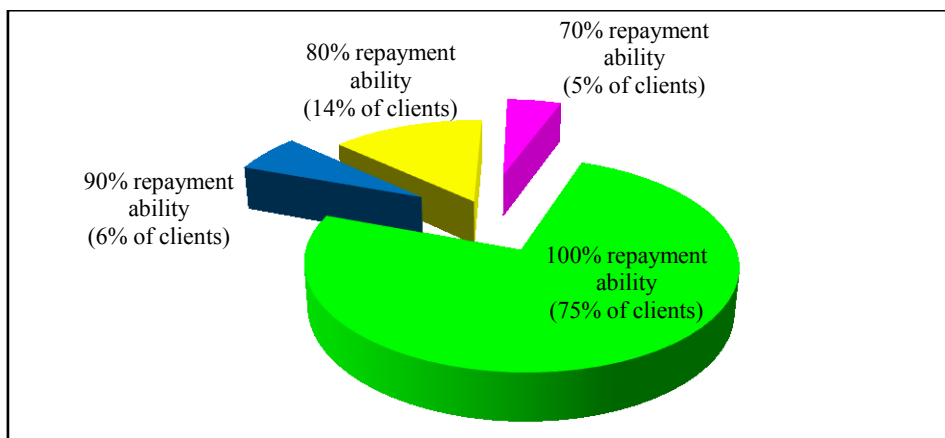
**Figure 4.11 Repayment ability of Ayartaw MADB clients**



**Figure 4.12 Repayment ability of Bogale MADB clients**



**Figure 4.13 Repayment ability of Ayartaw PACT clients**



**Figure 4.14 Repayment ability of Bogale PACT clients**

#### **4.5.2 Factors affecting the percentage of repayment ability of MADB loan by MADB clients**

Regression results on the percentage of repayment ability of loan showed that there was positive relationship with ratio of net farm income in both places and significant at 5% level in Ayartaw clients. Repayment ability of loan by MADB clients increased as their net farm income increased. Getting non-farm income of the clients was positively related with repayment ability of loan in Ayartaw clients. However, it was negatively related with repayment ability of loan in Bogale clients. Getting non-farm income increased repayment ability in Ayartaw and decreased repayment ability in Bogale. Price of paddy was positively related and not significant with repayment ability of loan by the clients in both places. Family labor ratio was also positively related and not significant with repayment ability of loan by the clients in both places. There was positive relationship and not significant between number of jobs in households and repayment ability of loan in Ayartaw. It was negative relationship and not significant in Bogale. Number of jobs increased the household income and loan could be repaid in time in Ayartaw. However, in Bogale, although increasing number of jobs could increase income, it could not be used to repay loan in time (Table 4.27).

Female participation in decision making was also positively related and not significant with repayment ability of loan by the clients in both places. Moreover, repayment ability of loan by MADB clients was positively related and significant with remittance money in both places and significant at 5% level in Ayartaw clients and significant at 10% level in Bogale clients. In both places, repayment ability of loan by MADB clients was highly and positively influenced by female participation in the organization in the village and significant at 1% level in both places. Repayment ability of loan by MADB clients increased as female participation in the organizations in the village increased. Monitoring performance by MADB staffs was also positively related and significant at 5% level with repayment ability of loan by MADB clients. Loan repayment ability increased as monitoring performance by MADB staffs increased.

Repayment ability of loan by the clients was negatively related and not significant with household facing the shock in both places. When households suffered shock such as facing with natural disasters, high care and cure costs for health, they

had to spend more money to solve their shocks rather than in loan repayment. The value of R-square was 0.531 in Ayartaw clients and 0.560 in Bogale clients implying that independent variables explained 53% in Ayartaw and 56% in Bogale respectively for percentage of repayment ability of loan by the clients (Table 4.27).

### **4.5.3 Factors affecting the percentage of repayment ability of PACT loan by PACT clients**

According to the regression results on the percentage of repayment ability of PACT loan by PACT clients, ratio net non-farm income showed positive relationship with it in Ayartaw PACT clients. However, there was negative relationship and significant at 5% level in Bogale PACT clients. Therefore, repayment ability of Ayartaw PACT clients increased as their net non-farm income increased. Bogale PACT clients spent their non-farm income in their subsistence living requirements rather than instead of using it in repaying loan. Getting farm income was positively related with repayment ability of loan by the clients in both places: significant at 5% level in Ayartaw and 10% level in Bogale (Table 4.28).

Working household member ratio was negatively related and not significant with repayment ability of loan by the clients in both places although it seemed to have positive relationship generally. There was negative relationship and not significant between number of jobs in households and repayment ability of loan in Ayartaw. It was positive relationship and not significant in Bogale. Number of jobs increased the household income and loan could be repaid in time in Bogale. However, in Ayartaw, although increasing number of jobs could increase income, it could not be used to repay loan in time (Table 4.28).

There was also negative relationship between remittance money from other places and loan repayment ability in Ayartaw clients. In general sense, it could be positive relationship. Ayartaw clients spent their remittance money in their subsistence living requirements rather than in loan repayment (Table 4.28).

Female participation in decision making was positively related and not significant with repayment ability of loan in both places. There was positive relationship between female participation in the organizations in the village and loan repayment ability: significant at 1% level in Ayartaw and 5% level in Bogale. When females participated in the organizations in the village: participation in the village

development works and social purposes in the villages, they did team work, they shared knowledge each other, etc. Moreover, they repaid loan in time together as group lending and collection method of PACT practiced them to take responsibility as doing team work (Table 4.28).

Repayment ability of loan by the clients was positively related and not significant with household facing the shock in both places. Facing shock such as encountering with natural disasters, high care and cure costs for health could not effect loan repayment of PACT clients in both places. The value of R-square was 0.424 in Ayartaw clients and 0.272 in Bogale clients implying that independent variables explained around 40% in Ayartaw and 30% in Bogale respectively for percentage of repayment ability of loan by the clients (Table 4.28).

**Table 4.27 Factors affecting the percentage of repayment ability of MADB loan by MADB clients**

Independent variables	Ayartaw MADB clients		Bogale MADB clients	
	Unstandardized Coefficients (B)	Sig.	Unstandardized Coefficients (B)	Sig.
Constant	58.338	.000	44.849	.073
Ratio of net farm income	.168**	.006	.048 <sup>ns</sup>	.733
Getting non-farm income	3.837 <sup>ns</sup>	.242	-3.103 <sup>ns</sup>	.637
Price of paddy	.001 <sup>ns</sup>	.469	.000 <sup>ns</sup>	.970
Family labor ratio	.026 <sup>ns</sup>	.540	.102 <sup>ns</sup>	.266
No. of jobs in households	1.700 <sup>ns</sup>	.189	-5.246 <sup>ns</sup>	.154
Remittance money	6.173**	.038	17.061*	.061
Female participation in decision making	.044 <sup>ns</sup>	.260	.056 <sup>ns</sup>	.684
Female participation in the org. in the village	11.718***	.000	27.436***	.000
Monitoring performances by MADB staff	3.182 <sup>ns</sup>	.264	25.069**	.014
Household facing the shock	-2.590 <sup>ns</sup>	.145	-2.463 <sup>ns</sup>	.514
R-square	0.531		0.560	
Adjusted R-square	0.491		0.533	

Note: Dependent Variable: Percentage of repayment ability of loan by MADB clients

\*\*\*, \*\* and \* are significant level at 1%, 5% and 10%, ns = not significant

Sample size of each group is 80.

**Table 4.28 Factors affecting the percentage of repayment ability of PACT loan by PACT clients**

Independent variables	Ayartaw PACT clients		Bogale PACT clients	
	Unstandardized Coefficients (B)	Sig.	Unstandardized Coefficients (B)	Sig.
Constant	93.677	.000	103.106	.000
Ratio of non-farm income	.005 <sup>ns</sup>	.812	-.100**	.002
Getting farm income	4.147**	.014	.204*	.056
Working household member ratio	-.052 <sup>ns</sup>	.154	-.086 <sup>ns</sup>	.391
No. of jobs in households	-.778 <sup>ns</sup>	.276	2.419 <sup>ns</sup>	.230
Remittance money	-3.368*	.066	-.091 <sup>ns</sup>	.984
Female participation in decision making	.014 <sup>ns</sup>	.670	.104 <sup>ns</sup>	.179
Female participation in the org. in the village	6.194***	.000	5.386**	.009
Household facing the shock	.358 <sup>ns</sup>	.801	.816 <sup>ns</sup>	.823
R-square	0.424		0.272	
Adjusted R-square	0.360		0.190	

Note: Dependent Variable: Percentage of repayment ability of loan by PACT clients

\*\*\*, \*\* and \* are significant level at 1%, 5% and 10%, ns = not significant

Sample size of each group is 80.



