AN EVALUATION OF LENDING TO INFORMAL GROUPS
OF FARMERS IN NEPAL

A THESIS

Presented in Partial Fulfillment of the Requirements for
the Degree Master of Science

By

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* * * * *

The Ohio State University
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Approved By

[Signature]

Adviser
Department of Agricultural Economics and Rural Sociology
DEDICATION

To the small farmers of Nepal

who deserve due attention
ACKNOWLEDGEMENTS

I am deeply indebted to Dr. Dale W Adams, my advisor, for his continuous encouragement, guidance and support during my graduate study at The Ohio State University. Dr. Adams' keen interest and inspiring thoughts in the rural financial markets in LDCs attracted me to study rural finance. His strong support made it possible to make this study in Nepal.

I thank Dr. Richard L. Meyer who took exhaustive trips to different places in Nepal to help set up the field survey. I appreciate the encouragement and patience of Mrs. Carol Meyer during the trip, even though I could not show her the mountains.

I thank Drs. Warren F. Lee and Donald W. Larson, the members of the reading committee of this thesis, who provided constructive criticisms and helpful suggestions.

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iii
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CHAPTER I

INTRODUCTION

In less developed countries (LDCs) a large proportion of the population is engaged in agriculture and many are small farmers. These small farm households consume a large part of their own production and supplement their income by earnings from non-agricultural activities. Because of the importance of small farmers in the overall economy, many government programs are oriented towards them. In many LDCs, land and labor are underutilized due to scarcity of capital. This has resulted in slow adoption of new technology such as improved seeds, fertilizers and machinery. National and international financial institutions are being asked by governments to provide funds for lending to small farmers. But, in many cases, weak formal rural financial markets (RPMs) make it difficult to extend financial services to the rural poor. High lender's transaction costs and default problems discourage formal lending institutions from serving small farmers. To get around these problems, many innovations have been
tried in RFMs, such as supervised credit programs through development banks, cooperative credit and most recently group lending.

In group lending, credit is provided on joint liability to the members of an informal group of farmers for group and individual activities. Group lending programs may also provide extension services to farmers. Adams and Ladman (1979) list potential group lending advantages as follows: 1) reduced default risk due to joint liability; 2) loan transaction cost per unit of money lent are reduced by making one large loan rather than a number of small individual loans; 3) the borrower's transaction costs are reduced through several members of the group negotiating the loan rather than all individuals being involved; 4) technical service can be provided more cheaply to groups than to individuals; and 5) through groups more rural poor can be provided loans than through individual loans.

Group lending is practiced in a number of LDCs including Nepal. It has yielded mixed results in other countries. But, it has not been evaluated in Nepal.

Justification

Nepal is a small, landlock, mountainous country with an approximate area of 54,000 square miles and a population of little over 13 million in 1977. Agriculture is
the backbone of the economy where more than 90 percent of the population depend on it for their livelihood. There are about 1.5 million farm households whose average size of holding is 1.23 hectare. Proud but poor Nepali farmers grow most of their needs on farms using traditional cultural practices and inputs. Low yields and low income are the main features of Nepalese agriculture. Increasing yield and income are the main challenges for development planners. Weak infrastructure is the main impediment to development. Rural financial markets are no exception to this.

Formal financial institutions are recent developments in Nepal. The first commercial bank was established in 1938 and the central bank was formed in 1956. The first formal financial institution to finance farmers was the cooperative department in the late 1950s. A cooperative bank was established in 1963 which merged with the Agricultural Development Bank of Nepal (ADB/N) in 1968 after the establishment of the latter. The first formal financial institution to mobilize rural savings was the Land Reform Saving Corporation (LRSC) established in 1966. It suspended its compulsory saving scheme in 1968-69 and merged with ADB/N in the early 1970s. The ADB/N currently is the main rural financing agency and utilizes various agencies to reach the small farmers. Two commercial banks
also provide some loans to farmers after the central bank directed them to do so in 1973. At present, commercial banks are required to lend seven percent of their loan portfolio to agriculture.

The agricultural credit survey of 1969-70 showed that only 18 percent of Nepalese farmers were able to borrow from institutional sources. It also showed that formal loans made up only 21 percent of the total volume of rural credit. Informal sources which include moneylenders, landlords, merchants, friends and relatives provided the remainder of the loans. Most of the formal loans went to big farmers. Although the legal rate of interest was only 10 percent per year at that time, up to 50 percent interest was charged by informal sources (NRB, 1972). Another follow-up credit survey of 1976-77 showed that institutional sources provided 42 percent of the total volume of agricultural credit to 24 percent of the Nepalese farmers. Seventy-three percent of formal credit was received by large farmers which was a larger percentage than in the previous survey year. The rate of interest charged by formal credit institutions was reported to be between 8 and 18 percent, whereas informal rates of interest varied from 10 to 150 percent per year in 1976-77 (Adhikari, 1980). In both survey periods, small farmers paid higher rates of interest in informal borrowing than
in formal borrowing. Only 10 to 30 percent of the total volume of the institutional credit was used for production purposes in the survey year 1969-70.

The Agricultural Credit Survey of 1969-70 was the first survey to describe the rural credit situation in Nepal and to make recommendations for improvements. The Small Farmer Development Program (SFDP) was introduced as an action-cum research project in Nuwakot and Dhanusha District in the fiscal year 1975-76 as a correctional measure with the following objectives (APROSC 1979):

1. To increase the level of income of marginal farmers by providing the support for income raising activities.

2. To develop self-reliance among the farmers; to organize themselves in a group and plan and carry out their own project.

3. To develop the receiving/utilizing mechanism of the disadvantaged farmers by organizing them into small homogeneous, multifunctional groups around specific income raising activities.

4. To adapt the local delivery mechanism to the needs of the small and disadvantaged farmers.

Initially, the project was started with a grant from FAO/UNDP and the technical advice was provided by Asian Survey of Agrarian Reform and Rural Development (ASARRD).
Although it was a rural development project, ADB/N was given implementation responsibility.

In the selected areas a household survey was taken to identify the small farmers and big farmers. Farmers having Rs 950 or less per capita annual income are eligible to participate in SFDP. A bank employee who is known as a project chief goes to small farmers in their villages and motivates them to form an informal group. These informal groups are encouraged to identify their problems and plan income raising activities in monthly group meetings. If a loan is needed, the members of the group decide the volume and the loan use. They then make a loan application in the SFDP office which is located in the nearest village. The project chief evaluates the investment and forwards the loan application to a loan sanction committee. If the loan is approved by this committee the farmers receive funds through Sajha (the local cooperative). Loans are provided for a variety of purposes such as purchase of seed, fertilizer, insecticide, large animals, marketing loans for agricultural products, horticulture, fisheries, poultry, and cottage industries. These loans can be obtained for individual and group activities. The project chief also acts as a channel between small farmers and other service delivery agencies. Adult education, family planning, health care, nutrition, sanitation, soil and
water conservation, reforestation, and drinking water projects have been undertaken with the help of other line agencies. Small farmers are also encouraged to save. They deposit a fixed amount of money every month with the group which is utilized in meeting emergency group needs and future investments.

There were twenty-four SFDP projects at the end of fiscal year 1978-79 which covered 36 panchayats.* There were 564 informal groups and the total number of farm families participating in the SFDP program was 5,073. In fiscal year 1978-79 more than Rs 3 million was lent and more than Rs 1 million was collected through SFDP. Total outstanding loans of SFDP at the end of fiscal year 1978-79 stood at more than Rs 5.5 million out of which 16 percent was considered delinquent (SFDP Annual Compiled Progress Report 1978-79). Results of the SFDP in Nepal are considered encouraging and 210 more SFDP projects are planned for the Sixth Plan Period (1980-1985).

