IMPACT OF MICROFINANCE PROGRAM OF NESDO ON ECONOMIC EMPOWERMENT OF WOMEN (A CASE STUDY OF DEVISTHAN VDC PARBAT DISTRICT, NEPAL)

A Thesis
Submitted to the Central Department of Economics
Tribhuvan University, Kirtipur, Kathmandu, Nepal
in the Partial Fulfilment of the Requirement
for the Degree of
MASTER OF ARTS
in
ECONOMICS

By

SANDHYA SHRESTHA

Roll No: - 25/067

Central Department of Economics

Tribhuvan University

Kirtipur, Kathmandu, Nepal

December 2014

LETTER OF RECOMMENDATION

This is to certify that this Thesis entitled **'' Impact of Microfinance Program of NESDO on Economic Empowerment of Women''** A case study of Devisthan VDC, Parbat district; Nepal has prepared by Ms. Sandhya Shrestha under my supervision and guidance as a partial fulfillment of the requirements for the Degree of MASTERS OF ARTS in ECONOMICS. I forward it with recommendation for approval.

Date: 16/12/2014

_____

Thesis Supervisor
Dr. Kushum Shakya
Associate Professor, Tribhuvan University
Central Department of Economics
Kirtipur, Kathmandu, Nepal

APPROVAL LETTER

The Thesis entitled "**Impact of Microfinance Program of NESDO on Economic Empowerment of Women''** A case study of Devisthan VDC Parbat District, Nepal prepared by Ms. Sandhya Shrestha has been accepted as partial fulfillment of the requirements for the Degree of MASTERS OF ARTS in ECONOMICS.

Thesis Committee

Associate Professor
Dr. Ram Prasad Gyanwali
Head of the Department _____

Associate Professor
Dr. Uma Shanker Parsad
External Examiner _____

Associate Professor
Dr. Kushum Shakya
Thesis Supervisor _____

Date: 19/12/2014

ACKNOWLEDGEMENTS

This thesis entitled "**Impact of Microfinance Program of NESDO on Economic Empowerment of Women''** A case study of Devisthan VDC Parbat District, Nepal has been prepared for partial fulfillment of the requirements for the Degree of MASTERS OF ARTS in ECONOMICS.

I am pleased to take this opportunity to express my heartfelt gratitude to my thesis supervisor Associate Professor Dr. Kushum Shakya, the Central Department of Economics, University Campus, Tribhuvan University for her valuable guidance, encouragement and suggestions throughout my work. Similarly, I am grateful to Associate Professor Dr. Ram Prasad Gyanwali, the Head of the Central Department of Economics for his suggestion and Guidance.

I would like to thank all the non-teaching members of Central Department of Economics and all the staff members of Central Library, T. U. Kritipur, for the help they extended to me during this study in many ways.

I would like to express my special thanks to all the staff members of NESDO for providing necessary information and data and all the experts who helped me by their response of questionnaire and giving the related information about their services in Devisthan VDC. Similarly, my heartfelt thank goes to my friends for their helps.

Finally, I am highly indebted to my family members for their continuous inspiration and their support in the entire period of study.

I bear sole responsibility for any errors and discrepancies that might have occurred in this research report.

Sandhya Shrestha

December 2014

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ACRONYMS

ADB/L- Agricultural Development Bank Limited

ADB/N- Agricultural Development Bank Nepal

CBs- Commercial Banks

DBs-Development Banks

INGOs- International Non-Government Organizations

MFIs- Micro Finance Institutions

MFSs- Micro Finance Services

NGOs- Non-Government Organizations

NESDO- Nepal Educational Social Development Organization

SFDP- Small Farmer Development Programs

VDC- Village Development Committee

CHAPTER-I

INTRODUCTION

1.1Background of the Study

Many developing countries in the world have unemployment, poverty and low economic growth. Therefore, people of these countries cannot improve their economic condition because the poor people of these countries have no access to proper financial services. Empowerment of women is one of the very important issues in developing countries. As women are integral part of society, their status and participation in decision-making as well as economic activity is very low. Thus, in developing countries microfinance program is used worldwide to eradicate poverty, improving women's economic status by contributing in economic activities and improve economic growth.

Microfinance has been successfully use as an antipoverty and developmental tool in many countries. The clients of microfinance institutions are poor, low-income people and women often living in rural area with less access to basic amenities as education, water, electricity, banking services, health services, market facilities etc. The women lack of access to appropriate financial services. Microfinance is one of the most important tools of the development that raises the living standard of poor and low-income group of people and women. It provides small size of loan, helps to develop entrepreneurship and to establish small-scale enterprises at simple and flexible term and induces saving.

As women contributes to national income of the country and maintain a sustainable livelihood of the families and communities. Although, they face many socio-cultural barriers, lack of education and financial difficulties. Traditionally women have been marginalized. Women are rarely financially independent and often more vulnerable member in family and society. About 70 percent of the world's poor are women and they have no access to credit and other financial services. Therefore microfinance often target women. Microfinance is a critical tool to empower women from poor household. So, particularly women can benefit from microfinance program as many microfinance institutions target only women, to empower them.

Empowerment is related to the process of internal change and to the capacity and right to make decision. It consists of change, choice and power. It is a process of change by

which individuals or groups with little or no power gain the ability to make choice that affects their lives. The structure of power directly affects the choices that women are able to make their lives. (Kulkarni, 2011)

Microfinance has been seen as contributing not only to poverty reduction and financial sustainability but also to a series of 'virtuous spirals' of economic empowerment, increased well-being and social and political empowerment for women themselves, there by addressing goal of gender equality and empowerment. (Kulkarni, 2011)

Empowerment through microfinance is identified and measured in various dimensions: impact on decision making, on self-confidence of women, on their status at home on family relationships and the incidence of domestic violence, on their involvement in the community, on their political empowerment and rights. (Cheston and Kuhn, 2002)

Microfinance is a type of banking service, which provides access to financial and non-financial services to low income people or unemployed people. Microfinance is powerful tools to self-empower the poor people especially women at world level and especially in developing countries. Microfinance activities can give them a means to climb out of poverty. From early 1970's women movement in number of countries increasing to alleviate poverty through microfinance program. Microfinance services lead to women empowerment by positively influencing women's decision-making power at household level and their overall socioeconomic status. It has been well documented that an increase in women resource or better approach for credit facilities results in increased well-being of family especially children. (Noreen, 2011)

The history of microfinance is from Bangladesh since late 1970's and a very successful project. In Nepal, microfinance was initiated with the advent of Small Farmers Development Program (SFDP) in 1975 as targeted as well as pro- poor program focusing only on the rural poor. The overarching objectives of SFDP are to improve the socio economic condition of small farmers, the rural poor. This is the executing responsibility of which is visited in Agricultural Development Bank Limited (ADBL), then the Agricultural Development Bank Nepal (ADBN) since 1975). SFDP is a credit plus program. Hence, it provides not only credit facility but

also the technology, training and social and community development facilities to the beneficiaries. (Shrestha, 2007)

Microfinance practice in Nepal has started from traditional practice of co-operatives like Guthi, Dhikuri, and Dharam Bhakati etc. at present there are large numbers of cooperatives societies, NGOs, INGOs, CBs, DBs many governmental organizations are working in this sector for empowering the status of poor people. After 1990s, the adoption of economic liberalization Nepalese financial sector has expanded massively. To uplift the economic status of poor and deprived group of people microfinance programs have to mobilize the resources belongs to poor community by the poor themselves.

Women in Nepal are extensively engaged in agricultural activities that comprises more than half of the population of the country. Moreover, they are deprived from economic resources like property, income, employment as well as other resources. Beside this, Nepalese women are also underprivileged and disadvantaged in terms of their socioeconomic status in comparison to their male counterparts. The importance of women participation in the development process and the need for their advancement has been growing in many nations. Nowadays, many national and international organizations have been established and launched the programs targeting to enable them to become aware of their situation and to gain economic independence. The provision of credit is regarded as one of the potential way to improve their economic condition.

The women empowerment is related to long-term change in the society, which is associated with the growth and expansion of materials and social welfare of women. Thus, women empowerment is relative concept, which has to be measured with the relative growth in material welfare and change in the women's social, economic, political, educational and cultural structure of the society. The main purpose of women empowerment is to increase the women participation in income generating activities and other political, social and organizational aspects. It can be possible through microfinance program to make women aware about their situation. Thus, microfinance can play a significant role in enhancing women's awareness, mobility, skill development, empowerment at community level, ownership of assets within the household and access to financial services.

Microfinance is one of the appropriate mechanisms to identify the poor and disadvantaged community and to address poverty by providing income employment and capacity building opportunity to poor, disabled, Dalit's and destitute including women and their socio economic empowerment with the support of social mobilization. (Shrestha, 2007)

Microfinance is an effective tool to provide the service to poor people and women who are under serve from financial services.Microfinance has a large wealth of literature and seen as the major developmental tool for overall economic development and eradicating poverty at grass root level and empower the women. Today there are many concerns regarding microfinance enterprises because of their nature of lending. Loans are distributed to low income, underprivileged people and women with pioneering method being used to make repayment intensive. Thus how institutions operating microfinance have put any impact in the economic improvement of women. It would be concluded from research how effective role these institution have played to bring the women participation in economic activities. The main goal of microfinance is to reduce poverty by providing various services to clients. Many supporters of microfinance agree that it has power to break the vicious circle of poverty. At present microfinance is being increasingly used in the form of development strategy for achieving the developmental goal. However, the strategy would prove successful only if it is able to strike balanced between development and finance. Clients of microfinance institutions are usually poor, low income people and women often living in remote areas with less access to basic needs and education, water, electricity, banking services, market facilities etc.

1.2Statement of the Problem

Nepal is poor country; poverty is a main problem of Nepal. Its concentration to reduce the poverty is the prime goal of national plan. The root causes of poverty are education, health problems, low level of income, dependency on traditional agricultural system etc. The women are the poorest among the poor because they are deprived from education and economic resources. There is great disparity between men and women. So nowadays, to reduce poverty and economic development of poor people and women, microfinance is new hope. It is true that microfinance is able to mobilize the resource, which has in the hand of poor people. It helps to increase in the level of income and improve the living standard of poor and women, so microfinance

is effective and powerful tool to minimize the level of poverty and improve the living standard of women.

People of the study area are involved in traditional agricultural as a major source of livelihood. The people suffer from vicious circle of poverty due to low income, low saving and low capital formation. The women are involved in agricultural activities as well as serve as homemakers at home. The women have greater household responsibilities then men but the income source of women depends on their husbands' income.

Therefore, this study has some research questions to explore some specific findings regarding impact of microfinance program at study area. The major research questions are:

I. What is the economic status of women after implementation of microfinance program in study area?

II. Does the program make significant improvement in the role of women in economic decision- making?

1.3 Significance of the Study

The women development is the common issue in the developing countries. Without development of women, the nation's development is not possible. The women of the developing countries are deprived from education, economic resources and other materials. So the women of these countries cannot improve their economic condition due to they have no access to financial services. In this context microfinance is one of the source, which helps to involve them in income generating activities. Microfinance program could help women and poor people by providing self-employment as well as self-sustain. After launching microfinance, program women are facilitated from employment opportunities, quality education, proper health and nutrition. Thus, microfinance program helps to make women self-dependent.

Males and females are two wheel of a cart but in practice, we cannot get such consideration. Nepal is one of the male dominated countries. All, property and financial activities are conducted by male. Women are less literate than men are. Women do not have access to finance. Most of the Nepalese women have lack of skill and experience to do new things. In such situation, microfinance program may be strong tool to mobilize women in economic activities, social activities, and mobility

and awareness in women help to provide the better health and education facilities to the next generation because the child of an educated women cannot remain uneducated. Thus empowerment of women means the permanent uplift of the society in social indicators like health, education etc.

Microfinance makes people literate, self-employed, aware, active and conscious by providing different programs. Free and qualitative education, proper health and nutrition facilities, employment opportunities provided to citizens are the key responsibilities of government; and some of these responsibilities may be supported and initiated by NGOs, INGOs and private institutions. Thus, micro credit facilities are providing to the citizens' break the vicious circle of poverty. The study is important because the government and its central bank have initiated microfinance program since three decades as a means of poverty reduction through government agencies to empower the women. The government is promoting NGOs to work as a partner in social mobilization of rural poor. Microfinance is proven strategy to empower women. . This study is significant because for the first time, the government is promoting different development Banks and NGOs with the apex, organization like RMDC and co-operative institutions for promoting micro-finance program. This research tries to signify micro-finance in Nepal and how it helps to empower women with the help of case study of microfinance program of Devisthan VDC.