#### **4.6 Opinion of the Respondents on Microfinance Performances of MADB/PACT**

In current situation, MADB loans are disbursed according to the acres describing in land ownership certificate of the clients. MADB loans are disbursed up to 10 acres. Relating to loan amount, 20% of MADB clients wanted to expand the loan amount in order to cover the cost of crop production and 5% of MADB clients who own the land more than 10 acres wanted to get MADB loan according to land owning. However, 75% of clients did not want to increase it as the clients did not like to face difficulty in loan repayment. PACT clients satisfied with PACT loan disbursement system as they can get PACT loan just by applying the business plan and collateral is not needed. Relating to loan amount, PACT clients satisfied with it because they can increase or decrease their borrowed loan amount within maximum limit (Table 4.29).

All MADB clients satisfied with interest rate on loan because it is the lowest rate in Myanmar rural credit market. PACT clients (98% in Ayartaw and 96% in Bogale) satisfied with interest rate on loan because they felt that it is fair and reasonable rate in Myanmar rural credit market. About 13% of MADB clients were willing to save money at MADB. Therefore, 87% were not willing to save money in it because the clients were willing to buy gold, land etc, and invest money in work more instead of saving money at MADB. The respondents said that when they bought gold if they had extra money and sold it when they needed money, it was easier and got more profit than saving money at bank. Moreover, they said that the price of some inputs such as fertilizers and pesticides were cheaper before planting time and if they had extra money, they wanted to invest money in buying fertilizer and pesticide ahead planting time. In PACT clients, around 20% of clients were willing to save money as voluntary because they wanted to get capital for work and to spend for miscellaneous expenses. Therefore, 80% of clients were not willing to save money as voluntary because they wanted to invest money in business instead of saving as voluntary at PACT (Table 4.29).

MADB clients (40-45%) felt convenience to go MADB to borrow and repay loan because they said that they could buy fertilizers, pesticides and household use items after getting loan and they could get knowledge going there and coming back home. However, 50-55% of MADB clients did not feel convenience to go MADB for

borrowing and repaying loan because they said that it takes time to go there and come back home, it disturbs work, it is not comfortable to stay at MADB to get and repay loan. They preferred that bankers are coming to the village and disbursing and collecting loans at the village. PACT clients felt convenience to borrow and repay loan at PACT as PACT staffs were coming to the villages and doing loan disbursement and collection at the villages (Table 4.29).

Ayartaw MADB clients (70%) and Bogale MADB clients (35%) were not willing to get loan from other organizations. Therefore, 30% of Ayartaw MADB clients and 65% of Bogale MADB clients were willing to get loan from other organizations because most of MADB clients in Bogale township were in debt condition. All PACT clients did not want to get loan from other organizations as they felt that only PACT loan is sufficient for their business. Concerning with repayment time, 75% of Ayartaw MADB clients and 44% of Bogale MADB clients felt convenience with the annual repayment time of MADB because the price of paddy was lower in Bogale at the time of harvest or at the repayment time. The price of paddy depends on the sowing paddy varieties, weather condition and flood condition. In the case of PACT clients, 81% of clients in Ayartaw and 75% of clients in Bogale felt convenience with biweekly repayment of PACT. Therefore, 19% of Ayartaw PACT clients and 25% of Bogale PACT clients wanted to repay PACT loan once a month instead of biweekly repayment according to the discussion with respondents (Table 4.29).

Sum up, all PACT clients satisfied with loan amount of PACT, felt convenience in borrowing and repaying loan at PACT, and all PACT clients were not willing to borrow loan from other organizations. However, all MADB clients satisfied with interest rate of MADB only. Therefore, when comparing MADB and PACT microfinance performances according to the clients' opinion, PACT performance was better (Table 4.29).

**Table 4.29 Opinion on MADB and PACT microfinance performances by the clients**

Particulars	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Loan amount	60(75)	60(75)	80(100)	80(100)
Interest rate	80(100)	80(100)	78(98)	77(96)
Willing to save money at MADB/PACT	10(13)	10(13)	18(23)	16(20)
Convenience feeling in borrowing and repaying loan	35(45)	40(50)	80(100)	80(100)
Not willing to borrow loan from other organizations	55(70)	28(35)	80(100)	80(100)
Convenience with repayment time (Annual repayment for MADB/ Biweekly repayment for PACT)	60(75)	35(44)	65(81)	60(75)

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.30 Facing shocks/problems of the respondent households**

Shocks/Problems	MADB households		PACT households	
	Ayartaw	Bogale	Ayartaw	Bogale
Health care and medicine cost	54(68)	62(78)	24(30)	39(49)
Education cost	32(40)	26(33)	40(50)	36(45)
Migration cost	3(4)	4(5)	3(4)	-
Social cost	43(54)	13(16)	9(11)	8(10)
Crop production cost	67(84)	59(74)	-	-
Pest and disease control cost	42(53)	38(48)	-	-

Note: Sample size of each group is 80. Value in parentheses is percentage.

## **4.7 Facing Shocks/Problems and Coping Strategies of the Respondent Households**

### **4.7.1 Facing shocks/problems of the respondent households**

There were six types of shocks/problems in the respondent households: shocks/problems in health care and medicine cost, education cost, migration cost, social cost, crop production cost and pest and disease control cost.

In Ayartaw MADB clients, problems in crop production cost was the highest and 84% of clients suffered it, followed by health care and medicine cost in 68% of the clients, social cost in 54% of the clients, pest and disease control cost in 53% of the clients, education cost in 40% of the clients and migration cost in 4% of the clients.

In Bogale MADB clients, health care and medicine cost was the highest and 78% of the clients encountered it, followed by crop production cost in 74% of the clients, pest and disease control cost in 48% of the clients, education cost in 33% of the clients, social cost in 16% of the clients and migration cost in 5% of the clients.

In the case of PACT clients, they did not have problems in crop production cost and pest and disease control cost as farming was not their main occupation. In Ayartaw PACT clients, education cost was the highest and 50% of the clients encountered it, followed by health care and medicine cost in 30% of the clients, social cost in 11% of the clients and migration cost in 4% of the clients.

In Bogale PACT clients, health care and medicine cost was the highest and 49% of the clients suffered it, followed by education cost in 45% of the clients and social cost in 10% of the clients (Table 4.30).

### **4.7.2 Coping strategies for health care and medicine cost**

Concerning with health care and medicine cost, there were coping strategies to solve the problems in both places: using saving cash, mortgage of gold, mortgage of some own items such as bicycle, motor-bike etc, pre-selling of crops, borrowing money from relatives and friends, borrowing from informal money lenders, using MADB/PACT loans and selling of domesticated animals.

In MADB clients, 15% of Ayartaw and 19% of Bogale clients used saving cash, 18% of Ayartaw and 23% of Bogale clients borrowed money from relatives and friends, 13% of Ayartaw clients pre-sold crops, 8% of Ayartaw and 19% of Bogale

clients borrowed money from informal money lenders, 10% of Ayartaw and 8% of Bogale clients used MADB loans, etc.

In the case of PACT clients, 13% of Ayartaw and 16% of Bogale clients borrowed money from relatives and friends, 8% of Ayartaw and 18% of Bogale clients borrowed money from informal money lenders etc.

In total, 68% of Ayartaw and 78% of Bogale MADB clients, 30% of Ayartaw and 49% of Bogale PACT clients had emergency money needs and coping strategies to solve their problems. Therefore, Ayartaw MADB clients had more coping strategies for health care and medicinal cost (Table 4.31).

#### **4.7.3 Coping strategies for education cost**

Relating to coping strategies for education cost, the ways to solve the problems were as follows: using saving cash, mortgage of gold, selling of gold, borrowing money from relatives and friends, and borrowing from informal money lenders, using MADB/PACT loans and selling domesticated animals.

In MADB clients, 9% of Ayartaw and 8% of Bogale clients used saving cash, 18% of Ayartaw and 20% of Bogale clients borrowed from informal money lenders to pay for education cost. In PACT clients, 21% of Ayartaw and 23% of Bogale clients borrowed money from informal money lenders, 11% of Ayartaw and Bogale clients respectively borrowed money from relatives and friends, 9% of Ayartaw and 6% of Bogale PACT clients used PACT loans etc.