The results of the SFDP has only been partially evaluated in Nepal. Its economic and social impacts in rural areas are reported to be positive (APROSC 1979). Cost-benefit analysis from the point of view of lender

* Administratively, Nepal is divided into four development regions, fourteen zones, seventy-five districts and more than three thousand panchayats. A panchayat is comparable to a township in the United States.
and borrower are extremely important questions but have not been analyzed to date. Technology transfer to small farmers is also an equally important issue. In most of the LDCs, technological and institutional transfers are undertaken without understanding the cultural backgrounds and technical and administrative capabilities. Such projects are often failures. Group lending has been reported to be successful when socio-economic ties between the members are strong as in Japan. Matienzo (1978) reports that the weakness of Masagana 99, a group lending program in the Philippines, were due to hasty group formation in order to obtain credit. There were no other ties between the group members. Agrawal (1978) concludes that social ties are very important for the success of the group lending program in Ghana. Desai (1979) concludes that group lending is not a cost reducing system in India because of lengthy and complicated procedures followed by the banks. On the other hand, Pablo (1979) concludes that group lending might be a less costly way than individual loans to reach small farmers in the Dominican Republic.

Objectives

The main objective of this study is to evaluate the advantages of group lending in Nepal. The following are the specific objectives:
1. To determine and compare the loan transaction costs for the borrowers in group lending, individual mortgage lending and informal lending.

2. To determine and compare the loan transaction costs for the lenders in group lending, individual mortgage lending and informal lending.

3. To evaluate the effectiveness of technological diffusion in group lending and individual mortgage lending.

4. To evaluate the impact of peer pressure on repayment of the loans through joint liability.

Hypothesis

To fulfill the above mentioned objectives, the following hypothesis will be tested from the data collected:

1. The borrower's transaction cost through groups is less than the transaction costs for individual mortgage borrowers.

2. The lender's transaction costs of lending to the groups is less than that of making loans to individual borrowers who are similar to group borrowers.
3. Group borrowers learn and adopt more innovations than individual mortgage borrowers.

4. There is less default in group loans than individual mortgage loans due to joint liability.

Organization

In the second chapter, a description of Nepalese agriculture is given along with the description of research sites and the samples drawn. Chapter III presents a review of literature. Chapter IV describes the case studies of informal groups, money lenders and SFDP project chiefs. Chapter V describes the statistical methods and variables used in this study. Analysis of data and their results are presented in Chapter VI. The last chapter, Chapter VII, consists of summary, conclusions and recommendations.
CHAPTER II

DESCRIPTION OF NEPALESE AGRICULTURE
AND RESEARCH SITES

Nepal is about 500 miles long and its width varies from 75 miles to 150 miles. The altitude variation is from 300 to 29,000 feet above sea level. This provides a wide variation in the climate and topography. Physically, the country can be divided into three regions. The northern region is known as the Himalayas and is always covered by snow. The middle portion is known as hills where terrace cultivation is done. The southern region, known as the Tarai, has flat fertile land and most of it is covered by forest. The hilly area and the Tarai are important from an agricultural point of view. The pattern of land use is given in Table II-1.

Agriculture is the backbone of the Nepalese economy and employs more than 90 percent of the labor force. It also produces more than two-thirds of gross domestic product. More than 80 percent of Nepalese exports have an agricultural base. At present, it is argued that about 30 percent of the land can be put to agricultural use to
<table>
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<th></th>
<th>Hectare (in 000s)</th>
<th>Percent</th>
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<tr>
<td>Forest Area</td>
<td>4,823</td>
<td>34</td>
</tr>
<tr>
<td>Cultivated Area</td>
<td>2,326</td>
<td>16</td>
</tr>
<tr>
<td>Pasture</td>
<td>1,786</td>
<td>13</td>
</tr>
<tr>
<td>Water</td>
<td>400</td>
<td>3</td>
</tr>
<tr>
<td>Residential Area and Roads</td>
<td>30</td>
<td>--</td>
</tr>
<tr>
<td>Waste Land</td>
<td>2,629</td>
<td>19</td>
</tr>
<tr>
<td>Land Under Perpetual Snow</td>
<td>2,112</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,106</strong></td>
<td><strong>100</strong></td>
</tr>
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meet the demand of rising population. Primitive cultivation practices have resulted in low yields in the past, and despite planning efforts for 25 years, the yields have not increased. A comparison of the yields per hectare of major crops in different countries is given in Table II-2. These data show that per hectare yields of wheat and paddy in Nepal are lower than in other neighboring nations in Asia. Corn yields, however, are higher except for the U.S. and Japan. The reasons for poor crop yields as listed by Pant and Jain (1979) include: 1) low use of chemical fertilizers and pesticides; 2) lack of knowledge of modern techniques of crop production; 3) lack of irrigation facilities and dependance on monsoon rains; 4) lack of adequate marketing facilities; and 5) shortage of formal agricultural credit and heavy indebtedness in rural areas.

Small Farmer Development Program

The Small Farmer Development Program (SFDP) was started in 1975-76 in Tupche and Karkimanakamana panchayats in Nuwakot District and Hariharpur and Sakhuwa panchayats in Dhanusha District. The main objective of the program was to introduce income raising activities for small farmers through organization of small farmers into informal groups. The SFDP conducts economic programs, social
TABLE II.2: Average per Hectare Yields of Selected Crops in Different Countries (1977)

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Wheat (kg/ha)</th>
<th>Paddy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nepal</td>
<td>1,759</td>
<td>1,176</td>
<td>1,806</td>
</tr>
<tr>
<td>India</td>
<td>1,133</td>
<td>1,394</td>
<td>1,873</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>923</td>
<td>1,621</td>
<td>1,939</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1,351</td>
<td>1,430</td>
<td>2,400</td>
</tr>
<tr>
<td>Japan</td>
<td>2,667</td>
<td>2,744</td>
<td>6,166</td>
</tr>
<tr>
<td>United States</td>
<td>5,700</td>
<td>2,058</td>
<td>4,945</td>
</tr>
<tr>
<td>World</td>
<td>2,952</td>
<td>1,664</td>
<td>2,566</td>
</tr>
</tbody>
</table>

programs, and community programs. Economic programs include direct credit, saving mobilization and physical and financial assistance from other government agencies for input purchase for crop production, livestock production, and cottage industries. Credit is also supplied for land purchases by tenants, rent payments, consumption and marketing along with farm mechanization and irrigation facilities. Social programs intended for small farmers were adult education, health and sanitation, family planning, maternity and child care, and social reform. Community programs offered are reforestation, soil and water conservation, public construction for roads, bridges, canals, schools, drinking water and community godowns. The implementation of SFDP is carried out by ADB/N and assisted by all the district and local level organizations. A central coordination committee was formed representing all the ministries for policy making. For project implementation, a district level coordination committee was formed and is composed of the chief district officer as chairman, the Agricultural Development officer as coordinator and the manager of the local ADB branch as secretary. In addition, representatives of the cooperatives, the land reform organization, the land administration, land revenue, district education, food corporation, agricultural input corporation, veterinary hospital,
family planning, panchayat development officer and the project chief of SFDP are also members. If necessary, there is a provision to include other institutional heads in the coordination committee. The local level coordination committee includes Pradhan Pancha\textsuperscript{1/} as chairman, the SFDP project chief as advisor, the sajha (cooperative) manager, one progressive ward member\textsuperscript{2/} and three leaders of active farmers groups as members.

Participation in SFDP is open to all small farmers, agricultural laborers, fishermen, rural artisans and cottage industry laborers whose per capita income is less than Rs 950 (approximately $80 U.S.) per year. However, farmers involved in lawsuits, those who disturb the domestic and social peace and those farmers who earn money by doing unsocial works are not allowed to participate. Small farmers who are absentee landlords and money lenders are also barred from participation. Initially, farmers who qualify to participate, organized an informal group and pledged to do group and individual projects with responsibility. If the group needed a loan for individual production and/or consumption, or for a group production

\textsuperscript{1/} The chairman of the panchayat is known as Pradhan Pancha. He is an elected official.

\textsuperscript{2/} Each panchayat is divided into nine wards. The elected representative of the ward is known as ward member.
plan, the loan plan has to be approved by the group members. The group then applies for a loan at an SFDP office. After a feasibility study and scrutiny of the project, SFDP forwards the loan application to a loan committee made up of SFDP project chief, the sajha manager and the local Pradhan Pancha. They approve or reject the loan application.

Loans are given for a variety of purposes. This includes fertilizer, insecticides, seed, agricultural implements, artisan tools, irrigation facilities, livestock purchases, and land purchases. The interest charged by SFDP depends on the type of activity. For most of the short term production loan it is 14 percent per year and for long term investments, such as horticulture, only 8 percent per year. Most of the credit is provided through sajha (the local cooperative) which gets a four percentage point margin from the interest payment made by the borrowers.