1.4 Objectives of the Study

The general objective of this study is to find out the effectiveness of microfinance program to improve the economic status of women and poor. The specific objectives are:

I. To identify the improvement of economic status of women in Devisthan VDC after participating in the MFPs of NESDO
II. To find out the decision-making status of women after participating in the microfinance programs of NESDO

1.5 Limitation of the Study

This study mainly focuses on microfinance programs operating in Devisthan VDC only. The study mainly based on primary data. The study mostly concern about microfinance program run by NESDO (National Educational and Social Development Organization) Nepal. The study is based on the data of female respondents who have

been used MFSs during ten years 2061-2071 regularly and they belongs to Devisthan VDC. In this study all the changes depends on women's involvement in MFPs of NESDO, all other things remaining the same.

1.6 Organization of the Study

The Chapter I 'Introduction' consist of general information about microfinance and women empowerment, Statement of the Problem, Significance of the study, Objective of the study, Limitation of the study and Organization of the study.

The Chapter II 'Review of Literature' consists of theoretical and empirical review about microfinance. It includes review of book, various published and unpublished reports, journals, thesis etc. about microfinance.

The Chapter III deals with Research Methodology; which includes general information about MFI NESDO, study area, research design, nature and sources of data, sample size, data collection technique and tools, data analysis and presentation.

The Chapter IV presents analysis of collected data with the help of analytical tools and interprets the result obtained.

The Chapter V presents the Summary, Conclusion and Recommendation of the study.

An Appendix, Reference section are enclosed at the end of the thesis.

CHAPTER-II

LITERATURE REVIEW

In general, every scientific research is based on past knowledge. The previous studies cannot be ignored because they provide the foundation for present study. So this chapter contain review of relevant literature found by the published books, journals, articles, study report, thesis, website which are related to support the present study. This chapter consists of following three headings:

2.1 Theoretical Perspective

2.2 Empirical Perspective

2.3 Research Gap

2.1 Theoretical Perspective

According to World Bank, the term microfinance refers to the provision of financial services to low income clients, including self-employed. Financial, generally include saving and credit; however, some microfinance organizations also provide insurance and payment services, in addition to financial intermediation, many MFI provide social intermediation services such as group information, development of self-confidence and training in financial literacy and management capabilities among members of a group. Thus, the definition of microfinance often includes both financial intermediation and social intermediation. MF is not only banking; it is developmental tool. (World Bank, 1997).

Microfinance refers to a variety of financial services that target low-income clients particularly women. Since the clients of microfinance institutions (MFIs) have lower incomes and often have limited access to other financial services, microfinance products tend to be smaller monetary amounts than traditional financial services. These services include loans, saving, insurance and remittances. The diversity of products and services offered reflects the fact that the financial needs of individuals, households and enterprise can change significantly over time, especially for those who live in poverty. Because of these varied needs and because of the industry's focus on poor, microfinance institutions often use non- traditional methodologies, such as group lending or other forms of collateral not employed by the formal financial sector. (www.microfinance .com)

Das (2014) stated that microfinance as one of the promising and cost effective tool, which fight against global poverty. The term microfinance could be defined as provision of thrift, credit and other financial services and products of very small amounts to poor in rural, semi- urban and urban areas for enabling them to raise their income levels and improve living standards. It is one of the important tools, which plays a significant role in poverty elimination, and economic development of rural poor.

Armendarize and Morduch (2007) had argued that enhancing opportunities for women can be good for both efficiency and intra-household equity. Microfinance can also improve long-term developmental as women are the main brokers children's wealth and education. Microfinance to play a role in increasing the scale and scope of self-employment opportunities and skill acquisition protecting women's right through saving and for enhancing social capital. Microfinance should act as a deterrent against domestic violence and more generally as an instrument for women to promote their rights and improve their bargaining power vis-a-vis their husband or other male family members. Microfinance increase the opportunity cost of women's time.

Cheston and Kuhn (2002) stated that microfinance programs have been potential to transform poor relation and to empower women. Although women access to financial resources has substantially increased yet loans, gives to women differ in size. In spite of this, just financial help not enough to empower women and improve well-being but if they are properly designed then they make important contribution to women empowerment. The authors explained that empowerment indicators and measurement technique. The contribution of micro insurance, saving to empowerment, technology transfer through microfinance institution, the relationship between microfinance program, empowerment, family planning and cultural norms are exist. Further explained that microfinance plays a major role in gender and a development strategy because of it is direct related to poverty alleviation and women. As, women are the poorest of poor, so financial security allows the women to become more empower in household and community. As women spent most of their income on their family needs particularly children education, health care and clothing. Access to financial resources not only empowers women but also access to material (credit, property and money), human and social resources (education, business). Microfinance affect women's ability or decision making and self-confidence which is closely related with

knowledge, women's status and gender relation at home. Through the program women escaped from abusive relationship. Microfinance programs impact also on political empowerment.

Boros and Murray (2002) highlighted that the microfinance gives access to financial and non-financial services to low income people wishing to access money for starting or developing an income generating activity. Loans and saving of the individual poorer clients can be bankable, that is they can reply in time both principle and interest and make saving provided financial services are tailored to suit their needs. According to the authors, microfinance programs, which initially targeted both male and female clients, become predominantly women oriented. This was because such programs believed that the poorer women were better and timelier player than poorer men; and that women decided more of the income generated from business activities to their families 'well-being. Microfinance programs have helped to implore women's social position, the women become more respected in their communities and their opinions, and power to influence decisions in the household and it carried more weight in the community. The microfinance program can also provide the power platform to create favorable context to encourage women to gain political right. Another positive development for women in microfinance area is the deliberate hiring them as staff of microfinance intermediaries to management and leadership positions including as board members.

Asim (2008) evaluated the impact of micro credit program on indicators of women empowerment in urban slums of Lahore district, Pakistan. The author has chosen specialized institutions with women focusing models. Therefore, the most appropriate institutions according to author are Kashaf foundation and Community Support Concern (CSC). Three potential sources of selection biases measured the impact of program. Firstly, program participants different from their control comparators. Second is that the treatment group might differ from control group in the distribution of unobserved characteristics. Third bias can rise if participants have positive externalities on those who have later joined program. The author construct preference based indicators including child related and health related decisions and economic decisions, social mobility decisions, resource allocated decisions and autonomy based indicators including household purchase and child related decisions. To explore the link between women empowerment and micro credit participants, the author used

three different estimates; simple parametric framework of conditional mean independence, randomization of treatment and bivariate probit model. The results show that micro credit intervention has no impact on child health, economic and social mobility decisions. On average, women in treatment group were no more independent or autonomous than the control group in small household purchases. Participation in micro credit program is found to be insignificant in explaining all the outcome indicators of empowerment for sampled household.

Khandker (2005) stated that creating and enabling environment for microfinance and women's empowerment can be achieved through promoting women's access to public service and employment opportunities. Public policy should promote social inclusion and equal opportunities for poor women. Women can become powerful catalysts for development for development when empowered through microfinance, but required access to childcare, health, education and skills employment opportunities and greater control over their fertility and children's education to enable to take advantage of the opportunities that microfinance provide. Through establishing strong partnership between the private banking sector and microfinance institutions; so that the market plays more effective role in contributing poverty alleviation. Multinational banks that provide micro loans have greater access to resources, banking technology and boarder range of financial services. These potential benefits have needed to balance against concerns arising from corporate lending practices and competition with microfinance institutions serving poor. In addition, providing complementary services with literacy classes, business, training and childcare; these are significant factors in improving both repayment rates and women empowerment, therefore it is important to resist pressures on microfinance programs to reduce operational cast by cutting back on such essential complementary services and by including women empowerment indicators in the design and evaluation of microcredit programs. Best practices has shown that microfinance is more effective when assets used as collateral or purchased with loans are solely or jointly in women's manes; a range of saving products and facilities offering higher interest rates are made available the lending process includes participatory consultation, including for non-business loans such as health, education and housing.

Microfinance is one of the best alternatives to generate self-employment. It provides services to the communities who have no collateral to offer against the loans they take

but have indigenous skills and strong desire to undertake economic activities for self-employment and income generation. Women who could gain access to microfinance services have been able to create self- employment opportunities and have been economically and socially empowered through increased income earning from their small projects. The MFIs and the wholesale lending institutions such as RMDC together have raised the level of awareness and the required skills of these women to successfully carry out locally feasible income generating activities. Many participating women have now become self-reliant both economically and socially with the acquired knowledge and skills, and the resultant income from the microfinance program. Thus, microfinance has become a strong means to reduce poverty especially of the women. Among the many developmental programs implemented in Nepal, microfinance programs have a strong rural orientation and are targeted at the poor. (RMDC, 2009)

CECI (2001) report stated that women are among the poorest segment of the population. They have lower status and mobility in the society. Access to management of credit and saving increases their status and mobility in the society and builds self-confidence. It is necessary to focus microfinance program to women to better distribution of benefits and better performance in repayment of loan and its interest rate. It is because women spend larger portion of additional income earned on household expenses and basic needs that benefit children in particular. In connection of repayment, women members are found better than the male. Therefore, the report argued that the microfinance programs should focus on women.

Poudyal (2007) stated that microfinance is increasingly being taken as a magic bullet for poverty reduction. The emphasis on microfinance for poverty presumes that the credit to poor promotes self-employment and income generating activities. This leads to an increase in income and contribute to an accumulation of assets, which is in turn reduces vulnerability due to illness, crop failures and enables better education, nutrition health and housing of borrowers. In addition, microfinance can contribute to empower women by providing them the basis for earning income, social mobilization and political awaking.

2.2 Empirical Perspective

Leikem (2012) explained that another series of positive impacts exist in what has been termed the wider impact of microfinance sifting focus to analyzing effects on the communities and societies of the borrowers. The general argument for the wider impact of microfinance, it is that it generates greater social networks and a greater sense of community, which translate into accumulation of information contributing to greater political participation, education rate and better health care. These social qualitative measures are argued to be more difficult to measure than quantitative measure and have been cited, as important evidence of microfinance is ability to reduce poverty. The study concluded that overall microfinance has provided important contributions to development world. It was found that savings are vital and are perhaps more important to poor. The poorest are probably better served by direct subsidies rather than loans. Although microfinance is certainly not a panacea for poverty, it can prove itself a useful tool in fight against poverty.

Malik and Muhammad (2005) presented that approximately 60 percent of clients of microfinance institutions throughout the world are women. Three arguments are used to prioritize women access to microfinance services. First, is poverty second is increased efficiency and sustainability and third one is equality in empowerment. Empowerment is a process of change by which individual or groups gain power and ability to take control over their lives. It involves increased well-being, access to resources, self-confidence, self- esteem and respect, participation in decision-making and bargaining power and increased control over benefits and their own life. Microfinance program tends to focus on promoting changes at individual level. However, the scope of empowerment for individual women is usually limited by inequalities and discrimination. The authors concluded that microcredit schemes to doubt facilitate in empowering poor women and eradicate poverty. The impact on women were enhancement in women's ability to influence family affairs, decision-making, increased self-confidence, improve their status, increased gender relations at home and reduction in domestic violence.

Noreen (2011) described that microfinance program for women have positive impact on economic growth by improving women income generating activities. The author attempts to explore the determinants of women empowerment and its effect on decision making by using regression analysis. The data were collected from

Bahawalpur City. The author found that age, education of husband, marital status, no. of sons, father assets and loan amount are influential factors rather than many other factors are the socioeconomic determinants of women empowerment. Age effects positively and significantly but its variation is not much. Older women are much mobile, have a greater access to resource and to make decision both inside and outside the home. Education of husband also gives the females more say in domestic decision- making. The economic determinant loan amount also contributes to the women empowerment at household level. Most of the women make financial and business decision by themselves and use their loans by themselves. Microfinance loans have positive effect on women domestic decision making.

Majorana (2007) assessed the impact of rural microfinance project based on observation and analysis of MFIs working in Kathmandu, Dhanusa, Sunsari and Morang districts. Author found that the microfinance program aimed at women empowerment has contributed to indifferent ways. The treated their saving as a means of building up an assets base and gaining a certain independency from their husband. The programs have increased women's self-confidence and their influence in household decision-making process has increased. From this analysis of the study concluded that the microfinance services have reached the poor and poorest families. The women clients have improve their confidence, leadership, decision-making power and entrepreneurial skills after participating in the microfinance program.