Totally 40% of Ayartaw and 33% of Bogale MADB clients, 50% of Ayartaw and 45% of Bogale PACT clients had emergency money needs and coping strategies to solve their problems. Therefore, PACT clients had more coping strategies for education cost (Table 4.32).

**Table 4.31 Coping strategies for health care and medicinal cost**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Using saving cash	12(15)	15(19)	1(1)	1(1)
Mortgage of gold	-	3(4)	1(1)	4(5)
Selling of gold	-	2(3)	1(1)	-
Mortgage of other own items (bicycle, motor-bike, etc)	-	-	-	2(3)
Pre-selling of crops/pre-taking wage	10(13)	1(1)	-	-
Borrowing money from relatives/friends	14(18)	18(23)	10(13)	13(16)
Borrowing from informal money lenders	6(8)	15(19)	6(8)	14(18)
Using MADB/PACT loans	8(10)	6(8)	5(6)	5(6)
Selling of domesticated animals	4(5)	2(3)	-	-
<b>Total</b>	<b>54(68)</b>	<b>62(78)</b>	<b>24(30)</b>	<b>39(49)</b>

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.32 Coping strategies for education cost**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Using saving cash	7(9)	6(8)	5(6)	4(5)
Mortgage of gold	-	-	1(1)	-
Selling of gold	-	-	1(1)	-
Borrowing money from relatives/friends	7(9)	2(3)	9(11)	9(11)
Borrowing from informal money lenders	14(18)	16(20)	17(21)	18(23)
Using MADB/PACT loans	3(4)	2(3)	7(9)	5(6)
Selling of domesticated animals	1(1)	-	-	-
<b>Total</b>	<b>32(40)</b>	<b>26(33)</b>	<b>40(50)</b>	<b>36(45)</b>

Note: Sample size of each group is 80. Value in parentheses is percentage.

#### **4.7.4 Coping strategies for migration cost**

Coping strategies to solve the migration cost were using saving cash, borrowing money from relatives/friends and borrowing from informal money lenders. In MADB clients, 1% of Bogale clients used saving cash, 1% of Ayartaw and 4% of Bogale MADB clients borrowed money from relatives/friends, 3% of Ayartaw MADB clients borrowed money from informal money lenders to pay for migration cost. In PACT clients, 1% of Ayartaw client used saving money, 1% of Ayartaw client borrowed money from relatives/friends, 1% of Ayartaw client borrowed money from informal money lenders. It was found that there was not emergency money need in Bogale PACT clients relating to migration cost because there was nobody who went to other places to work in Bogale PACT clients. Totally, 4% of Ayartaw and 5% of Bogale MADB clients and 4% of Ayartaw PACT clients had emergency money needs and coping strategies for migration cost. There was not emergency money needs in Bogale PACT clients. Therefore, coping strategies for migration cost were higher in MADB clients (Table 4.33).

#### **4.7.5 Coping strategies for social costs**

There were costs for wedding, donation and funeral in social costs. Coping strategies for wedding costs included using saving money, mortgage of gold, selling of gold, borrowing money from relatives/friends and borrowing from informal money lenders. In MADB clients, 16% of Ayartaw and 3% of Bogale clients used saving money, 9% of Ayartaw and 5% of Bogale clients borrowed money from relatives/friends, etc. In PACT clients, 5% of Ayartaw and 4% of Bogale clients borrowed from informal money lenders, etc. Therefore, MADB clients had more coping strategies for wedding cost (Table 4.34).

Coping strategies for donation costs consisted of using saving money, pre-selling of crops, borrowing money from relatives/friends and using MADB/PACT loans. In MADB clients, 10% of Ayartaw and 4% of Bogale clients used saving money, 1% of Ayartaw and Bogale clients used MADB loans, etc. But, 3% of Ayartaw and 1% of Bogale PACT clients used saving money. Therefore, MADB clients had more coping strategies for donation cost (Table 4.34).

**Table 4.33 Coping strategies for migration cost**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Using saving cash	-	1(1)	1(1)	-
Borrowing money from relatives/friends	1(1)	3(4)	1(1)	-
Borrowing from informal money lenders	2(3)	-	1(1)	-
Total	3(4)	4(5)	3(4)	

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.34 Coping strategies for social cost**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
<b>Coping strategies for wedding cost</b>				
Using saving in cash	13(16)	2(3)	1(1)	
Mortgage of gold	2(3)	-	-	-
Selling of gold	3(4)	-	-	-
Borrowing money from relatives/friends	7(9)	4(5)	4(5)	3(4)
Borrowing from informal money lenders	3(4)	-	-	-
<b>Coping strategies for donation cost</b>				
Using saving in cash	8(10)	3(4)	2(3)	1(1)
Pre-selling of crops/pre-taking wage	1(1)	-	-	-
Borrowing money from relatives/friends	1(1)	-	-	-
Using MADB/PACT loans	1(1)	1(1)	-	-
<b>Coping strategies for funeral cost</b>				
Using saving in cash	2(3)	-	-	-
Borrowing money from relatives/friends	1(1)	1(1)	1(1)	2(3)
Borrowing from informal money lenders	1(1)	2(3)	1(1)	2(3)
Total	43(54)	13(16)	9(11)	8(10)

Note: Sample size of each group is 80. Value in parentheses is percentage.



Coping strategies for funeral cost included using saving money, borrowing money from relatives/friends and borrowing from informal money lenders. In this case, 3% of Ayartaw MADB clients used saving money and 3% of Bogale MADB clients borrowed money from informal money lenders, etc. 3% of Ayartaw PACT clients borrowed money from relatives/friends and 3% of Bogale PACT clients borrowed from informal money lenders, etc. So, MADB clients had more coping strategies for funeral cost (Table 4.34).

In total, 54% of Ayartaw and 16% of Bogale MADB clients, 11% of Ayartaw and 10% of Bogale PACT clients had emergency money needs for social costs and coping strategies to solve their problems. Therefore, MADB clients had more coping strategies for social cost (Table 4.34).

#### **4.7.6 Coping strategies for crop production cost**

Coping strategies for crop production cost consisted of using saving money, mortgage of gold, selling of gold, pre-selling of crops, borrowing money from relatives/friends, borrowing from informal money lenders and selling of domesticated animals.

In MADB clients, 23% of Ayartaw clients used saving money, 10% of Ayartaw clients pre-sold the crops, 35% of Ayartaw and 28% of Bogale clients borrowed money from relatives/friends, 13% of Ayartaw and 30% of Bogale clients borrowed money from informal money lenders, etc. There was not coping strategies for crop production cost for PACT clients in both places as their primary occupation was not farming. In total, 84% of Ayartaw MADB clients and 74% of Bogale MADB clients had emergency money needs for crop production and coping strategies to solve the problems (Table 4.35).

**Table 4.35 Coping strategies for crop production cost**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Using saving cash	18(23)	-	-	-
Mortgage of gold	-	5(6)	-	-
Selling of gold	-	2(3)	-	-
Pre-selling of crops/pre-taking wage	8(10)	1(1)	-	-
Borrowing money from relatives/friends	28(35)	22(28)	-	-
Borrowing from informal money lenders	10(13)	24(30)	-	-
Selling of domesticated animals	3(4)	5(6)	-	-
Total	67(84)	59(74)		

Note: Sample size of each group is 80. Value in parentheses is percentage.

#### **4.7.7 Coping strategies for pest and disease control cost**

Coping strategies for pest and disease control costs included using saving money, mortgage of gold, selling of gold, and mortgage of some own items, pre-selling of crops, borrowing money from relatives/friends and borrowing from informal money lenders.

In MADB clients, 20% of Ayartaw clients used saving money, 19% of Ayartaw and 14% of Bogale clients borrowed money from relatives/friends, 8% of Ayartaw and 20% of Bogale clients borrowed from informal money lenders, etc. There was not coping strategies in pest and disease control cost for PACT clients as their primary occupation was not farming. In total, 53% of Ayartaw MADB clients and 48% of Bogale MADB clients had emergency money needs for pest and disease control cost and coping strategies to solve the problems (Table 4.36).