SFDP encourages savings from participating farmers. Each group is supposed to hold a group meeting at least once a month to discuss their problems and solutions. In these meetings each member is supposed to deposit a fixed amount. In most of the groups it is Rs 10.00 per month. But the amount is decided by the group members themselves. In some groups, savings are collected only
once in six months, at harvest time. In all of the groups there is one elected treasurer who collects the money and deposits it in a bank. The account is controlled by the group leader and the treasurer. In one of the research sites, there is no commercial bank, so saving deposits are kept by the treasurer or group leader. The saving funds collected are used to finance emergency needs of the group such as funerals, births, medical expenses and food purchases for some members. The groups choose their own rates of interest applied to the loans to its borrowing members. In most of the groups there is no interest charged on loans for medical expenses. But in many groups the rate of interest charged on loans for other activities is equal to the informal money lender's rate of interest and this goes up to 60 percent per year. The members of the groups charging high rates of interest have a strong reason for increasing their savings fund.

Marriages, funerals and festivals are very expensive in Nepal and many farmers have to borrow for these occasions. SFDP encourages farmers to be conservative in these expenses. As a result, small farmers have started celebrating the festivals in groups which cuts costs substantially. Marriages between families participating in the SFDP program have been observed to reduce marriage cost.
Farmers in Nepal are not employed for the entire year. Almost one-third of the working days are lost due to lack of work. SFDP encourages the farmers to use this time to work on community projects such as drinking water or soil and water conservation. In some groups, if a member decided to construct a house, other members assemble their tools and pool their labor. This reduces the cost and increases employment. If the project helps the group as a whole, it also increases group harmony.

Research Site Selection

Over a period of four years, twenty-four SFDP projects have been initiated covering 36 panchayats. Most of these projects are new. Anandaban panchayat in Rupandehi District and Tupche panchayat in Nuwakot District were selected as the research sites for the following reasons: 1) Tupche represents a typical hill village, whereas Anandaban represents a Tarai village; 2) Tupche area was covered by the Rasuwa-Nuwakot Integrated Rural Development project and many inputs were provided by the project. Anandaban has no such project and development efforts are solely financed and promoted by ADB/N with coordination from other government agencies; and 3) both the projects have been established for three to four years and are comparatively old. A general description of each project site is given below along with the location in a map of Nepal.
Tupche Panchayat

Tupche is located on the west bank of the Trishuli River and is 7 kilometers north of Trishulibazar, the district headquarter of Nuwakot District. The altitude varies from 660 meters to 1,820 meters above sea level. The rainfall is about 3,000 millimeters per year, most occurring in the monsoon in June, July, August and September. All other months are quite dry. Almost all land has a slope of up to 45° and terrace cultivation is followed. Major crops of the area are paddy, corn, wheat and millets. Buffaloes and cows are major animals besides goats, sheep, hogs, chickens and ducks. Many types of vegetables are grown on most of the farms. Main fruits are citrus, banana, papaya, pineapples and mangoes.

The land is very limited and scarce. There is about 150 hectare of cultivated land to support a population of 4,800 persons. More than 90 percent of the farms are less than one hectare in size. Forests have been destroyed and terraces have been made for cultivation in most of the places. This has led to severe soil erosion and landslides. The land at the foot of the mountains and river basins is comparatively fertile and is irrigated by small canals that draw water from nearby streams. Otherwise, more than three-fourths of the land is dry land and is suitable only for corn and millet cultivation.
There is no grazing land except the steep slope areas where terracing is not possible.

The panchayat is divided into nine wards covering 25 small villages with a total of more than 850 households. There are three primary and one middle school with about 800 students enrolled. One cooperative society, the village panchayat office, an SFDP office, an agricultural sub-center, one rice mill and one handloom are other institutions in the area. The Trishuli hydroelectric power station is also located nearby.

Tupche is connected to Trishuli by a gravel road which is further connected to the capital city, Kathmandu, by a 70 kilometer asphalt road. But Tupche does not have bus service. Only government vehicles and trucks which deliver goods to the cooperative reach Tupche. Farm surpluses and other consumer goods have to be marketed and transported from Trishuli largely on human backs.

The Small Farmer Development Program in Tupche was launched in March, 1976. At present, there are 19 borrowing groups covering 378 households. The main attraction of joining the SFDP program has been availability of credit. At the start, credit was provided for individual activities such as purchase of seeds, fertilizer, pesticides and draft and dairy animals. Some credit has also been provided for group activities such as handlooms, horticulture and poultry. Group members in this area
were the first to produce and market silkworms in Nepal. Family planning, adult education, soil and water conservation, drinking water and irrigation canals have been started under the program.

The farmers participating in the program are encouraged to hold monthly meetings and deposit savings. Total group savings in the area were reported to be more than Rs 70,000 in early 1980. In the monthly group meetings farmers identify their problems, and after discussion, they decide their course of action. If credit is required, they decide on the project and amount of credit needed. They keep minutes of the meeting and send them to the SFDP office. All members participating in the group loan project and the group leader and individual members who need individual credit go to SFDP to fill out loan application forms. The group organizer/action-cum research fellow who is also known as project chief at SFDP evaluates their request and forwards it to a loan committee for loan sanction. If the loan is approved, the farmers again go to the cooperative to sign the promissory note which includes joint liability for the loan. If the loan is in-kind, it is released by the cooperative society. If it is in cash, and a large amount, the cooperative writes a voucher and the farmers go to the ADB/N branch office which writes a check to a commercial
bank at Trishuli itself where the farmer gets the cash. Technical advice to the group is given by an employee of SFDP or by an employee of a government agricultural sub-centre. For other services the project chief contacts the proper agency in the district headquarters who in turn responds to the farmers.

The SFDP office at Tupche has a project chief, a loan assistant, an accountant and a messenger carrier. Up to April, 1980 about Rs 1.8 million had been lent out of this office and more than Rs 0.5 million had been collected from Tupche and Karkimanakamana panchayats.

Anandaban Panchayat

Anandaban is located in the center of Rupandehi, a tarai district in the middle of Nepal. It is located 20 kilometers north of Bhairhawa, the district headquarters and five kilometers south of Butwal, the headquarters of Lumbini zone. All of Anandaban panchayat is flat land and the altitude is less than 300 meters above sea level. The climate is sub-tropical. Rain is brought by the monsoon in June, July, August and September and average rainfall is more than 60 inches per year. In the summer months, the temperature rises up to 115°F., but the winter season is pleasant with temperatures between 45°F. and 80°F. The main crops in the area are rice, wheat, sugar-cane and corn. Various types of oilseeds and legume crops
are also grown as mixed crops. Mangos, bananas, papayas, and litchi are the main fruits grown. Buffaloes and cows are raised for milk and draft purpose.

Before malaria was eradicated in the late 1950s, most of the land was covered by forest. At present, almost all forests have been cleared by the new settlers who migrated from the hills, India and Burma. Many ex-military servicemen have settled here. The land is very fertile and has alluvial soil. Most of the land is irrigated only when there is water in nearby rivers in the monsoon season. There are about 10,000 people in the panchayat and it has more than 4,000 hectares of cultivated land. More than 80 percent of the households are small farmers who have less than one hectare of land. There are about 2,000 households. There is a high school and many primary schools. The village is partially electrified. There is comparatively high literacy and many persons can reach the colleges at Bhairhawa or Butwal by bus every day. Every house can be reached by a dirt road and a north-south highway bisects the village. Most of the farm products reach markets by ox carts.

The SFDP program was started in Anandaban in April, 1977. At present, there are 21 borrowing groups covering 178 households in Anandaban. There are also 9 women's groups which cover the same 178 households. The farmers
were motivated to join the SFDP largely by credit. But other activities were added after the groups started functioning. Credit is mainly provided for individual activities such as purchases of seed, fertilizer and insecticide as well as animals. Group activities include handlooms, poultry, fish culture, swine production and horticulture. Family planning, adult education, handicraft manufacturing, agricultural marketing and milk vending have been included in the project activities. The SFDP at Anandaban also covers Tikauligarh panchayat where there are 30 new groups.