RMDC (2008) studied about the impact of microfinance program on socioeconomic status of ultimate beneficiaries by using primary and secondary information in Kathmandu district. The study revealed that the impact of microfinance services on participating women was positive to their household income. An increase in income improves the socioeconomic condition of participating women. The credibility of borrowers also has increased in the other sectors through their increased income. This was possible because of their involvement in the program. It has been considered as a positive impact of microfinance. The microfinance program has greatly empowered the women in all respects. This study showed that microfinance promotes diversification of income source and bring about positive change in investment, income and saving made from each category of income source. Microfinance program generates self-employment that generates income to meet daily necessities of the poor women and their families. Microfinance program also improves the education status

of children of member women as they get required information from the implementers. Beside this microfinance program increase their own decision making power without any interference from their male counterparts.

Bashyal (2008) explained about the microcredit based on primary information found that though microcredit has positive and reproductive work. The study has depicted that clients of husbands seems very positive in sharing workload that their wives were doing before. Women's control loans and benefits however remains compromised. The program has access to more year of schooling for both male and female children equitability no discrimination was found between son and daughter in sending school. More interesting decision-making role among the credit groups regarding the family planning and message of their daughter found increased. Field observation also showed that the clients are more accessed to general health care service from the hospital. From the overall impact evaluation, it can be concluded that microfinance can achieve the first three out of eight goal of millennium development purposed by the millennium summit 2000.

Ghimere (2008) has assessed and analyzed of microfinance program on socio-economic upliftment of rural women and the role of microfinance program on empowerment of women through enhancement of decision making power in Rupandehi by NUBL and evaluated the per-capita of women about MFP. This study revealed that the condition of drinking water, toilet bathroom was also improved during the observed period, which indicated that women awareness was increased then before their involvement in MFPs. Rural women were started to take part on social discussion and participation of women on MFPs has been positively taken by the society. This showed that women were socially uplift. Women were becoming self-dependent and there was increase in participation of women on economic and household decision and on social issue as well. Thus, positive effect on socio economic upliftment of rural women was seen.

2.3 Research Gap

The literature review signified that the microfinance is a developmental tool; it gives financial services to poor, low-income people and women to improve their economic condition. The microfinance program helps income generating activities to poor and women, which helps to empower them socially and economically towards self-sustain

life. The studies showed that the repayment rate of loan and its interest is also good of women members as compared to male. Beside this it helps to increase the decision making power of women and participation in social issues.

All the researchers are concentrated on assessing the impact of microfinance with institution wise, model wise or gender wise. None of these studies captures the effect of microfinance program on sector wise. As meaning of MF consist very broad definition of micro fund mobilization to know the real impact of MF, all relevant aspect of societies should be evaluated. In the same concern, this research selected women as a matter of study, which is majority in population but ignored from the stream of sustainable development of country and dominated by males. Mainly, this research is focused on women empowerment and with the boundary of empowerment; this research has taken economic improvement and decision-making status of women. However, the study is entirely new in Devisthan VDC no research related to MF has so far been done in Devisthan VDC this research justifies the present work about MF.

CHAPTER- III

RESEARCH METHODOLOGY

This chapter deals with the technique and procedures used during the research study. This chapter includes the introduction about NESDO, study area, research design, nature and sources of data, sampling technique and procedure, data collection technique, analysis and presentation of data.

3.1 Nepal Educational Social Development Organization (NESDO)

NESDO is one of the famous NGOs of Parbat district. The head office of the NESDO is situated in Kushma bazaar; it was established in 2051 B.S. In spite of limited scope and resources, the organization has achieved a significant success in poverty reduction on rural area of Parbat district through the socio economic upliftment and empowerment of back warded communities and women.

Mainly NESDO is conducting various awareness related programs; such as saving and credit programs to improve social, economic and political condition of deprived and back warded communities by giving priority to community development and service oriented program. Similarly, self-reliance, water supply, sanitation, non-formal education, maternal health etc. are the focused program in the operational area of NESDO.

3.2 Study Area

Devisthan VDC is one of the VDC of Parbat district. It is situated in west part of Parbat district, which is fifteen kilometer far from its headquarter Kushma. It is one kind of semi urban area in the view of development. The total area of this VDC is 3.82 square kilometer. According to village profile of Devisthan VDC of 2068, the total population of Devisthan VDC is 3,308. Out of total population, the women are 1,745 and men are 1,563. More than 60 percent people involve in agriculture occupation.

3.3 Research Design

As per nature of study, the study has used both quantitative and qualitative research design. Similarly analytical research design has used. Descriptive research design is use to collect the opinions and to know about behavior of beneficiaries. Analytical study has tried to analyze the collected data and information more accurately and

critically evaluation of those information and data. The study is mainly focus on MFPs by NESDO operating in Devisthan VDC.

3.4 Nature and Source of Data

Both primary and secondary sources of data are used in the study. Mainly the primary data has used in the study. The primary data is collected from household survey using structured questionnaire and interview method. The related secondary data is obtained from documents, reports, journals etc. different books and bulletins of NESDO have to use.

3.5 Sample Size

The sample size has been taken from involved women in the MFPs. It is conducted by NESDO in Devisthan VDC of Parbat district. NESDO started its MFPs since 2061BC. There are 259 women members of MF in this VDC. From total member 92 members have been taken as the sample population for detailed study. Total sample represents 35.52 % of total members. The detailed description about sample and population has been presented as below:

Table 3.1

Total Respondents and Sample size of Respondents

S.N.	Particulars	Total Respondents	Sample size of Respondents
1.	Bhramin	128	45
2.	Janjati	95	34
3.	Dalit	36	13
	Total	259	92

Source: NESDO Report -2014, Field Survey -2014

3.6 Data Collection Technique and Tools

To collect primary data household survey and interview method are used. Out of 259 members 92 members household are selected by simple random sampling in household survey. Subjective and objective type of structured questionnaire is developed to collect primary data in household survey. There is a six-page questionnaire with 33 questions for household survey. These questions are designed to collect information of two-time period. Two times means the data before MFPs intervention and after the MFPs intervention.

The secondary data are collected from the publication of NESDO. Other different published articles, documents, books etc. are also used to obtained necessary information.

3.7 Data Presentation and Analysis

The data collected using different technique are given due attention to process and present them in suitable formats so that it can be analyzed using analytical, descriptive as well as simple quantitative statistical tool. Descriptive method like percentage, mean, trend analysis is used. Results obtained are presented in the form of tables and figures. The statistical tool Z-test and Chi-square test are used to test the significance of parametric test for sampling attributes.

3.7.1 Percentage Analysis

A percent is a way of expressing numbers as fraction of 100 and is often denoted by % sign. Percentage is a proportion stated in terms one hundred that is calculated by multiplying by fraction. It presents the result in absolute term. In the study, this tool is used to measure the proportion of respondents' occupational movement, saving purpose, toilet and bathroom condition and consumption pattern.

3.7.2 Z-Test

Z-test is used to test the significance of parametric test for sampling attributes.

Z-test is used under the following assumptions:

When sample size is 30 or more then 30.

Then sample have been drawn from normal population.

Then sample are independent.

Z-test is applicable under

Test of significance of single mean.

Test of significance between two means.

Test of significance of single proportion.

Test of significance between two proportions.

It is a significance test of proportion in which the population is divided in to two mutually disjoint classes representing the qualitative characteristics in such a way that one possesses a particular attribute and other does not possess that attribute. In the study Z-test is used for testing significance of double mean where both two samples are drawn from sample population. Z-test is use for increase in income level, change in land holding size and decision-making power of respondents after joining the MFP.

In this study 5%, level of significance is used to test the change. Therefore, it is given as:

Let, n_1 and n_2 denote the size of large sample and let, X_1 and X_2 denote the observed number of event.

Now,

P1=observed sample proportion of event A before MFP= $\frac{X_1}{n_1}$

P2=observed sample proportion of event A after MFP= $\frac{X_2}{n_2}$

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2}$ $\hat{Q} = 1 - \hat{P}$

3.7.3 Chi-Square Test

This test explains the magnitude of discrepancy between expected frequency and observed frequency. A chi-square test is used to determine whether two attributes are independent of each other. Chi-square test is use to find out women perception, experience, social response. This is often using to know the difference between theory and observation. Therefore, it is given by

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where, $E = \frac{\Sigma O}{n}$

Where, O=observed frequency

E=expected frequency

Condition for application $\chi^2 - test$

Total number of frequency should be large as 50

Sample observation should be independent

In this study to test women perception 5% level of significance with respective degree of freedom (n-1)

3.8 Data, Methodology and its Application to Justify Objectives of the Study

Microfinance		
Flow of service	Flow of service	Feedback
Economic impact	Impact on decision	Women perception
Increased in income (Z-test) Saving (% and descriptive) Change in land (Z-test) Occupational movement (% and descriptive) Saving purpose (% descriptive) Toilet bathroom user (% and descriptive) Consumption pattern (% descriptive)	Women decision making power (Z-test)	Women experience (χ^2 -test) Women perception (χ^2 -test) Social response (χ^2 -test) Dependency level (% and descriptive)

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

This chapter deals with the collected data regarding to the main objectives of study. In this chapter, we analyze the collected data in various headings and sub headings to fulfill the main objectives of research study. This chapter shows the analysis of the various issues like occupational change due to involvement in MFPs, change in income after involving MFPs, change in various consumption patterns (food, fuel), sanitation (toilet, bathroom), decisional power and women perception below sequentially.

4.1 Socio-Demographic characteristics of Respondents

Being the study of MF targeted to the women, this research work has studied women from NESDO; to know the women's activities researcher have asked various structural questionnaires. Therefore, this section consist various information of respondents like as age, caste/ethnicity, educational status and marital of respondents. There are hundred percent married women with seven different cats all women are literate. These all are scattering in following term:

Table 4.1
Socio-Demographic status of Respondents

Socio-Demographic status	No. of Respondents	Percentage
Age group		
20-30	5	5.43
31-40	37	40.23
41-50	33	35.87
51-60	15	16.30
61-70	2	2.17
Total	92	100.00
Caste		
Bhramin	26	28.27
Chhetri	19	20.65
Newar	25	27.18
Gurung	9	9.78
Damai	6	6.52
Kami	4	3.27
Sharki	3	3.26
Total	92	100.00
Educational status		
Literate	32	34.78
Below SLC	45	48.78
Above SLC	15	16.31
Total	92	100.00
Marital status		
Married	79	85.87
Widow	9	9.78
Divorced	3	3.27
Separated	1	1.08
Total	92	100.00

Source: Field Study -2014

In field survey among the respondents, the youngest respondent is 30 years old and the oldest is 63 years old. Table 4.1 shows that very little respondent who had over 60 years old been only 2.17 percent. Table 4.1 shows that more than half percent (76.08)

of women respondents are between 31 to 50 years old. This fact shows that MFPs focusing those age group who are economically active and energetic in every aspect; matured energetic aged group are focused by MFPs.

Table 4.1 shows that 28.27 percent Bhramin women are involved in MFP, 20.65 percent Chhetri women, 27.18 percent Newar women and 9.78 percent Gurung women are involved in NESDO. Similarly, 6.52 percent Damai women, 3.26 percent Sarki women and 4.34 percent Kami women are involved in NESDO. Therefore, MFPs of NESDO has included all the caste and communities who live in Devisthan VDC.

Educational factor is the main determinant of economic status of people. It determines the life standard of people. In study area, illiterate women are not found, 34.78 percent are literate, 48.91 percent are below SLC and 16.31 percent respondents are SLC passed. According to respondents, the number of literate respondents has increased due to informal education provided by NESDO. Therefore, they are able to know their transaction with NESDO.

There are hundred percent-married women involved in microfinance group in the study area. In study area, unmarried women are not found, 85.87 percent are married and living with their husband. Similarly, 9.78 percent respondents are widow, 3.27 percent respondents are divorced and only one respondent is living separately.

4.2 Economic Impact on Rural Women

This study has incorporated with various economic impacts related issues under this heading. Under this heading the study deals with significance of changed in income after involving MFPs, occupational change due to involvement in MFPs, change in lifestyle (consumption, fuel), respondents awareness on sanitation (use of toilet, bathroom). Test of such subheadings are presented sequentially.