#### **4.7.8 Household facing shocks/problems**

In MADB client households, 63% of Ayartaw and 78% of Bogale client households were facing shocks such as high cost in health care and cure purposes, facing problems in high cost of education, emergency money needs for crop production, pest and disease control etc. In PACT clients, 56% of Ayartaw and 75% of Bogale client households were facing shocks/problems. Therefore, MADB client households suffered more facing shocks/problems when comparing with PACT client household in both places (Table 4.37).

**Table 4.36 Coping strategies for pest and disease control cost**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Using saving cash	16(20)	4(5)	-	-
Mortgage of gold	3(4)	5(6)	-	-
Selling of gold	1(1)	1(1)	-	-
Mortgage of other own items (bicycle, motor-bike, etc)	-	1(1)	-	-
Pre-selling of crops/pre-taking wage	1(1)	-	-	-
Borrowing money from relatives/friends	15(19)	11(14)	-	-
Borrowing from informal money lenders	6(8)	16(20)	-	-
Total	42(53)	38(48)		

Note: Sample size of each group is 80. Value in parentheses is percentage.

**Table 4.37 Household facing shocks/problems and non-facing shocks**

Item	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Facing shocks/problems households	50(63)	62(78)	45(56)	60(75)
Non-facing shocks/ problems households	30(38)	18(23)	35(44)	20(25)

Note: Sample size of each group is 80. Value in parentheses is percentage.

## **4.8 Analysis on financial conditions of MADB and PACT**

### **4.8.1 Operational self-sufficiency (OSS) of MADB and PACT**

Operational self-sufficiency (OSS) means that income is sufficient to cover operating costs, including salaries and wages, loan losses, and other administrative costs. It is just the ratio of total income and total costs or expenditures.

If OSS ratio is greater than 100 percent, the MFI is covering all of its costs and running its own operation well in the credit market. According to the total income and total cost data of MADB and PACT for the year (2010-2015), calculations on OSS ratio of these institutions showed over 100%. This means that MADB and PACT could run its microfinance performances well in rural credit market from 2010 to 2015 (Table 4.38).

### **4.8.2 Break-even analysis on MADB**

Break-even analysis determines the viability of the microfinance performance. Break-even analysis is the difference between total income and total expenditures. If the difference of total income and total expenditure is positive value, the microfinance institution is running well without losses. According to the break-even analysis on MADB for the year 2010-2015, the net income showed positive sign explaining that MADB was running its microfinance performance without losses in rural credit market (Table 4.39).

Although total income for the year 2010-2011 was over 22,000 million MMK, that for the year 2011-2012 was over 33,000 million MMK because there was large amount of farm machinery loan disbursement in the year 2010-2011. Clients had to repay that loan as three years installments.

MADB got interest as income from that kind of loan and total income increased prominently for the year 2011-2012. Although total expenditure was only over 19,000 million MMK in 2010-2011, it was increased over 24,000 million MMK in 2011-2012 because MADB also had to pay more interest for borrowed loan to Myanma Economic Bank (MEB) in 2011-2012 than the previous year. Then, the income getting from farm machinery loan was also increasing and total income was over 29,000 million MMK in 2012-2013. Total expenditure decreased only over 17,000 million MMK as MADB had paid interest to MEB on borrowed loan for farm machinery loan disbursement to farmers since the previous year 2011-2012. However,

total income induced over 60,000 million MMK in 2013-2014 because loan rate of annual crop production loan for paddy became 100,000 MMK/acre in the previous year 2012-2013 and consequently, MADB got more interest as income from those loans. Total expenditure also increased over 31,000 million MMK in 2013-2014 because MADB had to pay interest to MEB for borrowed loan that were disbursed to the farmers. Total income reduced over 48,000 million MMK in 2014-2015 although loan rate for paddy was 100,000 MMK in 2013-2014; over 80% of 2013-2014 disbursed loans were collected at the end of 2014-2015. Total expenditures increased over 34,000 million MMK in 2014-2015 as MADB had to pay interest on MEB loan (Table 4.39). The detail information on total income and total expenditure of MADB were described in the Appendix 7 and Appendix 8.

#### **4.8.3 Financial contribution of MADB to the government**

As being a state-owned bank and according to the MADB law, it has to contribute the profits to the government yearly. MADB could do appropriation for doubtful loan and bad debt as much as to recover full repayment before contribution to the government. There was no appropriation for capital and interest of doubtful loan because there was full recovery (100%) of loan from 2010 to 2014 yearly. However, 80% of loans were recoverable in 2014-2015 and there was appropriation for capital and interest of doubtful loan in that year.

Moreover, there was appropriation for bad debt from 2010 to 2014. Bad debt means debt of no way to get back. However, it could be returned progressively as capital and interest. There was no appropriation for interest of bad debt in 2014-2015 as it was gotten during that year. After appropriation for doubtful loan and bad debt, MADB had to contribute 25% of income to the special fund and 75% of income to the government yearly according to MADB law (Appendix 9).

#### **4.8.4 Break-even analysis on PACT**

According to the break-even analysis on PACT for the year 2010-2015, the net income showed positive sign explaining that PACT was running its microfinance performance without losses in rural credit market (Table 4.40).

Total income increased gradually over 11,000-17,000 million MMK from 2010 to 2014 as PACT disbursed different kinds of loans such as SME loans, animal husbandry loan, and agricultural loan due to the increasing number of clients. Total

expenditure also increased gradually over 4,000-9,000 million MMK from 2010-2014. PACT did microfinance performances for 25 townships up to 2012-2013. Then, Livelihoods and Food Security Trust Fund (LIFT) had provided institutional support to PACT in 2013-2014 and PACT extended its microfinance performances up to 51 townships. Therefore, total income and total expenditures increased prominently in 2014-2015 (Table 4.40). The detail information on total income and total expenditure of PACT were described in the Appendix 10 and Appendix 11.

**Table 4.38 Operational self-sufficiency (OSS) of MADB and PACT (2010-2015)**

Year	MADB			PACT		
	Total income (million MMK)	Total cost (million MMK)	OSS (%)	Total income (million MMK)	Total cost (million MMK)	OSS (%)
2010-2011	22,961.17	19,950.25	115.09	11,057.81	4,816.83	229.57
2011-2012	33,627.24	24,107.24	139.49	14,958.32	7,034.46	212.64
2012-2013	29,027.15	17,502.57	165.84	16,581.37	7,994.55	207.41
2013-2014	60,227.99	31,522.85	191.06	17,411.43	9,915.94	175.59
2014-2015	48,426.79	34,952.26	138.44	32,117.02	23,717.18	135.42

Source: MADB (Head office) and PACT (Head office)

**Table 4.39 Break-even analysis on MADB (2010-2015) (million MMK)**

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Total income	22,961.17	33,627.24	29,027.15	60,227.99	48,426.79
Total expenditure	19,950.25	24,107.24	17,502.57	31,522.85	34,952.26
Net income	3,010.92	9,520.00	11,524.58	28,705.14	13,474.54

Source: MADB (Head office)

**Table 4.40 Break-even analysis on PACT (2010-2015) (million MMK)**

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Total income	11,057.81	14,958.32	16,581.37	17,411.43	32,117.02
Total expenditure	4,816.83	7,034.46	7,994.55	9,915.94	23,717.18
Net income	6,240.98	7,923.86	8,586.82	7,495.49	8,399.84

Source: PACT (Head office)



## CHAPTER 5

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This section highlights the main findings and makes conclusion that is consistent with the objectives of the study. Likely, recommendations and policy implications would promote sustainable microfinance performance through social capital improvement towards rural development in Myanmar.

#### 5.1 Summary of findings

##### 5.1.1 Socioeconomic conditions of the respondent households

Primary occupation of MADB clients was farming in both Townships. Secondary occupation of Ayartaw MADB clients were varied such as weaver/tailor, grocery/street vendor, carpentry/masonry, animal husbandry and agricultural laborer. Secondary occupation of Bogale MADB clients were animal husbandry, agricultural laborer, motor-bike taxi/boat-man, and carpentry/masonry and so on. In PACT clients, their primary occupation was agricultural laborers in both places. Secondary occupation of PACT clients in both Townships varied such as grocery/street vendor, agricultural laborers.