In Anandaban, farmers are also encouraged to meet once a month and discuss their problems and seek solutions. If credit is needed, the same procedure is followed as in Tupche except all the members of the group visit the SFDP office to apply for the loan and to sign a promissory note, even if they are not using part of the loan. In Tupche, only the borrowing members and group leader sign the note. The delivery of the loan is done as in Tupche. For repayment, each farmer goes to the cooperative in both places.

The SFDP office in Anandaban has a project chief, a loan assistant, an accountant and a messenger. Up to April 1980, more than Rs 1 million had been lent out and about Rs 200,000 had been collected in this area office.
Sample Description

This study was conducted at three levels, namely, individual farmers, informal groups and the SFDP program and the money lenders. A random sample of 30 participating farmers and 8 non-participating farmers was selected in Anandaban. In Tupche, the number of participating and non-participating farmers was 32 and 8, respectively. The comparative characteristics of participant and non-participant farmers is given in Tables II-3 and II-4. Participating farmers in Anandaban differ from those of Tupche in size of family, farming experience at the present farm, size of holding, size of operation, and the number of years of schooling of the head of the household. Size of holding and operation is bigger in Anandaban than in Tupche because the land is newly settled. The relatively short time of farming the present unit is due to the recent migration of the people from the hill area, from India and Burma as well as retired military personnel from the British Gorkhas and the Indian army. The level of education of the head of the household is higher in Anandaban because of more schools and colleges in the area and better transport facilities than those found in Tupche. The ratio of irrigated land over the total land is higher in Anandaban than in Tupche because it is difficult and expensive to get irrigation facilities in the hills.
<table>
<thead>
<tr>
<th></th>
<th>Anandaban</th>
<th>Tupche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average size of the family (numbers)</td>
<td>6.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Average size of the household head (years)</td>
<td>44.0</td>
<td>42.0</td>
</tr>
<tr>
<td>Average number of years of schooling of household head</td>
<td>4.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Average farming experience (years)</td>
<td>21.4</td>
<td>22.2</td>
</tr>
<tr>
<td>Average farming experience at present farm (years)</td>
<td>13.8</td>
<td>21.3</td>
</tr>
<tr>
<td>Average size of operation (ha)</td>
<td>0.9</td>
<td>0.4</td>
</tr>
<tr>
<td>Average size of holding (ha)</td>
<td>0.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Average size of irrigated operation area (ha)</td>
<td>0.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Average number of types of crops grown</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Average number of types of livestock raised</td>
<td>2.4</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: Field survey data.
### TABLE II-4: Characteristics of 8 Anandaban and 8 Tupche Informal Borrowers

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Anandaban</th>
<th>Tupche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average size of family (numbers)</td>
<td>7.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Average size of household head (years)</td>
<td>38.0</td>
<td>41.0</td>
</tr>
<tr>
<td>Average number of years of schooling of household head</td>
<td>4.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Average farming experience (years)</td>
<td>14.5</td>
<td>18.5</td>
</tr>
<tr>
<td>Average farming experience in present farm (years)</td>
<td>10.3</td>
<td>18.5</td>
</tr>
<tr>
<td>Average size of operation (ha)</td>
<td>1.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Average size of holding (ha)</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Average size of irrigated area (ha)</td>
<td>1.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Average number of types of crops grown</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Average number of types of livestock raised</td>
<td>2.9</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Source: Field survey data.
Almost all the characteristics of informal borrowers and SFDP participating farmers are similar in both places except for the size of operation and holding. The slight differences in these sizes may be due to the small size of the sample of informal borrowers.

To estimate the credit demand of the farmers, their annual expenses for the year 1979-80 were obtained and the results are presented in Tables II-5 and II-6. The major items of household expenses were cloth and other consumption goods such as salt, kerosene, oil, soap and spices. The average annual expenditure on cloth and consumption goods for both types of farmers was higher in Anandaban than in Tupche, but informal borrowers reported having higher average expenses than SFDP participant farmers. Participant farmers had more expenses for the purchase of animals in both places. Average annual expenses incurred by participating farmers in Anandaban were Rs 6,123, whereas those in Tupche incurred an average annual expense of Rs 3,610. The average annual expense incurred by non-participating farmers in Anandaban was Rs 4,632, whereas in Tupche it was Rs 2,738.

To estimate the extent of borrowing to finance expenses, the average annual borrowing of the participating and non-participating farmers is given in Table II-7. The average annual borrowings of SFDP farmers in Anandaban
TABLE II-5: Average Annual Expenditures Incurred by 30 Anandaban and 32 Tupche SFDP Participant Farmers in the Year 1979-80

<table>
<thead>
<tr>
<th></th>
<th>Anandaban</th>
<th>Tupche</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs</td>
<td>Rs</td>
</tr>
<tr>
<td>Seed, fertilizer and insecticide</td>
<td>141</td>
<td>158</td>
</tr>
<tr>
<td>Cloth and consumption goods</td>
<td>1,764</td>
<td>1,010</td>
</tr>
<tr>
<td>Food grain purchase</td>
<td>532</td>
<td>656</td>
</tr>
<tr>
<td>Medical expenses</td>
<td>553</td>
<td>145</td>
</tr>
<tr>
<td>Animal purchase</td>
<td>1,085</td>
<td>642</td>
</tr>
<tr>
<td>Home repair</td>
<td>1,414</td>
<td>946</td>
</tr>
<tr>
<td>Others</td>
<td>634</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>6,123</td>
<td>3,610</td>
</tr>
</tbody>
</table>

Source: Field survey data.

Exchange Rate: U.S. $1 = Rs 12.
TABLE II-6: Average Annual Expenditures Incurred by
8 Anandaban and 8 Tupche Informal
Borrowers in the Year 1979-80

<table>
<thead>
<tr>
<th></th>
<th>Anandaban</th>
<th>Tupche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed, fertilizer and insecticide</td>
<td>154</td>
<td>157</td>
</tr>
<tr>
<td>Cloth and consumption goods</td>
<td>2,727</td>
<td>1,419</td>
</tr>
<tr>
<td>Food grain purchase</td>
<td>125</td>
<td>223</td>
</tr>
<tr>
<td>Medical expenses</td>
<td>563</td>
<td>225</td>
</tr>
<tr>
<td>Animal purchase</td>
<td>0</td>
<td>438</td>
</tr>
<tr>
<td>Home repair</td>
<td>475</td>
<td>88</td>
</tr>
<tr>
<td>Others</td>
<td>588</td>
<td>188</td>
</tr>
<tr>
<td>Total</td>
<td>4,632</td>
<td>2,738</td>
</tr>
</tbody>
</table>

Source: Field survey data.
Exchange Rate: U.S. $1 = Rs 12.
# TABLE II-7: Average Annual Size of Expenses and Borrowings for Different Types of Farmers in Anandaban and Tupche (1979-80)

<table>
<thead>
<tr>
<th></th>
<th>Anandaban</th>
<th></th>
<th>Tupche</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Participant</td>
<td>Non-participant</td>
<td>Participant</td>
<td>Non-participant</td>
</tr>
<tr>
<td>Average annual expenses</td>
<td>6,123</td>
<td>4,632</td>
<td>3,610</td>
<td>2,738</td>
</tr>
<tr>
<td>Average annual borrowings</td>
<td>1,634</td>
<td>1,088</td>
<td>990</td>
<td>1,213</td>
</tr>
<tr>
<td>Percent of annual average borrowings over expenses</td>
<td>27</td>
<td>23</td>
<td>27</td>
<td>44</td>
</tr>
<tr>
<td>Number of farmers interviewed</td>
<td>30</td>
<td>8</td>
<td>32</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Field survey data.