4.2.1 Occupational Movement

This topic deals with the occupational change of respondents after involving MFPs. In study area, the changing structure of occupation after involving MFPs is presented as:

Table 4.2

Occupational movement of Respondents before and after MFPs

S. No.	Occupation	No. of Respondents and Percentage			
		Before MFPs	% of Before	After MFPs	% of After
1.	Agriculture	45	48.90	30	32.33
2.	Business	12	13.14	22	23.90
3.	Service	18	19.56	15	16.30
4.	Poultry	17	18.40	23	25.00
5.	Other	0	00.00	2	2.70
	Total	92	100.00	92	100.00

Source: Field Study - 2014

Table 4.2 shows that 49.90 percent of total respondents are involved in agricultural occupation. After the involvement in MFPs, agricultural occupation involvement has decreased from 49 percent to 32.3 percent. The percentage of business has increased from 13.14 percent to 23.91 percent; credit facilities, different training conducted by NESDO has played important role to change traditional type of occupation like as agriculture, livestock into modern occupation such as trade and shop, cash crops etc. service included wage earners, labors, private job, government job etc. The numbers of respondents involved on service have decreased after than before MFPs from 19.56 percent to 16.4 percent. This result indicates that MFPs has transformed the beneficiaries from dependent on other resources to self-dependent on own resource. The percentage of poultry has increased after than before the MFPs intervention. It is due to credit facility and different training provided by NESDO. The percentage of poultry has increased from 18.40 percent to 25 percent after than before intervention of MFPs. Other occupation comprises remittance earning jobs, short time professions etc. Table 4.2 shows that there are no respondents involve on the other profession before the intervention of MFPs. After the intervention of MFPs 2.2 percent, respondents are involved.

4.2.2 Income Earner of Respondent Household

In society role of women in family is to engage in indoor work of a house as a homemaker. The economic contribution of women is not counted in monetary form

but the income of women from different economic activities is automatically counted. MFPs have evoked the women to do various kinds of economic activities. Therefore, in family the economic contribution of women can be counted in monetary form. Most of the respondents' household in study area found that there are two and more than two income earners after involving MFPs.

Table 4.3

Income Earner of Respondents Household before and after MFPs

Categories	No. of Respondents	
	Before MFPs	After MFPs
Only husband	59	2
Only wife	3	13
Husband and wife	28	58
Husband, wife and other	2	19
Total	92	92

Source: Field Study -2014

Table 4.3 shows that more than half respondents' household of total respondents has single income earner i.e. only husband before MFPs and we found the single income earner of household have decreased after involving MFPs. The number of single income earners has decreased from 59 to 2. The numbers of household of two-income earner have increased with almost two times after than before involving MFPs i.e. from 28 to 58. Similarly, the numbers of household of three or more than it of income earner have dramatically increased after than before i.e. from 2 to 19. All the result indicates that due to involving in MFPs additional income earners have been added to most of household.

4.2.3 Monthly Income of Respondents before and after Involving MFPs

Income is the outcome of investment on monetary and non-monetary efforts. This heading has taken both level of income of respondents before and after involving MFPs and analyzed by using mean and Z-test.

Table 4.4

Monthly Income level of Respondents before and after involving MFPs

Income series(Rs.)	No. of Respondents	
	Before MFPs	After MFPs
<3000	14	5
3000-6000	23	6
6000-9000	20	25
9000-12000	14	10
12000-15000	10	15
15000-18000	7	15
18000-21000	4	12
Above 21000	0	4
Total	92	92

Source: Field Study -2014

The summary table (Appendix II) shows that positive change on average income of respondents after involving the MFPs. The average income of respondents before MFPs was Rs.8152.17 and after the involvement in MFPs their monthly income has increased by 46.27 percent then the average income become Rs.11223.91; it is concluded that economic condition of almost member has been improved after involving MFPs.

This fact can be proved by using statistical test as following:

To test the hypothesis n_1=n_2=92

Setting the hypothesis

Null hypothesis (H_0) μ_1=μ_2 i.e. there is no change in income level of respondents after and before MFPs.

Alternative hypothesis (H_1) $\mu_1 < \mu_2$ i.e. there is increase in income level of respondents after than before MFPs.

Since n=92, we use Z-test,

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\sigma^2(\frac{1}{n_1} - \frac{1}{n_2})}}$$

Calculated value /Z/=5.29 (From Appendix – II)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

As the calculated value of /Z/ (5.29) is greater than tabulated value of /Z/ (1.645), the null hypothesis is rejected. Thus, it is concluded that income level of respondents has significantly increased after involving MFPs.

4.2.4 Saving Status of Respondents

Saving is one of the major components associated within the boundary of MF. Therefore, MFIs are enforcing their clients to save because they have made the provision of regular monthly meeting with small amount of deposit. NESDO have the provision that their clients must save Rs.50 during their monthly meeting. Saving status indicates that what is the situation of saving of respondents before and after involve on MFPs. After involving MFI all members, have to develop their saving habit. Increase in income generating activities, access of financial service, compulsory saving in every group meeting provided by MFI played vital role to change the saving status of respondents.

4.2.4.1 Monthly Trend of Saving of Respondents

Table 4.5

Monthly Trend of Saving of Respondents before and after involving MFPs

Saving Series (in Rs.)	No. of Respondents	
	Before MFPs	After MFPs
No saving	50	0
0-1000	19	5
1000-2000	8	10
2000-3000	13	17
3000-4000	2	9
4000-5000	0	11
5000-6000	0	15
6000-7000	0	9
7000-8000	0	7
8000-9000	0	5
9000-10,000	0	3
Above 10,000	0	1
Total	92	92

Source: Field Study- 2014

Figure 4.1

Monthly trend of saving of Respondents before and after MFPs

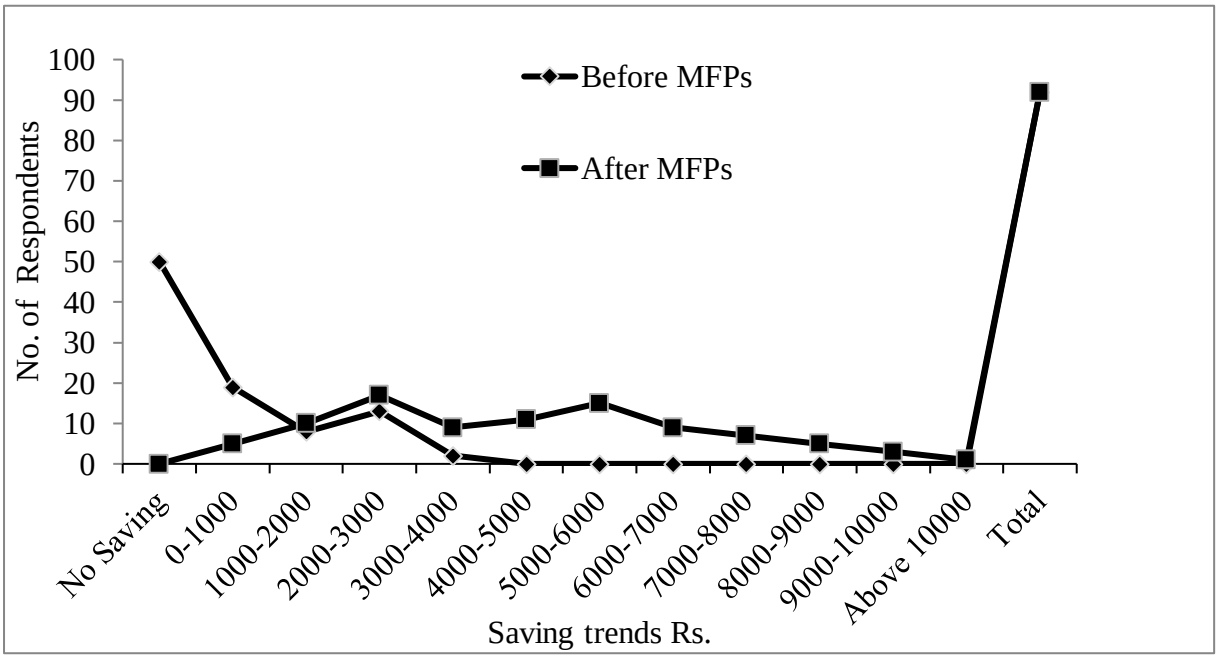

Table 4.5 and Figure 4.1 shows that half of the respondents have no saving before involving MFPs but after involving MFPs the number of not saving respondents become zero; only 27 respondents were make small proportion of saving of their monthly income Rs.0-2000 has decreased with 15 numbers after involving MFPs. The decreased number of respondents sifted from lower saving group to lower saving group to higher saving group. Only 13 respondents were saving of their monthly income Rs.2000-3000 before MFPs but the number of respondents of saving Rs.2000-3000 has increased with 17 numbers after MFPs. No respondents save 4000-5000 before the MFPs implementation but 11 respondents fall in this saving group after MFPs implementation. Above figure shows that there are 15 respondents on the second position of saving Rs.5000-6000 after MFPs implementation where there was no one save Rs.5000-6000 before MFPs. It is found that 9 respondents save Rs.6000-7000, 7 respondents save 7000-8000, 5 respondents save 8000-9000 and only one respondent save above 10,000 (Rs.12000) after the MFPs. Above fact shows that the number of respondents who can save is in increasing rate. This result indicates that the saving status of all respondents who are involve in MFPs have been changed positively after implementation of MFPs.

4.2.4.2 Purpose of saving used

Saving can make future more productive than present but it depends on how it is used for. How the MFPs has affect the saving used purpose habit of respondents after than before. It is analyzed by comparing the both data before and after involving MFPs.

Table 4.6

Purpose of saving used before and after involving MFPs

S. No.	Categories	No. of Respondents and Percentage			
		Before MFPs	% of Before	After MFPs	% of After
1.	Household needs	2	69.06	19	20.65
2.	Payback loan	0	00.00	8	8.69
3.	Children education	5	11.90	41	44.57
4.	Health expanses	3	7.14	13	14.13
5.	Purchase of household assets	0	00.00	11	11.96
6.	Feast and festivals	5	11.90	0	00.00
	Total	42	100.00	92	100.00

Source: Field Study -2014

Table 4.6 shows that 69.06 percent respondents out of 42 respondents used to spend the saving for household needs before involving MFPs. The percentage of this category has dramatically decreased from 69.06 percent to 20.65 percent after MFPs but this percentage is based on total number of respondents (92). This result shows that MFPs has made the respondents saving use habit to change from general expenses for household need to general saving used for other purpose like as children education, health expenses etc. Highest percentage of respondents i.e. 44.57 percent use their saving for the children education after the MFPs but the percentage of this category was only 11.9 percent of 42 respondents before MFPs. Table 4.6 shows that 8.69 percent and 11.96 percent of total respondents use the saving for the purpose of payback loan and purchase the household assets respectively after the MFPs but on these categories there was no one respondents before MFPs. 11.90 percent respondents out of 42 respondents used the saving for the purpose of feast and festival but after the MFPs this number of category became zero. This indicates that MFPs has diverted the saving using process from unproductive sector to productive sector. Similarly, the percentage of using the saving for the purpose of health expenses has also increased from 7.14 percent to14.13 percent after than before MFPs. This result shows that MFPs has helped to increase the life expectancy and literary level of the respondents' family.

4.2.5 Land Holding Size of Respondents

Land is a main means of production, which is also, fix assets of people. Land holding size can be considered as a measurement scale of household. Therefore, the size of land holding shows the economic status of household. Here the land holding comprising two type of land like as the land which is for cultivation and which is for grassland.

Table 4.7

Land Holding Size of Respondents before and after MFPs

Series (in Ropani)	No. of Respondents	
	Before MFPs	After MFPs
0-3	17	10
3-6	35	21
6-9	19	33
9-12	9	13
12-15	7	9
15-18	5	6
Total	92	92

Source: Field Study- 2014

The summary table (Appendix III) shows that positive change on average land holding size of respondents after involving the MFPs. Respondents average land holding size before MFP was 6.49 ropani; after involving in MFPs their average land holding size has been increased by 19.57 percent and become 7.76 ropani. By this fact it can concluded that economic status of respondents has improved due to involving the MFPs.

This fact can be proved by using statistical test as following:

Setting Hypothesis:

Null hypothesis (H_0):$\mu_1 = \mu_2$ i.e. there is no significant change in the land holding size of respondents after the MFPs.

Alternative hypothesis *(H_1):*$\mu_1 < \mu_2$ i.e. there is significant increase in land holding size of respondents after the MFPs.