Clients in Ayartaw Township cultivated different kinds of crops: rice, pigeon pea, groundnut, sesame, broad bean, betel vine and Thanakhar because there were both wet and dry land in Ayartaw. The most cultivated paddy varieties in Ayartaw were Shwebo Pawsan and Ayeyarmin. The prices of paddy in Ayartaw in 2014 varied 6,000-10,000 MMK/basket (287,081-478,469 MMK/ton). However, clients in Bogale Township cultivated only paddy as there was only wet land. The common cultivated paddy varieties in Bogale were Hnankar, Pawsan and Theehtatyin. The prices of paddy there in 2014 was ranged 3,800-6,500 MMK/basket (181,818-311,005 MMK/ton). Input costs for paddy production were not too different in both places: 130,000-170,000 MMK/acre (321,230-420,070 MMK/ha) in Ayartaw and 120,000-190,000 MMK/acre (296,520-469,490 MMK/ha) in Bogale.

In MADB clients, the average farm income of Ayartaw clients was higher than that of Bogale clients. The average non-farm income of Ayartaw clients was also higher than that of Bogale clients. In PACT clients, the average farm income of

Ayartaw clients was lower than that of Bogale clients. However, the average non-farm income of Ayartaw clients was higher than that of Bogale clients.

Average business expenses in Bogale MADB clients was higher than that in Ayartaw MADB clients because there were paddy production in both monsoon and summer season in Bogale and the cost of paddy production was higher than that of other crops. Expenses in food items were similar in both places. In non-food items, education expenses were higher in Ayartaw MADB clients than that in Bogale MADB clients; education expenses in Ayartaw PACT clients was also higher than that in Bogale PACT clients. Furthermore, Ayartaw MADB clients spent in social expenses more. Ayartaw MADB clients said that there were many wedding and traditional donation ceremonies in their villages in 2014. They also said that relating to the social purposes, they had to spend phone bill in contacting with their relatives who stay away from the villages. Other expenses were not too different in both places. Relating to family saving, there were six types of saving styles: buying farm land, buying gold, saving in cash plus buying gold and saving in cash only. According to the collected data, Ayartaw MADB clients had better saving condition than Bogale MADB clients. Similarly, Ayartaw PACT clients had better saving condition than Bogale PACT clients.

### **5.1.2 Social capital of the respondent households**

Concerning with education access, most of the respondent households' members got primary education and secondary education. Respondents in both places said that although MADB loan and PACT loan were mostly used in their business, some of loans could be used in subsistence living requirements, health care and cure purposes and education purposes.

In both townships, female participation in decision making of loan allocation, loan repayment and family expenses was high, 50-80% in the respondent households. Respondents said that their household female members could participate in decision making more as group lending and collection methods of MADB and PACT practiced them to think rational ways in using loans, repaying loans and spending in family expenses.

Moreover, female household members in both places participated in social purposes in the village. Respondents said that female household members are

interested in joining and doing group activities such as village development activities and social activities because they get experiences from group lending and collection methods of PACT to do group work together.

Furthermore, in both townships, household members (both male and female) could participate in village governance, village development activities and social activities in the village. Respondents said that MADB and PACT microfinance performances not only provide them loan or credit for their business but also encourages them to have willingness in joining group work.

### **5.1.3 Loan allocation in the business**

When MADB clients in Ayartaw and Bogale were compared, Ayartaw MADB clients allocated loans in the business more than Bogale MADB clients. Similarly, when PACT clients in both townships were compared, Ayartaw PACT clients allocated loans in the business more than Bogale PACT clients.

According to the regression results on the percentage of loan allocation in the related business by MADB clients, it was positively related with education level of the clients in both places, significant at 1% level in Ayartaw clients and 5% level in Bogale clients. It was also positively related with experience years of the clients in joining MADB in both places, significant at 1% level in Ayartaw clients and 5% level in Bogale clients. Loan allocation in the related business was positively related but not significant with gross farm income ratio in both places. There was positive relationship and significant at 5% level between loan allocation in the related business and female participation in decision making in both places. There was also positive relationship and significant at 5% level between loan allocation in the related business and right time of getting loan in both places. However, loan allocation in the related business was negatively related and significant at 10% level with household size of the clients in Ayartaw. In the case of Bogale clients, although household size of the clients was negatively related with loan allocation in the related business, it was not significant. There was also negative relationship and significant at 5% level between loan allocation in the related business and household facing the shock in Bogale clients. In the case of Ayartaw clients, although there was negative relationship between loan allocation in the related business and household facing the shock, it was not significant.

According to the regression results on the percentage of loan allocation in the related business by PACT clients, it was positively related with education level of Bogale clients and significant at 1% level. It was positively related with education level of Ayartaw clients but not significant. It was also positive relationship between loan allocation in the related business and gross non-farm income ratio in both places: significant at 10% level in Ayartaw and not significant in Bogale. Loan allocation in the related business was positively related with experience years of the clients in joining PACT in both places and significant at 1% level. However, there was negative relationship and significant at 1% level between loan allocation in the related business and household facing the shock in both places.

#### **5.1.4 Repayment ability of loans by the clients**

According to the survey data, 80% of Ayartaw and 44% of Bogale MADB clients had full repayment ability in MADB loan due to their business income. When the clients could not do full recovery of loans due to their business income, they borrowed money from their relatives without interest, informal money lenders who often charge high interest rate, mortgage or sold their own items such as gold, motor-bike and their domesticated animals.

In the case of PACT clients, 81% of Ayaratw and 75% of Bogale clients had full repayment ability due to their business income. When the clients could not do full recovery of loans due to their business income, they borrowed money mostly from their relatives and neighbors without interest. Sometimes, they borrowed money from informal money lenders who charge high interest rate to repay PACT loan in time.

Regression results on the percentage of repayment ability of loan showed that there was positive relationship with ratio of net farm income in both places and significant at 5% level in Ayartaw clients. Getting non-farm income of the clients was positively related with repayment ability of loan in Ayartaw clients. However, it was negatively related with repayment ability of loan in Bogale clients. Price of paddy was positively related and not significant with repayment ability of loan by the clients in both places. Family labor ratio was also positively related and not significant with repayment ability of loan by the clients in both places. There was positive relationship and not significant between number of jobs in households and repayment ability of

loan in Ayartaw. It was negative relationship and not significant in Bogale. Female participation in decision making was also positively related and not significant with repayment ability of loan by the clients in both places. Moreover, repayment ability of loan by MADB clients was positively related and significant with remittance money in both places and significant at 5% level in Ayartaw clients and significant at 10% level in Bogale clients. In both places, repayment ability of loan by MADB clients was highly and positively influenced by female participation in the organization in the village and significant at 1% level. Monitoring performance by MADB staffs was also positively related and significant at 5% level with repayment ability of loan by MADB clients. Repayment ability of loan by the clients was negatively related and not significant with household facing the shock in both places.

According to the regression results on the percentage of repayment ability of PACT loan by PACT clients, ratio net non-farm income showed positive relationship with it in Ayartaw PACT clients. However, there was negative relationship and significant at 5% level in Bogale PACT clients. Getting farm income was positively related with repayment ability of loan by the clients in both places: significant at 5% level in Ayartaw and 10% level in Bogale. Working household member ratio was negatively related and not significant with repayment ability of loan by the clients in both places although it seemed to have positive relationship generally. There was negative relationship and not significant between number of jobs in households and repayment ability of loan in Ayartaw. It was positive relationship and not significant in Bogale. There was also negative relationship between remittance money from other places and loan repayment ability in Ayartaw clients. In general sense, it could be positive relationship. Ayartaw clients spent their remittance money in their subsistence living requirements rather than in loan repayment. Female participation in decision making was positively related and not significant with repayment ability of loan in both places. There was positive relationship between female participation in the organizations in the village and loan repayment ability: significant at 1% level in Ayartaw and 5% level in Bogale.

### **5.1.5 Opinion of respondents on microfinance performances of MADB and PACT**

All PACT clients satisfied with loan amount of PACT, felt convenience in borrowing and repaying loan at PACT, and all PACT clients were not willing to borrow loan from other organizations. All MADB clients satisfied with interest rate of MADB only. Most of MADB clients did not want to save money at MADB because they wanted to buy other items such as gold and land, and invest in work if they have extra money instead of saving money at the bank. MADB clients said that it takes time and it is difficult to withdraw saving money from MADB. Similarly, most of PACT clients did not want to save money at PACT as voluntary. They wanted to invest money in work if they have extra. They wanted to save money at PACT as compulsory because it is requirement to get PACT loan.

### **5.1.6 Facing shock/problems of the respondent households**

In Ayartaw MADB clients, problem in crop production cost was the highest as 84% of the clients suffered it, followed by health care and medicine cost as 68% of the clients suffered it. In Bogale MADB clients, health care and medicine cost was the highest as 78% of the clients encountered it, followed by crop production cost as 74% of the clients needed it.