Exchange Rate: U.S. $1 = Rs 12.
and Tupche was Rs 1,674 and Rs 990, respectively. The average annual borrowings of non-participant farmers in Anandaban and Tupche was Rs 1,088 and Rs 1,213, respectively. The participant farmers in Anandaban and Tupche borrowed money to finance 27 percent of their total average annual expenses. Among the non-participant farmers, 23 percent of expenses were financed by borrowings in Anandaban, whereas it was 44 percent for non-participant Tupche farmers. In both places, borrowing SPDP farmers spend more than 64 percent of their loans on animal purchases. Informal borrowers in Anandaban spent nothing on animal purchase. While informal borrowers in Tupche spent more than 36 percent of their loans on animal purchases. Other productive uses of credit were for seed, fertilizer and insecticides. Participant farmers in Anandaban spent 8 percent of borrowings on seed, fertilizer and insecticide, whereas participant farmers in Tupche spent 16 percent of their borrowings on seed, fertilizer and insecticide. Similar expenses of non-participant farmers in Anandaban and Tupche were 14 and 13 percent. In total, 72 percent and 80 percent of the respective borrowings by SPDP participant farmers at Anandaban and Tupche were spent on productive purposes. Non-participant farmers in Anandaban and Tupche spent only 14 and 49 percent of their borrowings on productive purposes, respectively.
It may be concluded that participant farmers tend to use their borrowed funds for more productive purposes than non-participant borrowers.

The description of the groups, money lenders and the SFDP project chiefs are given in Chapter IV.
CHAPTER III

REVIEW OF LITERATURE

This chapter reviews literature on the problems of investment in agriculture, the structure of rural financial markets in LDCs, the rural credit structure of Nepal, group lending in other LDCs, and the Small Farmer Development Program in Nepal.

The Problems of Investment in Agriculture

Despite the fact that agriculture is the largest sector of the economy of many LDCs, there is low capital investment in it. Little use of improved seeds, chemical fertilizers, insecticides and traditional cultural practices have resulted in low agricultural production. Theodore Schultz (1964) argues that low production in LDCs is due to the low technological capacities of traditional seeds and other inputs. He also argues that farmers do not misallocate resources at existing levels of technology. Therefore, agricultural production can be increased by introduction of new and more productive technology. However, when high yielding varieties were

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introduced in many LDCs, farmers were reluctant to use them because other inputs such as chemical fertilizers and pesticides were not available. Traditional inputs were not applicable to these new varieties.

With high yielding seeds, farmers not only needed to know about seed varieties, fertilizers and pesticides, but also their availability, the optimum quantity and method of use to maximize profits, and the proper method of harvesting, storage and marketing.

Sound investment is one which yields high returns, low risk and uncertainty, and short gestation periods. Agriculture, on the other hand, is highly risky because of its dependency on nature. It has a long gestation period. It is irreversible. Market demand for agricultural commodities is price inelastic. Returns from agriculture may not be as high as from industry and other sectors of the economy. The growth of output in agriculture may be slow. For millions of small, subsistence farmers, agriculture is a means of livelihood rather than a business. For them, investment in agriculture is critical if they are to increase their incomes.

Rural Credit Structure in LDCs

Investment can be made out of equity capital or borrowed funds. Availability of capital in rural areas by small farmers is assumed by the politicians to be very
small. However, Alamgir (1976) states that the savings in LDCs are done in non-monetary items and investment is generally done for indirectly productive activities such as home construction and repair, health care and education which is not reflected in financial statements. Adams (1978) argues that the voluntary saving capacity of the rural sector is high and is reflected through the high average propensity to save as demonstrated in Taiwan, Japan, Korea, Malaysia and India. Low net savings in financial terms, are due to inadequate financial institutions and incentives such as a low interest rate paid on savings. He further argues that a positive real interest rate and availability of banking facilities are major ways to increase rural savings.

The majority of the crédit needs of rural poor in many LDCs are met by informal sources such as merchants, money lenders, landlords, friends and relatives (Nyanin, 1978). There is a wide range of arrangements in these informal loans in interest rates, discount rates, length of loan, security and purpose of credit. The rate of interest varies from source to source, borrower to borrower, purpose to purpose, and by length and type of security. But informal credit interest rates are generally higher than the interest rates charged by formal sources (Nisbet, 1973 and Gonzalez-Vega, 1976). Politicians often
argue that informal financing is too costly for investment in new technology in agriculture. But studies conducted by Nisbet (1973), Singh (1968) and Stitzlein (1967) reveal that in the rural areas the opportunity cost of capital is very high. The risk associated with production, prices and default is also high.

On the other hand the working relationship between the informal lender and borrower is very close. They often live in the same village. They know each other's financial ability and degree of trustworthiness. The needed credit is negotiated and repaid during flexible work hours. The interest and principal is paid back in cash or kind. The loans are provided for consumption as well as production purposes. The length of credit is short to long depending upon the needs of the borrower. Informal money lenders usually do not mobilize others' savings. Since they depend on their own equity capital, the supply of loanable funds is often very limited.

High interest rates, forced labor and other practices of informal money lenders are considered to be a means of exploitation by the proponents of cheap institutional credit. Joshi (1978) points out that in a few instances, credit has been used by money lenders to turn small farmers into tenants on their own land in Nepal. But, in general, the higher rates of interest charged by the money
lenders reflects high opportunity cost of capital in rural areas and the high quality of the services they provide to borrowers (Singh, 1968; Stitzlein, 1967).

In many countries, rotating saving and credit associations (ROSCAs) are another source of informal credit where some farmers meet and agree to save a fixed amount. Each time a deposit is made by each member, the total amount collected is given to one of the ROSCA members either by general group consensus or by lottery. After all the members get their turn of the draw, these associations are disbanded or recycled. To insure that members do not quit the association as soon as they get their turn in the lottery, one member often acts as a security for the other member (Geertz, Anderson, 1966; Begashaw, 1978).

Many governments insist on providing institutional credit to small farmers. The main objective in providing institutional credit to small farmers is to encourage them to adopt improved technology and to increase production (Baker, 1973). On the other hand, commercial financial institutions are reluctant to lend to agriculture because the risks associated with production and price fluctuation cause defaults. Also, the amount borrowed by small farmers is small and there are large numbers of small farmer borrowers. It is, therefore, costly to administer
a large number of small loans. Furthermore, the small farmers are located throughout the countryside, often at a great distance from the lender. This makes it difficult to supervise the loans without increasing lender's costs significantly.

Cooperatives are the most common institutional source of credit for farmers in many countries. Olson (1971) states that cooperatives are formed for group action by homogeneous members to solve those problems which otherwise cannot be solved by individual efforts. Cooperatives are legal bodies registered under a government decree. Their operating funds come from sale of shares to each member. Additional funds, when needed, are borrowed from commercial banks or by fund transfers from vertically and horizontally integrated cooperatives. Besides providing credit, many cooperatives are also engaged in the marketing of agricultural inputs and consumer goods.

Cooperatives are governed by members elected by participants and run by hired managers. Generally, they provide loans for production purposes at low interest rates. Although there are cooperatives in most LDCs, only those in Japan, South Korea, Taiwan and Egypt have been highly successful. Ugandan and Ethiopian cooperatives are partial successes. On a project basis, the Comilla cooperative project in Bangladesh is the most recent success story (Alamgir, 1979).
There are a number of reasons for the failure of cooperatives in developing countries. Abraham (1972) and Owens and Anholt (1973) have given the following reasons for the failure of cooperatives: 1) The village coops are too small to raise enough equity capital to expand the size of operation to an effective level and to hire professional managers and provide other needed services. Ultimately, inefficiency in management is the single most important reason for the failure of cooperatives. Sharma (1980) agrees with this statement after analyzing the ineffectiveness of cooperatives in Nepal. 2) There is no barrier in the eligibility of membership requirements as long as they are farmers. Thus, there are big and small farmer participants in the cooperative and it becomes a heterogeneous body with different interests. The big farmers use their social influence to get elected to the board of governors and control the cooperatives for their own advantage. This includes taking most of the low interest loans. When they are denied loans, small farmers lose their cooperative enthusiasm and there is low participation. 3) Cooperatives are initiated by government programs rather than by farmers. Farmers perceive the cooperative as government organizations which results in low levels of participation and high levels of delinquency.
Commercial banks hesitate to finance agriculture due to high risk and high loan administration cost. However, in most LDCs, the central bank directs commercial banks to lend a certain percentage of their portfolio to agriculture. Generally, these loans go to large farmers who can provide security and, therefore, are less risky than small borrowers (Gonzalez-Vega, 1976). In most LDCs, agricultural development banks are the main financial institution that provides loans to farmers. These banks are established as autonomous financial institutions with the main source of funds being either government equity shares or allocations. Foreign loans, grants, shares sold to the private sector and mobilized savings are other sources of funds.