Since n=92 we use Z-test

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\sigma^2(\frac{1}{n_1} - \frac{1}{n_2})}}$$

Calculated value of /Z/=2.12 (From Appendix- III)

Tabulated value of /Z/ at 5% level of significant for one tail test is 1.645.

Decision

Since, calculated value of /Z/ is greater than tabulated value of /Z/. The null hypothesis is rejected. Thus, it is concluded that the land holding size of respondents has significantly increased after implementation of MFPs in study area.

4.2.6 Consumption pattern of respondents

Consumption and income are widely used monetary indicators of well-being; and consumption and income are positively related. Consumption measures a person's well-being in terms of meeting basic needs while income is just an element that allows such consumption; consumption reflects family's long-term welfare. This chapter deals with their food consumption status, consumption of durable consumer good and fuel consumption status of respondents.

4.2.6.1 Consumption Pattern of Respondents

This section deals with food consumption style of rural women household. Is MFPs have become effective to improve consumption pattern of respondents household.

Table 4.8

Consumption Pattern of Respondents household before and after MFPs

Conditions	Before MFPs	After MFPs
Improved	12	80
Normal	80	12
Total	92	92

Source: Field Study- 2014

Hypothesis test

Null Hypothesis (H_0): P_1=P_2 i.e. there is no significant improvement in the proportion of respondents' household in the concern of consumption pattern after involving MFPs.

Alternative Hypothesis (H_1) : P_1<$P_2 i.e.$there is significant improvement in the proportion of respondents' household in the concern of consumption pattern after involving MFPs.

Since n=92, we use Z-test

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Calculated value /Z/=10.03 (From Appendix- IV)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, calculated value of /Z/ (10.03) is higher than tabulated value of Z (1.645); so alternative hypothesis is accepted. Therefore, there is significant improvement in the proportion of women population in the concern of consumption after involving MFPs.

4.2.6.2Consumption of Durable Consumer Goods

According to change in time and income level of people, the consumption of modern type of goods by people also increased. Here five types of durable goods have taken for the study, which the data recorded after involving MFPs.

Table 4.9

Consumption of Durable Consumer Goods after MFPs

Type of Goods	Number of Respondents	Percentage
Television	39	42.39
Freeze	5	5.44
Mobile	32	34.78
Computer	9	9.78
Other	7	7.61
Total	92	100.00

Source: Field Study- 2014

Table 4.9 shows that all respondents have bought durable consumer goods after involving MFPs in study area. The largest percentage i.e. 42.39 percent respondents of total respondents bought television set after MFPs. The second largest percentage i.e. 34.78 percent respondents bought mobile set after MFPs. Out of 92 respondents 5.44 percent respondents have bought freeze for daily use after involving MFPs. 9.78 percent respondent bought computer and 7.61 percent respondents bought other things i.e. dining table, chair etc. According to the respondents, they had use traditional type of durable goods such as radio, mat, cupboard etc. before involving MFPs. This result shows that the consumption pattern of respondents has change from traditional type of durable goods. So, this fact shows that due to implementation of MFPs the economic status of respondents has increased.

4.2.6.3 Fuel Consumption

This topic deals with fuel consumption behavior of respondents in study area before and after involving MFPs. In the consideration of fuel consumption, we have taken

three categories: only firewood as fuel, only gas (LPG cylinder, rice cooker) as a fuel and both gas as well as firewood as fuel.

Table 4.10

Fuel Consumption of Respondents before and after the MFPs

Categories	No. of Respondents and Percentage			
	Before MFPs	%of Before	After MFPs	%of After
Firewood	59	64.13	15	16.30
Gas	21	22.83	69	75.00
Firewood and Gas	12	13.04	8	8.70
Total	92	100.00	92	100.00

Source: Field Study-2014

Table 4.10 shows that the numbers of respondents using only firewood have decreased from 64.13 percent to 16.30 percent after than before MFPs. Similarly, the numbers of respondents using both firewood and gas have also decreased from 13.04 percent to 8.70 percent of total respondents after MFPs. However, the number of using only gas has increased at the highest level from 22.83 percent to 75 percent after implementation of MFPs. Social conscious program and financial facility provided by MFI NESDO brought the change in fuel consumption behavior of respondents in study area.

4.2.7 Condition of Toilet and Bathroom of Respondents

The condition of toilet and bathroom reflects the economic condition of a household. In the study area, we found three types of toilet and bathroom user respondents; which are do not have toilet and bathroom, only having toilet and having both toilet as well as bathroom. The changing condition of toilet and bathroom users responds shows their economic status due to implementation of MFP.

Table 4.11

Condition of Toilet and Bathroom of Respondents before and after MFPs

Condition	No. of Respondents and Percentage			
	Before MFPs	% of Before	After MFPs	% of After
Open place	39	42.39	0	00.00
Only toilet	44	47.83	39	42.39
Toilet as well as bathroom	9	9.78	53	57.61
Total	92	100.00	92	100.00

Source: Field Study -2014

Table 4.11 shows that out of 92 respondents 42.39 percent used open place for toilet and bathing before MFPs but after MFPs the number of using open place respondents become zero. 47.83 percent, respondents using only toilet before the MFPs; this percentage has decreased from 47.83 percent to 42.39 percent after MFPs. The number of using toilet as well bathroom is dramatically increased from 9.78 percent to 57.61 percent before than after MFPs. It is the highest percentage among these three conditions of toilet as well as bathroom user. It is due to positive change on income level, social conscious program and financial facility provided by NESDO brought the change in toilet and bathroom users' respondents.

4.2.8 Children Enrolled in Private/Public School

In present context child, education is most essential responsibility of every parent. Every parent wants to give quality education to his or her children. The level of education quality is determined by economic status of a household. In Nepal there are two type of educational institution i.e. government and private school. The education provided by private sector is better than government; and private education is more expensive than the education provided by government school the number of children sending by respondents either to private or government school could be better measuring rod of economic status of respondents. Therefore, we have taken how many children enrolled in government or private school before and after MFPs.

Table 4.12

Number of Children Enrolled in Private/Government School before and after MFPs

Category	Number of students	
	Before MFPs	After MFPs
Government School	79	30
Private School	49	143
Total	128	173

Source: Field Study -2014

Figure 4.2

Number of children sending to school before and after MFPs

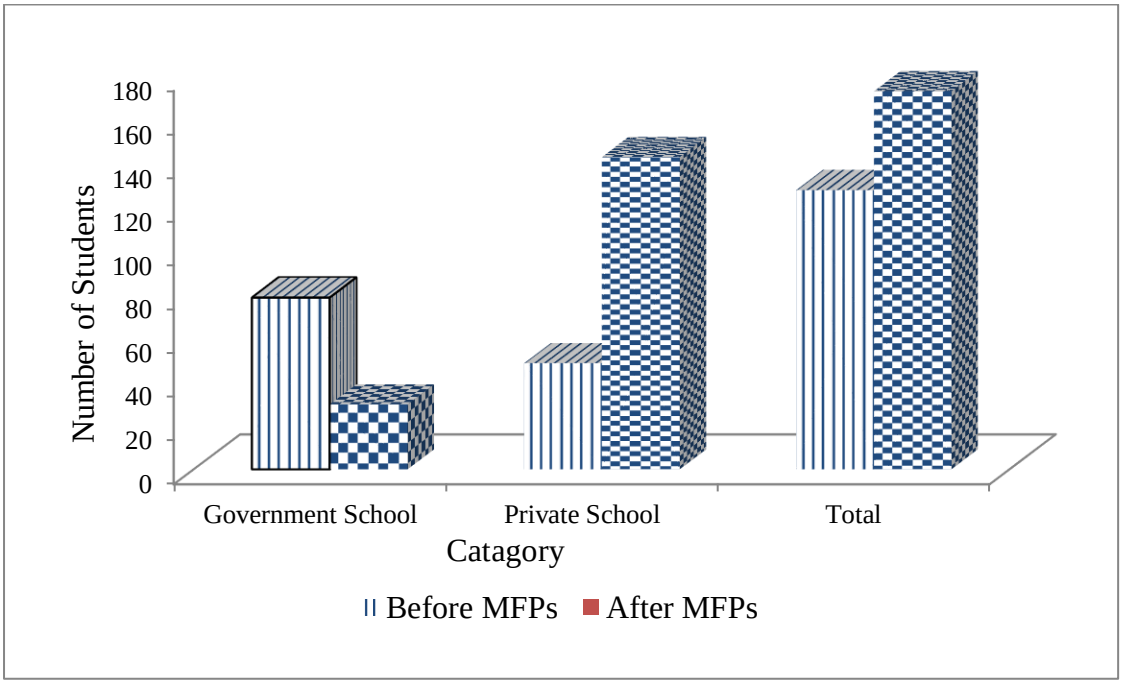

Table 4.12 and Figure 4.2 shows that out of 128 children, 79 children were enrolled in government school and 49 children were enrolled in private school before MFPs. After the MFPs, the number of children enrolled in public school has decreased. After the implementation of MFPs there is only 30 children enrolled in public school and out of 173 children 143 children enrolled in private school. Increased in income level of respondents the number of children enrolled in private school is increased. This fact indicate that the positive effect of MFPs on economic condition of respondents.

4.3 Decisional Power

Inclusion in social and family decision-making process empowers the women because it develops the perception of women. It enables women to make themselves as an integral part of family and society as well. Therefore, increased outreach of women to the decision- making process on social units either in the family or in the society implies the dignity of works. Therefore, the present study deals with the empowerment of women through enhancement of decision-making power with special reference to the microfinance services rendered by NESDO in Devisthan VDC to its clients. So, different variables regarding the decision are identified. They are food and clothing, education and clothing, sent girls to school, marketing of agricultural product, loan payment, saving, investment, health and treatment and livestock related decision pattern of respondents.

4.3.1 Expenditure on Food and Cloths

In this section, the question is about the decision on food and clothes with women respondents before and after involving MFPs. The reply of respondents as follows:

Table 4.13

Decision about Expenditure on Food and Cloths

Who make decision?	Before MFPs	After MFPs
Self	18	83
Other	74	9
Total	92	92

Source: Field Study -2014

Testing Hypothesis

Null hypothesis (H_0): $P_1=P_2$ i.e. there is no significant change in population proportion in the concern of women decision about expenditure on foods and cloths before and after involving MFPs.

Alternative hypothesis (H_1) :$P_1<P_2$ i.e. there is significant change in population proportion in the concern of women decision about expenditure on foods and cloths after than before involving MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=9.68 (From Appendix -V)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, the tabulated value of Z (1.645) is lower than calculated value. Therefore, we can say that there is significant change in population proportion in the concern of women decision about expenditure on foods and cloths after than before MFPs.

4.3.2 Children Education and Entertainment

In this section the question is about who make decision on children education and entertainment before and after involving MFPs. The reply of respondents as:

Table 4.14

Decision about Children Education and Entertainment

Who make decision?	Before MFPs	After MFPs
Self	12	78
Other	80	14
Total	92	92

Source: Field Study 2014

Test of Hypothesis

Null hypothesis (H_0): $P_1=P_2$ i.e. there is no significant change in proportion of women population in the concern of decision about children education and entertainment before and after involving MFPs.

Alternative hypothesis(H_1): $P_1<P_2$ i. e. there is significant change in proportion of women population in the concern of decision about children education and entertainment after than before involving MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=9.733 (From Appendix -VI)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, the tabulated value of Z (1.645) is lower than calculated value of /Z/ (9.733). Therefore, we can say that there is significant change in population proportion in the concern of women decision about children education and entertainment after than before involving MFPs.

4.3.3 Sent Girls to School

In this section the question has asked about who make decision on sent their daughter to school before and after involving MFPs. The reply of respondents as:

Table 4.15

Decision about Sent Girls to School

Who make decision?	Before MFPs	After MFPs
Self	17	71
Other	75	21
Total	92	92

Source: Field Study -2014

Test of Hypothesis

Null hypothesis(H_0): P_1=P_2 i.e. proportion of women population is not changed due to MFPs in the concern of decision about sent girls to school before involving MFPs.

Alternative hypothesis(H_1): P_1<P_2 i.e. proportion of women population is not changed due to MFPs in the concern of decision about sent girls to school after involving MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=7.97 (From Appendix- VII)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, the calculated value of /Z/ (7.97) is higher than tabulated value of Z (1.645). Therefore, we can say that the proportion of women population is increased due to MFPs in the concern of women decision about sent girls to school before than after MFPs.