In the case of PACT clients, they did not have problems in crop production cost as farming was not their main occupation. In Ayartaw PACT clients, education cost was the highest and 50% of the clients encountered it. In Bogale PACT clients, health care and medicine cost was the highest and 49% of the clients suffered it.

### **5.1.7 Sustainability in financial condition of microfinance institutions**

Calculations on operational self sufficiency (OSS) ratio of MADB and PACT for the year 2010-2015 were over 100%. According to the break-even analysis on MADB for the year 2010-2015, the net income showed positive sign.

As being a state-owned bank and according to the MADB law, it has to contribute the profits to the Government yearly. MADB could do appropriation for doubtful loan and bad debt as much as to recover full repayment before contribution

to the Government. As PACT is a non-government organization, it does not need to contribute the profits to the government.

## **5.2 Conclusion**

Primary occupation of MADB respondents were farmers. Generally, they used 71-84% of loans in crop production. Loan amount was not enough for their crop production because loan rate of MADB was less than input cost for paddy production and other crop production. Therefore, clients had to borrow money from other sources especially from informal money lenders who often charge usurious interest rate. Finally, clients of MADB would have burden with debt. Primary occupation of PACT respondents were agricultural laborers. They used 55-57% of PACT loan in marketing because their main secondary jobs were street vendors and grocery business. Usually PACT respondents wanted to borrow PACT loan within maximum limit however loan amount of PACT practices were decided based on the local situations and their program.

Specifically, MADB clients in Ayartaw Township had both wet and dry land. Therefore, they could grow diversified crops such as paddy, groundnut, sesame, pigeon pea and green gram. Farm income would diversify from different kinds of crop production which can be resistant the shocks of climate change and market price. Bogale MADB clients occupied only wet land therefore relied mostly on farm income from paddy production as the common grown low price rice varieties. Moreover, most cultivated paddy varieties in Ayartaw Township were high market demanding rice varieties which can earn high income for farmers because of the high rice price than that of rice varieties grown in Bogale. Therefore, more Ayartaw MADB clients can repay MADB loan in time than Bogale MADB clients according to their farm income. Ayartaw MADB clients had more or less better income sources than Bogale MADB clients. Because, Ayartaw MADB clients earned non-farm income such as cloth weaving and grocery business as their secondary occupations than there was less non-farm business in Bogale.

In the case of PACT clients, they earned farm income from their primary job as agricultural laborers in both places. Ayartaw PACT clients earned non-farm income from cloth weaving, animal husbandry, street vendor and grocery business. Bogale PACT clients earned non-farm income in doing fishing, motor-bike taxi,

boatman, street vendor and grocery business. Although income sources of PACT clients in Ayartaw and Bogale were not similar; their annual household incomes were not too different.

In both townships, respondents' household female members could participate in decision making because group lending and collection methods of MADB and PACT practiced them to think right and rational ways in using loans, repaying loans and spending in family expenses. Moreover, those group lending and collection methods of MADB and PACT encouraged household members to do group activities together not only in village development works but also in social purposes. Therefore, MADB and PACT microfinance performances provided the rural households loan or credit for their business as well as encouraged them to improve social capital in rural society.

The main aim of MADB is to effectively support the development of agriculture, livestock and rural socio-economic enterprises in country by providing banking services. The main aim of PACT is to promote income-generating activities among the poor, especially, small and medium enterprises (SME), stockbreeding and non-agricultural business as well as agricultural business. The main microfinance performances of MADB and PACT is disbursing loans to the clients for their business and collecting loan at a time, taking little or no collateral. These microfinance performances could help the clients to improve their socioeconomic status more or less. Moreover, microfinance institutions could help the clients to be social capital improvement to some extent although it may be or may not be the main aim of the institutions.

Therefore, it agrees with "Theory of Invisible Hand" by Adam Smith (1756) as follows. "Every individual necessarily labors to render the annual revenue to the society as great as he can. He, generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry he intends only his security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many cases, led by an invisible hand to promote an end, which is no part of his intension."

According to the regression results of loan allocation in the business by MADB clients, clients who had high education level and joined MADB for a long



time could allocate higher loan amount in the related business. When females participated in decision making, loan could be spent in the business effectively. If loan would be disbursed at the right time coinciding with the needs of farm business, it will be spent effectively as productive loan for rural households. Moreover, clients who had large household size could not spend loan in the business well as it had also to be used for subsistence living requirements. When rural households were facing the shocks especially natural disasters, crop failure and clients were helpless. Loan could not be used in the business efficiently under such conditions. In comparing Ayartaw and Bogale MADB clients, Bogale MADB clients suffer facing shocks more seriously because natural disasters such as storm and flood often occurred in Bogale. Therefore, facing shock was major item in determining loan allocation of Bogale MADB clients.

According to the regression results of loan allocation in the business by PACT clients, clients who had high education level and experience years in joining PACT seemed to understand more to allocate higher amount of loan in the related business. Household facing the shock was also an important item for loan allocation in the related business. Most of the PACT clients earned non-farm jobs such as grocery and street vendors. When they faced shocks especially natural disasters, loans could not be allocated well in their business.

Relating to regression results in repayment ability of MADB loans by its clients, clients who earned high net farm income could repay loan in time. Ayartaw MADB clients got higher net farm income than Bogale MADB clients because of earning farm income from crop diversification. Furthermore, when female participated in the organizations in the village, they received and shared knowledge each other. Then, they were also willing to follow the instructions of MADB. Therefore, loans were repaid in time as female participated in the organizations in the village. Remittance money increased repayment ability because loans were repaid in time when households got remittance money from other places. Monitoring performance by MADB staffs was the key item in loan repayment. It was more important item for Bogale MADB clients. In comparing Ayartaw and Bogale MADB clients, Bogale MADB clients were weak in loan repayment in time. Therefore, encouraging and monitoring by MADB staffs at the collection time was more key factor in loan repayment for Bogale MADB clients.

In the case of regression results in repayment ability of PACT loans by its clients, getting farm income was main item in both places. Generally, PACT clients were non-farmers and they earned non-farm income more than farm income. However, their primary jobs were farm laborers and usually PACT loan was repaid by their farm income. Furthermore, the loans were repaid in time as females participated in the organizations in the village because participating and joining in village development as well as social activities, social capital of the clients were improved. Then, they were willing and interested to follow the rules and regulations of PACT. Consequently, loans were repaid in time when females participate in the organizations in the village.

Relating to opinion of MADB respondents on MADB microfinance performance, all MADB respondents satisfied with interest rate of MADB only. However, relating to opinion of PACT respondents on PACT microfinance performance, all PACT respondents satisfied with loan amount of PACT, felt convenience in borrowing and repaying loan at PACT and were not willing to borrow loan from other organizations as they felt that only PACT loan is enough for their business. Therefore, microfinance performance of PACT was better than that of MADB according to respondents' opinion.

Regarding with shocks/problems of the respondent households, crop production cost was major problems for MADB respondents because all MADB respondents were farmers and the loan for paddy and other dry land crops were not sufficient for crop production costs. MADB respondents often felt shocks relating to crop production cost. Health care and medicine cost were also important problems in MADB households in both places. In the case of PACT respondents, they did not have problems in crop production cost as farming was not their main occupation. In PACT respondents, health care and medicine cost and education cost were important problems in both places.

According to the break-even analysis and operational self-sufficiency (OSS) of MADB and PACT, both institutions kept sustainability in finance conditions in Myanmar rural credit market.

### 5.3 Recommendations

MADB loan amount could be increased not only in paddy but also in dry land crops; groundnut, sesame, pigeon pea, green gram etc. to cover the crop production cost. This could help and solve the financial problems of both wet land and dry land farmers. Moreover, loans would be also disbursed at the time of harvest and post harvesting time as there was high cost in harvesting and post harvest processes. MADB would also plan for short term and long term loans. It would be one solution of agricultural crop supply chain improvement by the farmers. In case of increasing the amount of loan to the farmers, MADB would need to coordinate domestic and international organizations for getting long term loan or support of financial investment for the future.

Moreover, capacity of MADB could be strengthening in the field of financial management and IT application for working efficiently and effectively. Therefore, education program such as post graduate program, training program of international organizations would be required especially for mid level and young staff of MADB for long term.