The agricultural development banks generally provide secured, supervised, and production credit to farmers. In most of the countries, these development banks are not able to reach many small farmers. Lipton (1977) gives the following reasons for this: 1) agricultural development banks often insist on productive use of credit, whereas small farmers need credit for production as well as consumption purposes; 2) they insist on land as collateral where money lenders accept a wide range of securities; 3) development banks are not willing and able to lend for indefinite periods as do money lenders;
4) loans from development banks have been treated by the farmers as an "aid" or "gift" from the government and often are not repaid; 5) the low interest charged by the banks results in decapitalization which further hampers the expansion of services. Nehman (1973) argues that, although the interest rate in formal financing is low, the farmers must spend several days to negotiate the loan. Generally, several papers such as land ownership title, revenue paid receipt are needed to get a loan from the bank. This results in a high borrower transaction cost. To lower the transaction costs as well as the default rate, and to increase participation of the farmers, various innovations are currently taking place in RTMs. Group lending is one of these innovations.

Rural Credit Structure of Nepal

As described in the last chapter, formal financial institutions are new in Nepal, and informal sources still playing the dominant role in rural finance. Informal sources include village money lenders, professional money lenders, landlords, agricultural traders, friends and relatives. Joshi (1978) reports that there were professional money lenders in Nepal as early as the Fourteenth Century. The importance of informal sources of credit in Nepal is shown in Table III-1. It shows that village
<table>
<thead>
<tr>
<th>Credit Agency</th>
<th>Borrowings (Percent of Total Value of Loan)</th>
<th>Outstanding Debt (Percent of Total Value of Debt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal</td>
<td>20.87</td>
<td>16.99</td>
</tr>
<tr>
<td>1) Coop credit societies</td>
<td>1.45</td>
<td>0.90</td>
</tr>
<tr>
<td>2) Ward village committees</td>
<td>7.83</td>
<td>9.17</td>
</tr>
<tr>
<td>3) ADB/N</td>
<td>2.32</td>
<td>1.50</td>
</tr>
<tr>
<td>4) Land reform saving corporation</td>
<td>6.09</td>
<td>3.00</td>
</tr>
<tr>
<td>5) Commercial banks</td>
<td>3.18</td>
<td>2.42</td>
</tr>
<tr>
<td>Informal</td>
<td>79.13</td>
<td>83.01</td>
</tr>
<tr>
<td>1) Village money lenders</td>
<td>35.37</td>
<td>40.00</td>
</tr>
<tr>
<td>2) Professional money lenders</td>
<td>2.04</td>
<td>2.56</td>
</tr>
<tr>
<td>3) Landlords</td>
<td>5.22</td>
<td>4.51</td>
</tr>
<tr>
<td>4) Agricultural traders</td>
<td>2.87</td>
<td>2.11</td>
</tr>
<tr>
<td>5) Friends and relatives</td>
<td>32.47</td>
<td>32.78</td>
</tr>
<tr>
<td>6) Others</td>
<td>1.16</td>
<td>1.05</td>
</tr>
</tbody>
</table>

money lenders and friends and relatives are the most important loan sources of informal loans. The outstanding debt from these two sources is about equal. Among the formal sources, ward village committees and LRSC were the major sources. However, at present the first four sources are combined under the ADB umbrella.

Formal financing of agriculture in Nepal started through the cooperative department in the late 1950s. The cooperative bank was established in 1963 as an independent financial institution by the government for rural finance. The objectives of this bank included providing short-term production and marketing loans to farmers and agro-industries. Local cooperatives throughout Nepal were its outlets for distribution and collection. These cooperatives also mobilize some forced rural savings (Regmi, 1966). The inadequacy of capital, lack of trained man-power and sound management, political uncertainty, and the illiteracy of the people were cited by Regmi (1966) as the main obstacles to the success of the cooperative bank.

The LRSC was established in 1966 to mobilize rural savings to finance agriculture. A compulsory saving scheme was introduced through which landlords, tenants and owner operators were required to save ten, five and fifteen percent of the cash value of their main annual
crop. Since much of the economy was not monetized, cash and kind deposits were accepted. Originally, the plan envisaged continuous deposits for five years, the interest paid to the depositors to be five percent annually. At the end of five years, the whole deposit was to be converted into share capital of the corporation. Due to the lack of an adequate national administrative system, the entire program was delegated to local village and ward level committees for handling. The lending and collection was also done for small farmers by the same committees. A total of Rs 132 million was advanced as a loan which was about 95 percent of the total savings between 1966 and 1977. Unfortunately, this system failed due to the lack of warehouses and the ineffective recordkeeping by illiterate village committee members (Zaman, 1973).

The compulsory saving scheme was discontinued in 1968-69 and in the early 1970s, LRSC merged with ADB. The purpose of the merger was to eliminate duplication of funding.

Presently, ADB is the only financial institution specializing in agricultural finance in Nepal. It has 134 branches. The objectives of the ADB are as follows: 1) to provide short, medium and long-term loans to individual farmers, cooperatives and corporate bodies engaged in the task of agricultural development; 2) to provide loans to the farmers for purchase of inputs and capital items; 3) to finance small scale industries engaged in
processing farm products and manufacturing goods required for increasing agricultural production; 4) to provide loans to tenants to purchase land; 5) to undertake banking functions as approved by NRB; 6) to accept and mobilize compulsory savings collected by the government as deposits; and 7) to perform other activities as prescribed by the government on the advice of the Board of Directors to fulfill the Bank's objectives (ADB, 1976). Agricultural loans are provided either directly from the branches or through the cooperatives known as sajha and village ward committees. In addition, loans are also given to an agricultural input corporation, jute, cotton and sugar-cane development boards, cigarette factories, agricultural tools factories, and other agencies. In 1979-80, the ADB had a paid in equity capital of Rs 150 million. Its main sources of funds are share capital, borrowings and compulsory saving deposits. It has total assets of Rs 465 million in the year 1977-78 out of which Rs 360 million was in loans extended (ADB, 1978).

In its early lending, the largest share of ADB's agricultural credit went to finance agricultural machinery purchase such as tractors and pump sets. Inputs like fertilizer and pesticides were also financed in large volumes for progressive farmers. It was perceived that the large progressive farmers would adopt new technology, and that small farmers would soon follow. But this
trickle down process did not take place. Instead, income disparity between the large and small farm families increased (Lohani, 1980; Pradhan, 1980; Sharma, 1980; and Shijapati, 1979). As a result, this method of agricultural financing was reevaluated and it was concluded that small farmers were not borrowing from ADB because: 1) small farmers have low borrowing capacities; 2) their risk bearing ability was lower than large farmers due to the small size of their holdings and their dependency on farming for their livelihood; 3) farmers did not come to banks because of their modest education and their fear of bureaucratic procedures; and 4) formal credit might be costly to small farmers because of the procedures followed by the bank in making loans (Lohani, 1980; Sharma, 1980). This resulted in the creation of the Small Farmer Development Program (SFDP) as an action-cum research project. SFDP is similar to group lending methods followed in other countries.

Group Lending Programs in Other LDCs

Although group lending has been considered as a recent innovation in RFMs, it has been practiced for more than 75 years in Japan and Turkey (Ertay, 1978). Bangladesh, Thailand, India, Sri Lanka, Philippines, Ghana, Malawi, Chile, Bolivia, Uganda, Ethiopia and the Dominican Republic are some of the other developing countries besides Nepal where group lending is currently being practiced. Group lending programs
are called by different names in different countries, and have shown mixed results.

Group lending is considered to be an innovation because, through groups large numbers of small farmers can be provided financial services, possibly with reduced default risk and administrative costs (Adams and Ladman, 1979; Carroll, 1973). However, group formation and group activities are very crucial to the success of group lending. A successful group often consists of farmers, who are related to each other, who hold the same size of holdings, who grow the same type of crops, raise the same kind of livestock, who have contiguous farms or live in the same village, and who have the common goal of increasing production and income.