4.3.4 Land Related Issues

In this section, the question has asked about the decision on ownership of land, sales and purchase to respondents before and after involving MFPs. The reply of respondents as follows:

Table 4.16

Decision about Land related Issues

Who make decision?	Before MFPs	After MFPs
Self	8	40
Other	84	52
Total	92	92

Source: Field Study -2014

Test of Hypothesis

Null hypothesis (H_0): $P_1=P_2$ i.e. there is no significance change in the proportion of women population in the concern of decision about land related issues before and after MFPs.

Alternative hypothesis(H_1): $P_1<P_2$ i.e. there is significance change in the proportion of women population in the concern of decision about land related issues after than before MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=5.37 (From Appendix- VIII)

The tabulated value of Z at 5% level of significance for one tail test is 1.645

Decision

Since, the calculated value of /Z/ (5.37) is higher than tabulated value of Z (1.645). So, we can say that there is significant change in the proportion of women population in the concern of decision about land related issues after MFPs.

4.3.5 Agriculture and Agro-product

In this section the question is about the decision on agricultural related decision like as sales and purchase of agro product, about the plantation, harvest etc. before and after involving MFPs. The reply of respondents as follows:

Table 4.17

Decision on Agriculture and Agro-product

Who make decision?	Before MFPs	After MFPs
Self	15	55
Other	77	37
Total	92	92

Source: Field Study -2014

Test of Hypothesis

Null hypothesis (H_0): $P_1=P_2$ i.e. proportion of women population is not increased in the concern of women decision on agriculture and agro-product related issues before and after involving MFPs.

Alternative hypothesis(H_1): $P_1<P_2$ i.e. proportion of women population is increased due to MFPs in the concern of women decision on agriculture and agro-product related issues after than before involving MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=6.072 (From Appendix- IX)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, the calculated value of /Z/ (6.072) is higher than tabulated value of Z (1.645). So, we can say that the proportion of women population is increased due to MFPs in the concern of women decision on agriculture and agro-product related issues after MFPs.

4.3.6 Bank Loan and Repayment

Question that is asked to respondents about the decisional ability of borrowing loans from bank and repayment before and after involving MFPs; the reply of respondents as:

Table 4.18

Decision on Bank Loan and Repayment

Who make decision?	Before MFPs	After MFPs
Self	9	33
Other	83	59
Total	92	92

Source: Field Study- 2014

Test of Hypothesis

Null hypothesis (H_0): $P_1=P_2$ i.e. proportion of women population is not increased in the concern of decision about bank loan and repayment related issues before and after involving MFPs.

Alternative hypothesis(H_1): $P_1<P_2$ i.e. proportion of women population is increased in the concern of decision about bank loan and repayment related issues after than before involving MFPs.

Since, n=92, we use Z-test

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Calculated value /Z/=2.107 (From Appendix -X)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since the calculated value exceeds the tabulated value; the proportion of women population is significantly increased due to MFPs in the concern of decision about bank loan and repayment related issues.

4.3.7 Saving

The question is asked to know about their decision on saving to respondents before and after involving MFPs. The reply of respondents as:

Table 4.19

Decision on Saving

Who make decision?	Before MFPs	After MFPs
Self	12	85
Other	80	7
Total	92	92

Source: Field Study -2014

Test of Hypothesis

Null hypothesis (H_0): $P_1=P_2$ i.e. proportion of women population is not increased in the concern of decision about saving before and after involving MFPs.

Alternative hypothesis(H_1): $P_1<P_2$ i.e. proportion of women population is increased in the concern of decision about saving after MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=7.712 (From Appendix -XI)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Higher the calculated value indicates that proportion of women population is significantly increased due to MFPs in the concern of decision about saving.

4.3.8 Investment

The question that is asked to know about decisional ability to mobilize saving of their income before and after involving MFPs. The reply of respondents as:

Table 4.20

Decision on Investment

Who make decision?	Before MFPs	After MFPs
Self	18	79
Other	74	13
Total	92	92

Source: Field Study -2014

Test of Hypothesis

Null hypothesis(H_0): P_1=P_2 i.e. proportion of women population is not increased in the concern of decision about investment before and after involving MFPs.

Alternative hypothesis(H_1): P_1<P_2 i.e. proportion of women population is increased in the concern of decision about investment after MFPs.

Since, n=92, we use Z-test

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Calculated value /Z/=9.27 (From Appendix -XII)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Higher the calculated value indicates that proportion of women population is significantly increased due to MFPs in the concern of decision about mobilizing saving.

4.3.9 Personal Health and Treatment

The question has asked to know about decisional ability to disburse money on their health and treatment before and after involving MFPs. Respondents expressed the feelings as:

Table 4.21

Decision on Personal Health and Treatment

Who make decision?	Before MFPs	After MFPs
Self	19	78
Other	73	14
Total	92	92

Source: Field Study- 2014

Test of Hypothesis

Null hypothesis(H_0): P_1=P_2 proportion of women population is not increased in the concern of decision about personal health and treatment before and after involving MFPs.

Alternative hypothesis (H_1): P_1<P_2 proportion of women population is increased in the concern of decision about personal health and treatment after MFPs.

Since, n=92, we use Z-test

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Calculated value /Z/=8.712 (From Appendix -XIII)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, the calculated value exceeds the tabulated value; so, the proportion of women population is increased in the concern women decision about personal health and treatment due to involving MFPs.

4.3.10 Livestock

In this section the question has asked about their decision on livestock related field like as purchase, sell etc. before and after involving MFPs; respondents replied as:

Table 4.22

Decision on Livestock

Who make decision?	Before MFPs	After MFPs
Self	13	65
Other	79	27
Total	92	92

Source: Field Study- 2014

Test of Hypothesis

Null hypothesis(H_0): P_1=P_2 i.e. there is no significant change in the proportion of women population on livestock related issues before and after involving MFPs.

Alternative hypothesis (H_1): P_1<P_2 i.e. there is significant change in the proportion of women population on livestock related issues after involving MFPs.

Since, n=92, we use Z-test

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Calculated value /Z/=7.757 (From Appendix -XIV)

The tabulated value of Z at 5% level of significance for one tail test is 1.645.

Decision

Since, the calculated value of Z is higher than tabulated value; there is significance increase in the proportion of women population in the concern of decision about livestock related issues due to MFPs.

4.4 Women Perception

This section includes the women perception about MFPs. The focus of this section is to give feedback to MFIs and to know the confidence level of women after involving MFPs. Similarly, this section also checks the social perception and reaction to women after involving MFPs. How the society response to those women who are involving MFPs?

4.4.1 Social Response on Women Mobility, Decision-making, and Leadership

To know about society's response on their mobility, leadership and decisional change; the question has asked to respondents. Respondents replied as:

Table 4.23

Social Response on Women Mobility, Decision-making, and Leadership

Response	Best	Better	Good	Bad	Very bad	Total
No. of respondents	29	38	18	7	0	92

Source: Field Study- 2014

Test of Hypothesis

Null hypothesis (H_0): there is not any significant association between women involvement in MFPs and social response to women; response is as usual to women before and after involving MFPs.

Alternative hypothesis (H_1): women involvement in MFPs and social response to women mobility, decision-making and leadership power of women have significantly associated with society perceived positively to those women who are involved in MFPs.

Here, we use χ^2 test;

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Calculated value of χ^2 =45.64 (From Appendix -XV)

Tabulated value of χ^2 at 5% level of significance for 4 degree of freedom is 9.49

Decision

Since, calculated value of χ^2 is higher than tabulated value; so, we can say that women involvement in MFPs and social response to women's mobility, leadership and decisional power of women have positively associated; society perceive positively to those women who are involved in MFPs.

4.4.2 Dependency Level

To know about the dependency level of respondents; the question has asked whether they give small money with their mail partners and the answer is:

Table 4.24

Dependency Level of Respondents before and after MFPs

Dependency	No. of Respondents and Percentage			
	Before MFPs	% of Before	After MFPs	% of After
Yes	75	81.52	12	13.04
No(self-dependent)	17	18.48	80	86.96
Total	92	100.00	92	100.00

Source: Field Study -2014

Out of 92 respondents, 80 replied as self-dependent and remaining 12 respondents replied as dependent. It shows 86.96 percent women have become self-dependent and remaining 13.04 percent women are still dependent on their male partner after involving MFPs.

4.4.3 Role of MFPs to Small Household Expenses

Table 4.25

Role of MFPs to Fulfill Household Expenses

Experience	Best	Better	Good	Bad	Very bad
No. of respondents	35	40	17	0	0

Source: Field Study -2014

Test of Hypothesis

Null hypothesis (H_0): women perceive that there is no significant association between MFPs and fulfillment of small household expenses or MFPs do not helps to its clients to fulfill their small household expenses.

Alternative hypothesis (H_1): women perceive that there is significant association between MFPs and fulfillment of small household expenses or MFPs helps to its clients to fulfill their small household expenses.

Here, we use χ^2 test;

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Calculated value of χ^2 =77.165 (From Appendix -XVI)

Tabulated value of χ^2 at 5% level of significance for 4 degree of freedom is 9.49

Decision

Since, calculated value of χ^2 is higher than tabulated value; so, we can say that there is significant association between MFPs and fulfillment of small household expenses or MFPs helps positively to fulfill their small household expenses.

4.4.4 Women Experience

This section is focused to know about women experience on involvement in MFPs. Questions are asked to respondents about their experience after involving MFPs.

Table 4.26

Experience of Respondents after involving MFPs

Experience	Very easy	Easy	Normal	Difficult	Very difficult
No. of respondents	30	42	20	0	0

Source: Field Study- 2014

Test of Hypothesis

Null hypothesis (H_0): there is no significant association between women experience and MFPs or MFPs has not given any new experience to women clients.

Alternative hypothesis (H_1): there is significant association between women experience and MFPs or MFPs has given new experience to women clients.

Here, we use χ^2 test;

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Calculated value of χ^2 =74.52 (From Appendix -XVII)

Tabulated value of χ^2 at 5% level of significance for 4 degree of freedom is 9.49

Decision

Since, calculated value of χ^2 is higher than tabulated value; so, there is significant association between women experience and MFPs or MFPs give new experience to women.

CHAPTER –V
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Nepal is developing country; must of the part is covered by rural areas and most of the rural areas are very far from financial services. Similarly, out of total population more than 50 percent women and most of women population still in traditional trap cover population. Nepalese women are backward in every aspect. For the sustainable development of country such, backward proportion of population should be taken into consideration from the organization should very grass root to top level.

Microfinance is recognized as an effective tool for poverty reduction and empowers women in the world and Nepal as well. ADB/N was the pioneer, who launched rural based program at first; which are becoming source of inspiration for newly established organization. Today various programs, policies, NGOs, INGOs and government organizations are working to support rural people. Among many programs, microfinance is becoming effective program because of its best performance and unique features,

Microfinance is financial and social intermediation to poor or especially women. As financial and social intermediation, it provides financial services like micro credit, micro saving, micro insurance etc. women who could gain access to microfinance services have been able to create self-employment and socially and economically empowered through increased income earning from their small business.

Empowered is a situation where women have self-dependency, free mobility and free participation on their desired sector. Empowerment through microfinance is defined as women become economically, socially and politically strong; and able to make decision about social activities. So, in this study the concern of empowerment on economically and socially strong, power on decision making and their involvement in the society.

In this study social and economic impact of MF consist various sub-headings like as income, saving, consumption patterns, sanitation, occupational change, child education. Another aspect of empowerment consist decisional power of women on various issues; similarly, the perception of women about MF includes women experience, social response to women and dependency level.

The focus of the study is to improvement in economic status and change in decision-making power of women of MFP in Devisthan VDC conducted by NESDO. By taking required samples from study area data have been collected by structure questionnaire and interview; collected data are analyzed, tested, interpreted by using descriptive as well as statistical approach. Mainly percentage, Z-test, mean and chi-square test are used. Economic is analyzed by using mean, Z-test and percentage; decision-making power is analyzed by using z-test and women perception is analyzed by using chi-square test. After testing raw data following facts are find:

Most of the beneficiaries of MFI are relatively poor; they have low income are focused by NESDO. MFPs are oriented to hundred percent-married women members. The women beneficiaries from MFPs have improve their income level and equally stimulated their living standard. The members who are involved in MFPs of NESDO have become more active mentally physically as well as socially in every activity. They have brought change their habit such as saving, helping to other, participation on social activities, cooperation to each other etc. As they have to gather in a month to repay and saving. They have get chance to discuss on their improvement and failure of their own business activities; which is big foundation for empowerment.