MADB could promote as other private banks for the farmers especially in saving mobilization of the clients and try to manipulate its withdrawal system to be better. Encouraging saving is also a good practice for the clients to get their own capital for their business. Then, MADB could disburse a loan that is 3 to 4 times of saving money of the clients who have saving money and they want to get the loan for their investment. MADB could also disburse loans to the clients by accepting land as collateral. In the long run, MADB could try to support mobile banking that is comfortable and easier in loan disbursement and collection for the clients.

Farm income is the main source of household income for MADB clients. To increase the clients' farm income, the profit maximization technologies, quality seed of high yielding varieties, qualified extension services and incentive input output price ratio of paddy production as well as other crop production are critically important for farmers. Farmers would be educated and provided these technologies and practices to improve farm income prominently as much as possible within short run.

In long run, market assistance by linking farmers with potential buyers from domestic and international market could be supported; in case of finding market linkage, agricultural marketing researches would be needed for specific crops in

specific regions based on agroecology. Market and trade agreements between formal and informal groups of farmers (cooperatives or farmer clusters) and exporters with international buyers are essential. Farmer groups' or farmer clusters' collective action would be needed for more competitiveness to socioeconomic improvement of MADB clients or farmers.

PACT practices are considering the local situations and the business conditions of the clients. These practices could be continued to be socioeconomic improvement of its clients. Moreover, opportunities for income diversification activities would be promoted and encouraged continuously to improve income leading to socioeconomic improvement of both MADB and PACT clients.

At present situation, MADB is a major credit source for farmers and PACT is major credit source for non-farmers in rural society. The interest rate of MADB is the lowest rate and that of PACT is reasonable rate in rural credit market. The clients felt more or less comfortable and did not feel burden concerning with interest rates of MADB and PACT. Therefore, financial institutions could emphasize provision of loan with low interest rate not only for farmers but also for non-farmers to reduce financial problems in rural society.

Group lending and collection methods of MADB and PACT loan would be continued for females to participate in decision making of loan allocation, loan repayment and family expenses. Group lending and collection methods have positive impact on women socioeconomic status and empowerment. It increased to some extent on self-confidence and feelings of identity for women in the society. Furthermore, due to getting practices from these methods, both males and females were willing to participate in the organizations in the village concerning with village development activities and social activities. It increased their prestige, dignity and status in their family and society. Therefore, these practices would lead to empowerment and social capital improvement of the clients in rural society.

Regarding with shocks/problems of MADB and PACT respondent households, health care and medicine cost was an important problem. Therefore, health care programs and nutrition education programs that can relief the shocks/problems would be promoted immediately and public health plan would be developed for the rural livelihoods in long term.

Sustainability in financial condition of both MADB and PACT would be kept in good condition as more than hundred percent OSS value and positive break-even calculations in nominal term. This condition leads to improve rural credit market that is one of the major rural development plans.

Microfinance performances of MADB and PACT agree with theory of invisible hand because although their main aims are to support loan or credit to the clients to become their socioeconomic improvement, these institutions are providing and helping to be social capital improvement of the clients in rural society. Therefore, sustainable microfinance performances of MADB and PACT could improve not only socioeconomic status of the clients but also social capital of the clients towards rural development in Myanmar. Sum up, the ways to improve sustainable microfinance performances and practices would be kept for long term forward sustainable economic and social rural development in Myanmar.

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## APPENDIES

### Appendix 1 Primary and secondary occupations of MADB and PACT household members in study areas

Item	MADB households		PACT households	
	Ayartaw (N=379)	Bogale (N=350)	Ayartaw (N=344)	Bogale (N=337)
Primary occupation				
Farming	80(21)	80(23)		
Agricultural laborer	-	-	110(32)	97(29)
Animal husbandry/fisheries	-	-	15(4)	7(2)
Grocery/mobile vendor	-	-	22(7)	13(4)
Weaver/tailor	-	-	20(6)	7(2)
Family labor	-	-	15(4)	1(0.3)
Factory worker	-	-		8(2)
Motor-bike taxi	-	-		7(2)
Secondary occupation				
Weaver/tailor	50(13)	-	30(9)	-
Carpentry/masonry	26(7)	19(5)	5(1)	43(13)
Grocery/mobile vendor	25(7)	-	5(1)	9(3)
Animal husbandry	12(3)	20(6)	-	18(5)
Agricultural laborer	30(8)	50(14)	-	-
Motor-bike taxi/boat-man	-	15(4)	-	-
Housework	10(3)	-	12(3)	23(7)
Farming	-	-	8(2)	3(1)
Private tuition teacher	5(1)	-	-	-
Broker	-	4(1)	-	-
Motor-bike workshop	-	4(1)	-	-
Rice mill owner	-	1(0.3)	-	-
Student	99(26)	90(26)	86(25)	81(24)
No secondary job	42(11)	67(20)	16(6)	20(6)

Note: Value in parentheses is percentage.

**Appendix 2 Land holding and land utilization by the respondents in study areas**

Type of land (hectares)	MADB clients		PACT clients	
	Ayartaw	Bogale	Ayartaw	Bogale
Wet land (a)	172.15	241.76	16.40	19.64
Dry land (b)	108.30	-	28.95	-
Horticultural land (c)	6.03	6.58	4.17	0.40
Total land area	289.32	248.34	49.51	20.04
(d)=(a)+(b)+(c)				
Borrowed land area (e)	2.13	2.83	-	-
Rent land area (f)	3.64	16.19	12.55	1.62
Total crop production area	287.80	234.98	36.96	18.42
(g)=(d)+(e)-(f)				

Note: Sample size of each group is 80.

**Appendix 3 Seasonal growing crops and crop yield of MADB respondent households**

Season and crop	N (%)	Ayartaw				N (%)	Bogale			
		Yield (ton/ha)	Yield (ton/ha)	Yield (ton/ha)	Yield (ton/ha)		Yield (ton/ha)	Yield (ton/ha)	Yield (ton/ha)	Yield (ton/ha)
		Av.	Max.	Min.	SD		Av.	Max.	Min.	SD
<b>Winter, 2013</b>										
Groundnut	39(49)	0.8	0.9	0.7	0.1					
Sesame	9(11)	0.4	0.6	0.2	0.2					
Green gram	2(3)	1.2	1.2	1.2	-					
Black gram	3(4)	0.7	0.8	0.6	0.1					
Broad bean	3(4)	0.7	0.8	0.6	0.1					
<b>Summer, 2014</b>										
Summer paddy	1(1)	2.8	2.8	2.8	-	80(100)	4.3	6.5	3.1	0.8
Sesame	9(11)	0.3	0.3	0.3	-					
Green gram	2(3)	0.8	0.8	0.7	0.1					
<b>Monsoon, 2014</b>										
Monsoon paddy	80(100)	3.2	5.7	2.2	0.6	80(100)	2.5	3.9	1.8	0.5
Groundnut	8(10)	0.8	0.8	0.7	-					
Sesame	2(3)	0.5	0.5	0.5	-					
Pigeon pea	10(13)	0.8	0.8	0.7	0.1					
Green gram	1(1)	0.8	0.8	0.8	-					
Broad bean	4(5)	0.8	0.9	0.7	0.1					

Note: Sample size of each group is 80.

Value in parentheses is percentage.

Av. = Average

Min. = Minimum

Max. = Maximum

SD = Standard Deviation

**Appendix 4 Common growing cash crops and crop yield of MADB respondent households**

Crop	Ayartaw					Bogale				
	N (%)	Av.	Max.	Min.	SD	N (%)	Av.	Max.	Min.	SD
Betel vine (viss/ha)	13(16)	6	10	2	3	1(1)	4	4	4	-
Thanakhar (plant/ha)	4(5)	148	148	148	-					
Coconut (no. /ha)						10(13)	7,745	9,880	6,422	904
Areca nut (no. /ha)						10(13)	102,271	118,560	91,390	8,885

Note: Sample size of each group is 80. Value in parentheses is percentage.

Av. = Average    Min. = Minimum    Max. = Maximum    SD = Standard Deviation

**Appendix 5 Seasonal growing crops and crop yield of PACT respondent households**

Season and crop	Ayartaw					Bogale				
	N (%)	Av.	Max.	Min.	SD	N (%)	Av.	Max.	Min.	SD
<b>Winter, 2013</b>										
Groundnut	6(8)	0.6	0.8	0.4	0.2					
Sesame	2(3)	-	-	-	-					
Green gram	1(1)	1.2	1.2	1.2	-					
<b>Summer, 2014</b>										
Summer paddy						16(20)	4.2	5.2	3.4	0.5
Sesame	5(6)	0.6	0.7	0.5	0.1					
<b>Monsoon, 2014</b>										
Monsoon paddy	13(16)	3.1	3.6	2.6	0.4	16(20)	2.9	3.9	2.1	0.4
Groundnut	5(6)	0.8	0.9	0.8	-					
Sesame	1(1)	-	-	-	-					
Green gram	10(13)	1.2	1.3	1.2	-					

Note: Sample size of each group is 80. Value in parentheses is percentage.