Small farmers have more than one problem. Financing production activities does not solve all their problems. Small farmers have been neglected in the provision of technical services, and their bargaining power in input and output markets is often weak. For this reason some experts argue that when financing is provided along with extension, marketing, family planning, health care, adult education and other services as a package, group lending is much more effective (Carroll, 1973; Adams, 1978; Adams and Ladman, 1979).
In many LDCs, interest rates on agricultural loans are kept low. It is argued that low interest rates induce many small farmers to adopt new technology and, hence, increase production. On the other hand, low interest rate policy has also resulted in more borrowing by big farmers. It is intended that through groups, small farmers can get the same services as large farmers.

Group lending projects are practiced with great variability in terms of services provided. The Lilongwe Land Development Program (LLDP) in Malawi does not provide technical support to the farmers to assess the requirement of the loan, the delivery of inputs, and their distribution among the members of the group. Farmers are encouraged to market in bulk and be aware of economies of scale. Alexander and Scott (1974) attributed 99 percent repayment rate of the loan to the procedure which requires a deposit by the members of the Malawi groups with the lending agency. The deposit is returned with interest only after repayment of the entire loan by all the members of the group. In the LLDP, the interest rate charged to group farmers was lower than interest rates charged on individual mortgage loans in the country. Successful groups in the LLDP were those where members had higher education, income and generally were better off (Alexander and Scott, 1974).
The credit commodity scheme (CCS) is a group lending project in Ghana. It provides short-term production loans to formal and informal groups in cash and kind. The size of the groups in the CCS have been reported to be as high as 100 members. But, Agrawal (1978) and Opoku-Owusu and Tetteh (1977) observed that homogeneous membership and manageable group size are important factors in the success of group lending. Larger groups have coordination problems.

Gamble (1969) describes the Amphur Farmers Group (AFG) in Thailand which was originally formed as informal groups to provide agricultural inputs at a low cost. These groups also did some marketing of outputs and processing. The AFG had a large membership averaging 1,500 members. It was governed by an elected board of directors and managed by hired managers. Initially, loans were provided to individual members of the group on the basis of joint liability. After legal problems, AFGs have been converted into cooperatives.

The Bank for Agriculture and Agricultural Cooperatives (BAAC) in Thailand has another group lending program. It has three types of clients: cooperatives, individual mortgage borrowers and informal farmer's groups. The BAAC provides $240 or less in loans to members of informal groups on joint liability. The BAAC has discriminatory
rates of interest. If the loan is repaid late, higher rates of interest are charged on the loan as a penalty. The rate of repayment has been more than 80 percent and lending to informal groups is more successful than other lending in the BAAC (Ingle, 1972).

Nisbet (1973) describes the Instituto de Desarrollo Agropecuario (INDAP) project in Chile. The distinguishing character of INDAP is that it is an autonomous body providing credit to small farmers. It gets budget allocations from the government and has hired technicians and administrators. It provides short and long-term credit for production, investment and marketing purposes to small farmers, sharecroppers and agricultural laborers. It is necessary to be a member of an agricultural committee, a cooperative or a union to be eligible to get a loan. However, there is no group liability and no collateral is needed. The repayment schedule is set up for each borrower to maximize his repayment capacity. However, depending upon the purpose of the loan, only 30 to 60 percent of the borrowers were repaying the loan in 1971. Defaulting members of the group are denied further credit, whereas other group members continue to get loans. Poor repayment performance was attributed to the procedure by which only further credit was denied and no other actions were taken against the defaulting borrower.
While analyzing the social aspect of group lending in Bolivia, Hansen et al. (1980) concluded that the success of group lending programs depended on external factors to the group. This includes the social system, values and attitudes of the society, sources of the funds, loan requirements, technical assistance, and attitudes of borrowers towards formal lending. It also includes internal factors such as the procedure of group formation, level of social cohesion among group members, group size and the effectiveness of group leadership.

The literature relating to the costs and benefits of group lending is still scanty. However, available literature indicates that there is no significant difference in the lender's cost between group loans and loans to individual mortgage borrowers (Matienzo, 1978). Pablo Romero (1979) found that the lender's transaction costs were higher to the groups than to individual mortgage borrowers in the Dominican Republic. This high cost was attributed to the group formation procedure which constituted from 18 to 25 percent of the total volume of the loan. However, the cost of the group loan borrower was lowered by twenty percent. Desai (1978) found that there was no significant difference between the group borrower's cost and the individual mortgage borrower's cost in India. The costs of lending to the group borrowers was slightly
higher than the cost of lending to individual mortgage borrowers. This was due to the lengthy loan procedure and the collection procedures used by the banks.

There was higher default in group lending than in individual mortgage lending in the Philippines. Matienzo (1978) attributes this high default to the way groups were formed. In the Philippines there was no special relationship between the group members. Groups were formed to get the loan and disintegrated when the loan was delivered. By analyzing the successful and failure groups, Matienzo (1978) observed that group lending was more successful when: 1) members of the group were related to each other by blood or other socioeconomic ties; 2) the members were homogeneous in size of holding, type of activities and had contiguous farms; 3) there was strong democratic leadership in the group; and 4) the members participated fully in the decision-making process. On the other hand, the distribution of the loans to each member by the lending institution and the supervision of the loan increased repayment rates.

Small Farmer Development Program in Nepal

The distinguishing characteristics of SFDP are: 1) the loans are provided on joint liability for several purposes including individual and group activities; 2) SFDP acts as a coordinator between the government agencies and
the borrowing farmers to provide services which are not related to the loans; 3) SFDP delivers loans to small farmers through another agency. It does not have a direct relationship with lending and collection. 4) SFDP is done only in small pockets and only as a pilot project.

There are few detailed studies of SFDP in Nepal. A preliminary analysis of the economic impact of SFDP at the farm level showed encouraging results in SFDP creating a hope of economic well-being among small farmers (APROSC, 1979). It shows that farmers have been able to adopt new technology and increase income. The APROSC report argues that SFDP is a low cost project.

Lohani (1980) has come to the conclusion that SFDP has had a positive impact on the income of the farmers involved. He also states that, SFDP farmers are becoming aware of technology, political and social rights and are learning to be self-reliant. Acharya (1980), on the other hand, attributes the success of SFDP to the dedication of a few employees in the field.

Summary

Available literature on group lending indicates that it has been widely used as an innovation in rural financial markets, with mixed results. Its success depends not only on economic activities of the borrower, but also on the social relationship among the members of the informal
group. The factors affecting the transaction costs in group lending seem to be the procedures and policies followed by the lender. The most critical factor in the success of group lending is group formation. Groups should be homogeneous in terms of size of holding, and have close social and cultural relationship in order to perform well.
CHAPTER IV

CASE STUDIES

Money lenders, informal groups and SFDP project chiefs are the components of the credit system in Anandaban and Tupche. A detailed study of each one of these units is useful in understanding the total credit system. This chapter is divided into three sections. The first section presents the case studies of money lenders. The second section presents the case studies of SFDP borrowing informal groups and the last section presents the case studies of two project chiefs.

Case Studies of Money Lenders

Money lending in Nepal is done by landlords, merchants and farmers who have accumulated some savings. Banks do not exist in many rural areas and bank savings deposits by rural population are very few. Many well-to-do farm families do money lending businesses. Informal borrowers in the rural areas are those who need cash for agricultural activities for festivals and emergencies such as sickness, or for funerals and marriage. In this study, two money
lenders, one from each panchayat, were interviewed over various aspects of their business.

The money lender interviewed in Tupche was a landlord and in Anandaban it was a merchant landlord.

Location

Both the money lenders were born and have lived in the respective villages for a long time. Their business besides money lending is farming. They have family relations with many farmers. Thus, they know the financial condition of the borrower as well as their business practices. Each money lender has knowledge about the family members in the borrower's family, his size of operation, size of holding, earning and spending capacities and behaviors. This makes the selection of borrower by money lender very easy. If the money lenders believe that the prospective borrower will not repay the loan and they cannot recover, they do not make a loan. On the other hand, the money lenders are also members of the village elite. They receive outside visitors from government agencies, and inform the local people about government programs and regulations. They, sometimes, also work as an agent for government agencies and collect taxes and land revenues from the village. If there is some quarrel or litigations among villagers he works as a mediator. Thus, he has political clout in the village. He is respected and obeyed in the village due to these roles.
If the money lender is a merchant, he is a supplier of consumer goods in the village. He knows the tastes and preferences of each villager and buys those things which he can sell. Sometimes, he even advises his customers what to buy and why to buy a particular commodity. He is also a purchaser of the village products which can be sold outside the village. He knows what commodities he can sell outside the village and encourages farmers to produce those commodities. Most of the villagers purchase goods from his shop on credit. Thus, he has credit records on many villagers.