The major findings of the study can be presented below in point wise:

- The age majority of women are between 31-50 years. So, those MFPs have oriented to earning aged group.
- MFPs of NESDO have women and target group oriented; MFPs have provided to seven different casts including literate and married women.
- By easily getting MFSs, women are changed their traditional occupation and started modern type of business. This is positive impact of micro lending of MFI.
- After MFPs, women have also been added as an income earner in their family; it is positive effect of MFPs on increasing economic dependency of women in study area.
- The monthly average income level of women is increasing from Rs.8152.17 to Rs.11923.91; which is 46.27 percent positive change in income level after involving MFPs.
- NESDO has made provision for compulsory saving, personal saving, pension saving of MFP has made the respondents to save even a small amount of money in study area; so, their habit of spending unnecessarily is discouraged.

- Respondents have kept on their property; i.e. land holding it has escaped from selling for fulfilling their household needs.
- Consumption pattern of respondents have better than previous; they are improving their consumption level.
- All most all respondents are using toilet and bathroom after MFPs.
- Although fuel consumption pattern of women also improved, most of the women are using gas or modern type of fuel.
- Due to increase in income level of respondents; they have started to send their children to private school after MFPs; not only their sons but also sent their daughters to private school.
- In aggregate economic condition of women seems to be better after involving MFPs.
- Today women are able to make decision about their expenditure on food; cloths, entertainment and education of children because of improve in income level of respondents.
- Women are also decision about land, agricultural product, bank loan and repayment, saving, investment which were used to take by male only. These are the proof of women self-dependency.
- Most proportion of women is economically active and aware to make decision about their personal health and treatment as well.
- Women perceive MFSs positively; social response and reaction is also good, women are becoming self-dependent, self-conscious and self-motivated to become as dynamic as their male partners did.

All tests derived from economic impact gives positive result; so, women are becoming socioeconomically active and their economic condition also better than before. All tests derive from decision making ability also provide positive result; perceptional test also gives positive result. Therefore, MFPs are desirable for women.

5.2 Conclusion

This study is micro level and case study of Grameen model microfinance program implemented in the semi-urban area of Parbat district. This study has raised issues about women empowerment and taken women supporting program. Therefore, the whole study is based on women and the impact of MFP; the needed data are taken from working area of NESDO. Under this study women empowerment, include

economic empowerment and decision-making power. In this study to find out the impact of MFPs on its clients before and after its implementation the various variables have been developed and the data are collected from primary sources and tested by using various tools. The following conclusions have drawn from the study.

Economic status of all the respondents have found better after the MFPs implementation. As a whole, the result of this heading is positive; which is found from various tests. Therefore, it is concluded that MFPs have create positive economic impact on women. On the decision-making aspect of empowerment also gives positive result; so, rural women are becoming conscious and they are taking part in family decisional aspects. It shows women mobility is becoming wider. From the study, we find the positive result on social responses, perception and women experiences, dependency level. Therefore, it can be concluded that MFP is a desirable and effective toll to improve empower the women in study area.

All the results show that positive effect of MFPs on empowering women beneficiaries in the study area. The empowerment status of rural women in Devisthan VDC can be significantly by increasing their income generating activities by providing financial support. The overall conclusion of this study is that the level of women empowerment is satisfactory at the household as well as social level.

5.3 Recommendations

This study is a micro level study so it good not represent whole area of Nepal. However, it can represent the nature of semi-urban of Nepal. Based on these findings of this study the following recommendations are made to the concerned authorities in order to make MFP more effective and sustainable in future.

- Along with saving and credit facilities, other employment-oriented trainings, programs should also be provided to women farmers in order to grow up their economic productive activity. Especially emphasis should be given on agricultural training; since, majority of the people are dependent on agriculture.
- Unmarried women also should be included in MFP and given training in provided loan to them. So that they can also take a part on income generating activities.
- The MFIs should be given legal authority to collect saving deposit from the members as well as non-members in the MFP implemented area to cultivate saving habits among local people.

- There should be wide gap between saving interest rate and lending interest rate in the name of micro finance services. MFIs should be allowed about the competitors and market rate of interest. The MFIs should be minimizing their transaction cost.
- The newly joint members do not know much about the MFI activities, objectives and policies; while forming new group they should provide detail information about their institution.

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APPENDIX-I

Individual Questionnaire

Questionnaire No: ..... Date: 2071/ /

1. Respondent Introduction

Name: ..... Age:.....

Cast or Ethnic Group: .....

VDC: ..... Ward No:.....

Total number of family member:.....

2. Marital status:

I) Unmarried II) Married III) Widow IV) Divorced

V) Separated

3. Education:

I) Illiterate II) Literate III) Below SLC IV)Above SLC

4. What is your main occupation?

S.N.	Occupation	Before Involvement	After Involvement
1	Agriculture		
2	Business		
3	Service(hotel, tailoring)		
4	Poultry		
5	Other (specify)		

5. What are the major sources of your income? (Specify)

SN	Before Involvement	After Involvement
1		
2		
3		

6. Who is the income earner of your family?

Before Involvement	Tick	After Involvement	Tick
Only husband		Only husband	
Only wife		Only wife	
Both		Both	
Both and others		Both and others	

7. How much your monthly income?

Before Involvement: Rs.....

After Involvement: Rs.....

8. What is your land holding size for house making?

Before Involvement:.....

After Involvement:.....

9. Do you have any saving?

I) Yes II) No

10. If yes, how much do you save per month?

Before Involvement: Rs.....

After Involvement: Rs.....

11. For what purpose saving is used?

Before Involvement	Tick	After Involvement	Tick
Household needs		Household needs	
Payback loan		Payback loan	
Children education		Children education	
Health expenses		Health expenses	
Purchases the HH assets		Purchases the HH assets	
Feast and festivals		Feast and festivals	

12. If you have taken loan from MFI then specify amount and purpose.

SN	Amount	Purpose
1		
2		
3		

13. What is the source of paying loan?

I) Income earned from investing loan

II) From mutual income

III) Doing labour

IV) Other sources

14. What is your food consumption status?

Before involvement:.....

After Involvement:.....

15. Have you consume or bought any consumer durable goods after involvement in MFP?

a) Yes b) No

If yes then,

Types of good	Before Involvement	After Involvement
Television		
Freeze		
Mobile		
Computer		
Other		

16. What is the source of fuel for cooking you used?

Categories	Before Involvement	After Involvement
Firewood		
Gas		
Firewood and Gas		

17. What is the condition of your toilet and bathroom?

Conditions	Before Involvement	After involvement
open place		
only toilet		
toilet as well as bathroom		

18. How many children you have sent to school?

	Before Involvement		After Involvement	
	Sons	Daughter	sons	Daughter
Government school				
Private school				

19. Who make decision on expenditure on food and clothing of your family?

Before Involvement		After Involvement	
Self	Other	Self	Other

20. Who make decision on children education and entertainment of your family?

Before Involvement		After Involvement	
Self	Other	Self	Other

21. Who make decision on sent girl to school?

Before Involvement		After Involvement	
Self	Other	Self	Other

22. Who make decision on your land for cultivation?

Before Involvement		After Involvement	
Self	Other	Self	Other

23. Who make decision on marketing of agricultural product?

Before Involvement		After Involvement	
Self	Other	Self	Other

24. Who make decision on loan repayment?

Before Involvement		After Involvement	
Self	Other	Self	Other

25. Who make decision on saving of your family income?

Before Involvement		After Involvement	
Self	Other	Self	Other

26. Who make decision to mobilise saving?

Before Involvement		After Involvement	
Self	Other	Self	Other

27. Who make decision on health expanses of your family?

Before Involvement		After Involvement	
Self	Other	Self	Other

28. Who make decision on livestock?

Before Involvement		After Involvement	
Self	Other	Self	Other

29. Are you dependent on domestic things and other normal facts with your family member yet?

I) Yes II) No

30. How the societies give response of your mobility, decision-making and leadership?

I) Best II) Better III) Good IV) Bad V) Very bad

31. How does the MFP help to fulfil your minimum requirement?

I) Best II) Better III) Good IV) Bad V) Very bad

32. How do you feel as participant s among other members about this program?

I) Very easy II) Easy III) Normal IV) Difficult

V) Very difficult

33. What do you suggest to make more effective microfinance program?

.....

.....

.....

.....

Thank you for your thoughtful response.

APPENDIX-II

Income of Respondents

Monthly Income	Midpoint (X)	Before MFP frequency (f_1)	f_1X	After MFP frequency (f_2)	f_2X	$x_1 = X - \overline{X_1}$	x_1^2	$f_1x_1^2$	$x_2 = X - \overline{X_1}$	x_2^2	$f_2x_2^2$
0-3000	1500	14	21000	5	7500	-6652.17	44251365.70	619519119.80	-10423.9	108657899.7	543289498.5
3000-6000	4500	23	103500	6	27000	-3652.17	13338345.71	30678198.33	-7423.91	55114439.69	330686638.1
6000-9000	7500	20	150000	25	187500	-652.17	425325.70	8506514.00	-4423.91	19570997.69	489274492.3
9000-12000	10500	14	147000	10	105000	2347.83	5512305.70	77172279.80	-1423.91	2027519.69	20275196.9
12000-15000	13500	10	135000	15	202500	5347.83	28599285.70	285992857.00	1576.08	2484059.69	7260895.35
15000-18000	16500	7	115500	15	247500	8347.83	6968 6265.70	487803855.00	4576.08	20940599.69	314108995.4
18000-21000	19500	4	78000	12	234000	11347.83	128773245.70	515092987.80	7567.08	57397139.69	688765676.3
Above 21000	21500	0	0000	4	86000	13347.83	178164565.70	00000000000	9576=08	91701499.69	366805998.8
Total		$\sum f_1 = 92$	$\sum f_1X$ = 750000	$=\sum f_2 = 92$	$\sum f_2X$ = 1097000			$\sum f_1x_1^2$ = 1537065704.5			$\sum f_2x_2^2$ = 2760467392

Calculation of mean income before and after involving MFP

Average income before involving MFP $(\overline{X_1})$

$$(\overline{X_1}) = \frac{\sum f_1 X}{N} = \frac{750000}{92} = 8152.17$$

Calculation of mean income after involving in MFP

Average income after involving MFP $(\overline{X_2})$

$$(\overline{X_2}) = \frac{\sum f_2 X}{N} = \frac{1097000}{92} = 11923.91$$

Test of two samples mean of mean income before and after MFP

Standard deviation of income before MFP $(\sigma_1) = \sqrt{\frac{\sum f_1 x_1^{\,2}}{N}}$

$$= \sqrt{\frac{1537065704.5}{92}}$$

$$= \sqrt{16707235.92}$$

$$= 4087.45$$

Variance $(\sigma_1^{\,2}) = (4087.45)^2 = 16707247.05$

Standard deviation of income after MFP $(\sigma_2) = \sqrt{\frac{\sum f_1 x_1^{\,2}}{N}}$

$$= \sqrt{\frac{2760467392}{92}}$$

$$= \sqrt{30005080.35}$$

$$= 5477.69$$

Variance $(\sigma_2^{\,2}) = (5477.69)^2 = 30005087.77$

If two samples are drawn from same population

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\sigma^2 (\frac{1}{n_1} - \frac{1}{n_2})}}$$

For calculating (σ^2)

$$\sigma^2 = \frac{n_1 \sigma_1^{\,2} + n_2 \sigma_2^{\,2}}{n_1 + n_2}$$

$$= \frac{92 * 16707247.5 + 92 * 30005087.74}{92 + 92}$$

$$= \frac{4297534842}{184}$$

$$= 23356167.62$$

Now,

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\sigma^2(\frac{1}{n_1} - \frac{1}{n_2})}}$$

$$= \frac{8152.17 - 11923.91}{\sqrt{23356167.62(\frac{1}{92} + \frac{1}{92})}}$$

$/Z/ = 5.29$

Tabulated value of z for right tail test is 1.645

Calculated value is greater than tabulated value.