Av. = Average    Min. = Minimum    Max. = Maximum    SD = Standard Deviation

**Appendix 6 Common growing cash crops and crop yield of PACT respondent households**

Crop	N (%)	Ayartaw				N (%)	Bogale				
		Yield (ton/ha)	Av.	Max.	Min.		SD	Yield (ton/ha)	Av.	Max.	Min.
Betel vine (viss/ha)	4(5)	7.7	8.1	7.3	0.4						
Coconut (no. /ha)						1(1)	7,410	7,410	7,410	-	

Note: Sample size of each group is 80. Value in parentheses is percentage.

Av. = Average    Min. = Minimum    Max. = Maximum    SD = Standard Deviation

**Appendix 7 Income condition of MADB (2010-2015) (million MMK)**

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
<b>Income from loan</b>	<b>22,955.40</b>	<b>33,624.67</b>	<b>28,944.80</b>	<b>60,247.01</b>	<b>48,378.92</b>
interest from loan	22,939.58	33,610.37	28,124.86	58,655.65	41,934.53
penal interest from loan	15.81	14.30	819.94	1,591.36	6,444.39
<b>Total other income</b>	<b>5.77</b>	<b>2.57</b>	<b>82.35</b>	<b>(19.02)</b>	<b>47.87</b>
Net income from the previous year	0.34	0.85	0.63	0.02	0.78
Income from appropriation for interest in the last year <sup>a</sup>	-	-	-	-	35.54
Income for interest from bad debt <sup>b</sup>	0.36	0.09	0.05	-	-
Rebalancing the interest for bad debt <sup>c</sup>	-	-	0.07	-	0.87
Rebalancing the dead stock account <sup>d</sup>	-	-	-	0.53	-
Other income <sup>e</sup>	5.07	1.63	81.60	(19.57)	10.68
<b>Total income (I)</b>	<b>22,961.17</b>	<b>33,627.24</b>	<b>29,027.15</b>	<b>60,227.99</b>	<b>48,426.79</b>

Note: <sup>a</sup>= There were no appropriation for doubtful loan in the year 2009-2013 because there were no debt left for the year 2009-2010, 2010-2011, 2011-2012 and 2012-2013 and so there were no income from appropriation for doubtful loan in the years 2010-2014.

<sup>b</sup>= Bad debt means debt of no way to get back. However, it can be returned. There was no income for interest from bad debt in the year 2013-2014 and 2014-2015.

<sup>c</sup>= Income for interest from bad debt was rebalanced in the year 2012-2013 and 2014-2015 as to be corrected.

<sup>d</sup>= Income from rebalancing the dead stock account. In 2013-2014, some dead stock such as money note counter, calculator were bought without allowing budget. Then, the cost was used under the social fund of the bank and its costs were rebalanced with income account.

<sup>e</sup>= In other income, income for interest and penal interest were added (+) if required and removed (-) if not required as justification.

Source: MADB (Head office)

**Appendix 8 Expenditure condition of MADB (2010-2015) (million MMK)**

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
<b>Interest paid against saving</b>	<b>5,148.48</b>	<b>6,532.00</b>	<b>2,435.47</b>	<b>752.97</b>	<b>621.81</b>
<b>Other expenditure</b>	<b>14,801.77</b>	<b>17,575.24</b>	<b>15,067.10</b>	<b>30,769.89</b>	<b>34,330.44</b>
Interest paid against borrowed loan from MEB	12,051.30	14,749.73	10,948.81	25,757.05	28,430.99
Administrative cost	2,455.67	2,526.05	3,757.27	4,553.59	5,262.77
Expenses in rent	2.45	3.38	2.66	4.13	4.29
Expenses in repairing dead stocks	164.87	159.90	193.45	214.51	218.02
Depreciation cost	29.02	31.50	34.62	39.54	48.13
Miscellaneous cost <sup>a</sup>	97.53	104.68	130.28	201.07	366.25
Special cost <sup>b</sup>	0.93	-	-	-	-
<b>Total expenditure (E)</b>	<b>19,950.25</b>	<b>24,107.24</b>	<b>17,502.57</b>	<b>31,522.85</b>	<b>34,952.26</b>

Note: <sup>a</sup> = Miscellaneous cost includes expenses for buying books, papers and journals for library, expenses for research, expenses for exhibition, etc.

<sup>b</sup> = Special cost includes expenses for losses or impairment.

Source: MADB (Head Office)



**Appendix 9 Profit contribution of MADB to the Government (2010-2015)**  
(million MMK)

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
<b>Net income before appropriation (I)-(E)</b>	<b>3,010.92</b>	<b>9,520.00</b>	<b>11,524.58</b>	<b>28,705.14</b>	<b>13,474.54</b>
Appropriation for capital of doubtful loan <sup>a</sup>	-	-	-	-	3,269.24
Appropriation for interest of doubtful loan <sup>b</sup>	-	-	-	-	366.72
Appropriation for bad debt capital	316.90	959.70	2,180.43	4,940.69	2,620.04
Appropriation for bad debt interest <sup>c</sup>	24.18	75.68	9.12	247.66	-
<b>Net income before contribution</b>	<b>2,669.85</b>	<b>8,484.63</b>	<b>9,335.02</b>	<b>23,516.78</b>	<b>7,218.54</b>
Contribution paid to special fund <sup>d</sup>	667.00	2,121.00	2,334.00	5,879.00	1,805.00
Contribution paid to the State <sup>e</sup>	2,002.00	6,363.00	7,001.00	17,637.00	5,413.00
<b>Final net income for MADB</b>	<b>0.85</b>	<b>0.63</b>	<b>0.02</b>	<b>0.78</b>	<b>0.54</b>

Note: <sup>a</sup> and <sup>b</sup>= Loans were recoverable as 100% until 2010-2011 and 2011-2012. Loans were recoverable as over 90% until 2012-2013 and 2013-2014. Loans were recoverable as 80% in 2014-2015. So, there was appropriation for capital and interest of doubtful loan for the year 2014-2015.

<sup>c</sup>= Bad debt means debt of no way to get back. However, it was returned progressively as capital and interest. There was no appropriation for bad debt interest in 2014-2015 as it was returned year by year.

<sup>d</sup> and <sup>e</sup>= According to MADB law, net income (25%) of MADB was contributed to special fund and net income (75%) was contributed to the State yearly

Source: MADB (Head Office)

**Appendix 10 Income condition of PACT (2010-2015) (million MMK)**

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Interest income on loan portfolio	10,034.35	13,831.23	15,808.12	17,404.94	31,973.79
Commission income	1,004.30	1,123.85	766.85	2.55	61.64
Other income	19.16	3.24	6.40	3.94	81.58
<b>Total income</b>	<b>11,057.81</b>	<b>14,958.32</b>	<b>16,581.37</b>	<b>17,411.43</b>	<b>32,117.02</b>

Source: PACT (Head Office), 2015

**Appendix 11 Expenditure condition of PACT (2010-2015) (million MMK)**

Particulars	Budget year				
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Interest expenses on borrowings	6.22	-	-	-	-
Interest expenses on deposits	930.00	1,618.55	2,081.09	2,464.88	3,615.60
Other financial expenses	15.47	18.08	20.05	32.07	1,521.37
Provision for loan losses	216.99	500.28	434.25	378.85	1,371.03
Recoveries on loans written off	-	-	0.35	0.35	-
Depreciation	114.72	154.36	161.71	158.75	288.85
Administrative expenses	981.49	1,404.89	1,399.15	1,784.62	6,079.86
Salaries	2,551.93	3,338.30	3,897.95	5,085.55	10,840.47
LIFT Country wide expenses	-	-	-	9.27	-
LIFT Country wide expenses (Adjust March-2013)	-	-	-	1.61	-
<b>Total expenses</b>	<b>4,816.83</b>	<b>7,034.46</b>	<b>7,994.55</b>	<b>9,915.94</b>	<b>23,717.18</b>

Source: PACT (Head Office), 2015