Summary of Income level of Respondents before and after involving MFPs

	Before MFPs	After MFPs	Results
Average income (Rs.)	8152.17	11923.91	46.27% (increased)

APPENDIX- III

Land Holding size of Respondents

Land Holding size	Midpoint (X)	Before MFP frequency (f_1)	f_1X	After MFP frequency (f_2)	f_2X	$x_1 = X - \overline{X_1}$	x_1^2	$f_1x_1^2$	$x_2 = X - \overline{X_2}$	x_2^2	$f_2x_2^2$
0-3ropani	1.5	17	25.5	10	15.0	-4.99	24.90	423.31	-6.26	39.19	391.97
3-6ropani	4.5	35	157.5	21	94.5	-1.99	3.69	138.61	-3.26	10.63	223.23
6-9ropani	7.5	19	142.5	33	247.5	1.01	1.02	19.39	-0.26	0.068	2.24
9-12ropani	10.5	9	94.5	13	136.5	4.01	16.08	144.73	2.74	7.51	97.63
12-15ropani	13.5	7	94.5	9	121.5	7.01	49.14	343.99	5.74	32.95	296.55
15-18ropani	16.5	5	82.5	6	99.0	10.01	100.20	501.00	8.74	76.39	458.34
Total		$\sum f_1 = 92$	$\sum f_1X =$ 597	$\sum f_2 = 92$	$\sum f_2X =$ 714			$\sum f_1x_1^2 =$ 1571.03			$\sum f_2x_2^2 =$ 1469.96

Calculation of mean land holding size before and after involving MFP

The mean value of land holding size before MFP $(\overline{X_1})$

$$(\overline{X_1}) = \frac{\sum f_1 X}{N} = \frac{597}{92} = 6.49$$

The mean value of land holding size after MFP $(\overline{X_2})$

$$(\overline{X_2}) = \frac{\sum f_2 X}{N} = \frac{714}{92} = 7.76$$

Calculation of land holding size before and after MFP

Standard deviation of land holding size before MFP $(\sigma_1) = \sqrt{\frac{\sum f_1 x_1^{\,2}}{N}}$

$$= \sqrt{\frac{1571.03}{92}}$$

$$= 4.13$$

$$\text{Variance } (\sigma_1^{\,2}) = (4.13)^2 = 17.06$$

Standard deviation of land holding size after MFP $(\sigma_2) = \sqrt{\frac{\sum f_1 x_1^{\,2}}{N}}$

$$= \sqrt{\frac{1469.96}{92}}$$

$$= 3.99$$

$$\text{Variance } (\sigma_2^{\,2}) = (3.99)^2 = 15.92$$

If two samples are drawn from the same population,

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\sigma^2 (\frac{1}{n_1} - \frac{1}{n_2})}}$$

For calculating (σ^2)

$$\sigma^2 = \frac{n_1 \sigma_1^{\,2} + n_2 \sigma_2^{\,2}}{n_1 + n_2}$$

$$= \frac{92 * 17.06 + 92 * 15.92}{92 + 92}$$

$$= 16.49$$

Now,

$$Z = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\sigma^2(\frac{1}{n_1} - \frac{1}{n_2})}}$$

$$= \frac{6.49 - 7.76}{\sqrt{16.49(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=2.12

Tabulated value of Z for right tail test is 1.645

Calculated value of Z is higher than tabulated value

Summary of land Holding Size of Respondents before and after MFPs

	Before MFPs	After MFPs	Result
Mean land size (Ropani)	6.49	7.76	19.57%

APPENDIX- IV

Now, p_1=sample proportion of respondents whose consumption pattern is already improved.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{12}{92} = 0.13 \quad (X_1=12)$$

p_2= sample proportion of respondents whose consumption pattern is improved after MFPs

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{80}{92} = 0.87 \ (X_2=80)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.13 + 92 * 0.87}{92 + 92} = 0.5$

$\hat{Q} = 1 - \hat{P} = 1 - 0.5 = 0.5$

$$Z = \frac{0.13 - 0.87}{\sqrt{(0.5)(0.5)(\frac{1}{92} + \frac{1}{92})}}$$

/ Z/=10.03

APPENDIX –V

Now, p_1= sample proportion of respondents who make decision about expenditure on foods and cloths before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{18}{92} = 0.1956 \ (X_1=18)$$

p_2=sample proportion of respondents who make decision about expenditure on foods and cloths after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{83}{92} = 0.9021 \ (X_2=83)$$

Test of statistic H_0,

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.1956 + 92 * 0.9021}{92 + 92} = 0.545$

$\hat{Q} = 1 - \hat{P} = 1 - 0.545 = 0.455$

$$Z = \frac{0.1956 - 0.9021}{\sqrt{(0.545)(0.455)(\frac{1}{92} + \frac{1}{92})}}$$

$/Z/ = 9.68$

APPENDIX-VI

Now, p_1= sample proportion of respondents who make decision about children education and entertainment before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{12}{92} = 0.1304 \ (X_1=12)$$

p_2=sample proportion of respondents who make decision about children education and entertainment after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{78}{92} = 0.8478 \ (X_2 = 78)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.1304 + 92 * 0.08478}{92 + 92} = 0.4891$

$\hat{Q} = 1 - \hat{P} = 1 - 0.4891 = 0.5109$

$$Z = \frac{0.1304 - 0.8478}{\sqrt{(0.4891)(0.5109)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=9.7336

APPENDIX- VII

Now, p_1=sample proportion of respondents who make decision about sent girls to school before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{17}{92} = 0.1847 \ (X_1=17)$$

p_2=sample proportion of respondents who make decision about sent girls to school after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{71}{92} = 0.7717 \ (X_2 = 71)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.1847 + 92 * 0.7717}{92 + 92} = 0.4782$

$\hat{Q} = 1 - \hat{P} = 1 - 0.4782 = 0.5218$

$$Z = \frac{0.1847 - 0.7717}{\sqrt{(0.4782)(0.5218)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=7.97

APPENDIX- VIII

Now, p_1= sample proportion of respondents who make decision about land related issues before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{8}{92} = 0.0869 \ (X_1 = 8)$$

p_2=sample proportion of respondents who make decision about land related issues after involving MFPs.

$$\text{Or, } p_2 = \frac{X_1}{n_1} = \frac{84}{92} = 0.4347 \ (X_2 = 40)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.0869 + 92 * 0.4347}{92 + 92} = 0.2608$

$\hat{Q} = 1 - \hat{P} = 1 - 0.2608 = 0.7392$

$$Z = \frac{0.0869 - 0.4347}{\sqrt{(0.2608)(0.7392)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=5.3724

APPENDIX- IX

Now, P_1= sample proportion of respondents who make decision about marketing of agriculture and agro- product before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{15}{92} = 0.1630 \ (X_1=15)$$

P_2=sample proportion of respondents who make decision about marketing of agriculture and agro- product after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{55}{92} = 0.5978 \ (X_2 = 55)$$

Test of statistic H_0

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Where $\hat{P}=\frac{n_1p_1+n_2p_2}{n_1+n_2}=\frac{92*0.1630+92*0.5978}{92+92}=0.3804$

$\hat{Q}=1-\hat{P}=1-0.3804=0.6196s$

$$Z=\frac{0.1630-0.5978}{\sqrt{(0.3804)(0.6196)(\frac{1}{92}+\frac{1}{92})}}$$

/Z/=6.0742

APPENDIX- X

Now, p_1= sample proportion of respondents who make decision about bank loan and repayment before involving MFPs.

$$\text{Or, } p_1=\frac{X_1}{n_1}=\frac{9}{92}=0.0978\ (X_1=9)$$

p_2=sample proportion of respondents who make decision about bank loan and repayment after involving MFPs.

$$\text{Or, } p_2=\frac{X_2}{n_2}=\frac{33}{92}=0.3586\ (X_2=33)$$

Test of statistic H_0

$$Z=\frac{p_1-p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Where, $\hat{P}=\frac{n_1p_1+n_2p_2}{n_1+n_2}=\frac{92*0.0978+92*0.3586}{92+92}=0.2282$

$\hat{Q}=1-\hat{P}=1-0.2282=0.7718$

$$Z=\frac{0.0978-0.3586}{\sqrt{(0.2282)(0.7718)(\frac{1}{92}+\frac{1}{92})}}$$

/Z/=2.107

APPENDIX- XI

Now, p_1= sample proportion of respondents who make decision about saving before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{12}{92} = 0.1304 \quad (X_1 = 12)$$

p_2=sample proportion of respondents who make decision about saving after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{85}{92} = 0.9239 \ (X_2 = 85)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.1304 + 92 * 0.9239}{92 + 92} = 0.5271$

$\hat{Q} = 1 - \hat{P} = 1 - 0.5271 = 0.4729$

$$Z = \frac{0.1304 - 0.9239}{\sqrt{(0.5271)(0.4729)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=7.712

APPENDIX- XII

Now, p_1=sample proportion of respondents who make decision about investment before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{18}{92} = 0.1956 \ (X_1 = 18)$$

p_2=sample proportion of respondents who make decision about investment after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{79}{92} = 0.8586 \ (X_2 = 79)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.1956 + 92 * 0.8586}{92 + 92} = 0.5271$

$\hat{Q} = 1 - \hat{P} = 1 - 0.5271 = 0.4729$

$$Z = \frac{0.1756 - 0.8586}{\sqrt{(0.5271)(0.4729)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=9.27

APPENDIX- XIII

Now, p_1=sample proportion of respondents who make decision about personal health and treatment before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{19}{92} = 0.2065 \ (X_1 = 19)$$

p_2=sample proportion of respondents who make decision about personal health and treatment after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{78}{92} = 0.8478 \ (X_2 = 78)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.2065 + 92 * 0.8478}{92 + 92} = 0.5271$

$\hat{Q} = 1 - \hat{P} = 1 - 0.5271 = 0.4728$

$$Z = \frac{0.2065 - 0.8478}{\sqrt{(0.5271)(0.4728)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=8.712

APPENDIX- XIV

Now, p_1= sample proportion of respondents who make decision about livestock related issues before involving MFPs.

$$\text{Or, } p_1 = \frac{X_1}{n_1} = \frac{13}{92} = 0.1413 (X_1=13)$$

p_2=sample proportion of respondents who make decision about livestock related issues after involving MFPs.

$$\text{Or, } p_2 = \frac{X_2}{n_2} = \frac{65}{92} = 0.7065 \ (X_2 = 65)$$

Test of statistic H_0

$$Z = \frac{p_1 - p_2}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where, $\hat{P} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \frac{92 * 0.1413 + 92 * 0.7065}{92 + 92} = 0.4239$

$\hat{Q} = 1 - \hat{P} = 1 - 0.4239 = 0.5761$

$$Z = \frac{0.1413 - 0.7065}{\sqrt{(0.4239)(0.05761)(\frac{1}{92} + \frac{1}{92})}}$$

/Z/=7.757

APPENDIX- XV

Test of statistic H_0

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where, O= observed frequency

E= Expected frequency

$E = \frac{\sum o}{n}$

n= No. of observation

Calculation of chi-square (χ^2)

O	E	$(O-E)^2$	$\frac{(O-E)^2}{E}$
29	18.4	112.36	6.11
38	18.4	384.16	20.87
18	18.4	0.16	0.00
7	18.4	129.96	7.06
0	18.4	342.25	18.60
92			$\sum \frac{(O-E)^2}{E} = 45.64$

Calculated value of χ^2 = 45.64

Degree of freedom = (n-1) = (5-1) =4

Tabulated value of χ^2 at 5% level of significance at 4 degree of freedom is 9.49

APPENDIX-XVI

Test of statistic H_0

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where, O = observed frequency

E = expected frequency

E= $\frac{\Sigma O}{n}$

n = No. of observation

Calculation of Chi – Square χ^2

O	E	$(O-E)^2$	$\frac{(O-E)^2}{E}$
35	18.4	275.56	14.895
40	18.4	466.56	25.36
17	18.4	1.96	0.11
0	18.4	338.56	18.40
0	18.4	338.56	18.40
			$\sum \frac{(O-E)^2}{E} = 77.165$

Calculated value of $\chi^2 = 77.165$

Degree of freedom = (n-1) = (5-1) = 4

Tabulated value of χ^2 at 5% level of significant with 4 degree of freedom is 9.49.

APPENDIX – XVII

Test of statistics H_0

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where, O = observed frequency

E = expected frequency

$E = \frac{\sum O}{n}$

n = No. of observation

Calculation of Chi – Square χ^2

O	E	$(O-E)^2$	$\frac{(O-E)^2}{E}$
30	18.4	134.56	7.313
42	18.4	556.96	30.269
20	18.4	2.56	0.139
0	18.4	338.56	18.4
0	18.4	338.56	18.4
			$\sum \frac{(O-E)^2}{E} = 74.52$

Calculated value of $\chi^2 = 74.52$

Degree of freedom = (n-1) = (5-1) = 4

Tabulated value of χ^2 at 5% level of significant with 4 degree of freedom is 9.49.