Loanable Funds

Both of the money lenders interviewed reported that their source of funds came mainly from internal savings and income generated by farming and marketing activities. They do not mobilize savings or accept deposits. Thus, they have limited loanable funds. Merchants sometimes buy agricultural products and store them, expecting price increases. To finance purchases, they may pledge grains to a commercial bank in the city and borrow funds.

The money lender in Anandaban lent money and accepted payments exclusively in crops. He pays the market price at the farmer's door and subtracts the transportation cost because he collects the harvest from the threshing floor of each of the borrowers. If a farmer has more to sell,
besides the repayment of the loan, this merchant/money lender buys the crop. If the farmer needs immediate payment he pays, but most of the farmers do not have storage facilities of their own and prefer to sell the crop to the merchant even though they do not need cash immediately. They receive payments in a period of two to three months and the merchant does not pay any interest. Thus, the purchase of crops at harvest time and payment of the cash at a later period gives the merchant a great deal of leverage in marketing. Loanable funds are generated from marketing operations for this particular lender.

The money lender interviewed in Tupche is a landlord. His loanable funds are savings and income from his farm. He lends not only to the farmers of that village but also to the small shop keepers, petty contractors and others. He also owns land in the plain area known as the Tarai. Annually he collects income from his Tarai farm and uses it in Tupche for money lending.

Size of Operation

Both the money lenders reported their size of operation at a level of about ten thousand rupees per year. But the farmers and employees in SFDP believe that their level of operation is at least five times the reported amount. Most of the loans are made without promisory
notes and other accounts. Private accounts of the money lender were not available to this researcher.

Procedure of Making Loans

The farmer who needs to borrow visits the lender and asks to borrow some amount of money for a certain purpose. Since the money lender knows all about the borrower's financial needs he gives him the money which he feels is adequate for a particular purpose. When a client has a good credit record the money lender does not ask about the purpose of the loan. No promissory note is written and no collateral is needed. Thus, borrowing and lending does not take much time. If somebody is a new borrower, a promissory note is written after providing the loan. Sometimes it happens several days after the loan is made.

At the time of making the loan, the repayment schedule is set. But it depends on the borrower. There is no specific date, but at least a month is quoted. If the promissory note is written, the month for repayment is specified, but if the loan is repaid earlier or later it is generally accepted. Some loans are termed in such a way that they will be repaid after a specific crop is harvested. Harvesting of the crop depends on the weather, time of planting, type of variety and other factors.

Since there is no promissory note written in most of the cases, there is no paperwork cost. Thus, the
administration of the loan has little cost. However, the merchant money lender at Anandaban may even deliver the loan to the home of the borrower if the borrower is a regular customer and has a good credit record. He also collects the crops from each borrower's threshing floor. Thus, the borrower has little loan transaction cost except for the interest he pays. For the lender, transaction costs seem to be high, but the process of making and collecting the loan is devised to add marketing business. Thus, the cost should be shared by both the enterprises.

Default

Both of the money lenders interviewed responded that they did not have a single borrower who has not repaid loans borrowed. In some cases, rescheduling of the loan is done or a new loan is given, but there is no default. If some farmers did not pay on time, one or two reminders were reported to be sufficient to collect the loan. Both the money lenders agree that the good repayment performance was associated with flexible repayment schedules, options to pay in cash or in-kind, easy loan delivery and an assured future loan is needed. The money lender in Tupche reported that he accepts repayment of the loan in crops, cash, livestock and also in labor. Farmers interviewed reported that the high interest charged by the money
lenders motivates them to repay the informal loans first when compared to formal loans. Besides the above mentioned reasons, family and other social relationships between borrower and lender are also factors in high repayment rates on informal loans.

Rate of Interest

The rate of interest charged by the money lenders varies from borrower to borrower and purpose to purpose. Sometimes it also varies according to the time of the year when the loan is made, and the length of the loan. The rate of interest reported by the money lender in Anandaban varied from two to four percent per month, whereas the borrowers reported that it varies between three to seven percent per month in that locality. In Tupche the money lender reported that the rate of interest charged was four to six percent per month and the borrowers in the area also reported the same rates of interest.

Loan Supervision and Technical Advice

Informal money lenders do not supervise the use of credit. The merchant money lender at Anandaban does not provide any other services except in the marketing of the products. However, the money lender in Tupche is also a farmer. Since the government programs reach big farmers
first, the lender may give some advice about new varieties, or fertilizer or insecticide use to his borrowers. He furnishes this advice without any charge. He provides this information to all the villagers through informal talks. Big farmers' fields are also used by government extension agents as demonstration plots and these big farmers are the ones who adopt the new technology first. When small farmers see big farmers using fertilizer and improved seeds, they generally adopt the new technology. Small farmers also learn new techniques when they use fertilizers and seeds in the fields of big farmers where they work as part-time wage labor.

Impact of SFDP on Money Lenders

The money lender in Anandaban reported that his lending business has decreased by at least 80 percent since the start of the SFDP. He reported that most of the farmers needed money for animal purchase and SFDP provides loans for animal purchases at low rates of interest. Participating farmers borrow from SFDP rather than from him. The farmers go to the money lender only for the loans which they cannot get from SFDP. Sometimes small farmers also borrow to pay back the loans received from SFDP. This money lender has diverted his funds to urban investments after the drop in demand for funds in his area.
The money lender in Tupche reported that there has been no significant change in the demand for his funds since SFDP began its program. However, other money lenders in the area recently have diverted their funds from agriculture to other businesses. The biggest money lender in Tupche has taken a contract for construction and was unavailable for an interview. Thus, SFDP seems to have displaced the local money lenders from some of their business.

Case Studies of SFDP Borrowing Groups

To identify the desirable characteristics of an informal group for a lending program, the project chiefs in Anandaban and Tupche were asked to identify the two most successful and the two least successful groups in their area, on the basis of repayment performance. Thus, four groups from each place were selected and members were interviewed about their composition, previous group action, the motivation for group formation, the duration of the group, the size of the group and the activities undertaken by the group. A brief summary of these interviews is given below.

Group Composition

Most of the members of the eight groups studied came from the same village. At least several of the members of
the group were related to each other either by blood or by matrimony. There was more homogeneity by caste or blood relationship among the group members in Tupche than in Anandaban. This was due to the make-up of the village. As explained in Chapter II, Tupche was given to a family by the king for its services. As a result, most of the villagers either come from the same family or their distant relatives. Anandaban, on the other hand, was a new village opened for settlement. Whoever migrated to the new settlement received land. No group in either place was found to be completely homogeneous in caste or in blood relationship.

Previous Group Activities

Prior to borrowing from SFDP through the groups, most of the members of the eight groups studied had some group experience. This group experience, however, was limited to labor pooling at the time of transplanting and harvesting, the exchange of consumer goods and agricultural inputs in times of need, helping each other in festival celebrations, marriage ceremonies and death rites, and the occasional money lending to a needy member with or without interest charges. Many villagers constructed and repaired irrigation canals, roads, bridges and shared drinking water and common pastures. In many
instances, the villagers were also united to build village primary schools. Many of these mutual activities occurred only between members of the same caste or social status. But, construction of irrigation canals, suspension bridges, roads and schools were shared by all the villagers.

Motivation for Group Formation

Nepal has mixed agriculture. Most farmers grow several crops and raise several kinds of animals. Small farmers who do not have animals, dream of raising their own animals for milk and manure. All the members of the eight groups interviewed were motivated to form a group by the desire to obtain a loan to purchase their own animal. Other factors motivating group formation were aspiration of favorable decision on litigation on land with an absentee landlord, aspiration to receive public land to own and establish an orchard, and aspiration to get tenancy on the land to construct a house and cultivate some crops.

The main motivating agent for group formation in the rural area was reported to be project chiefs. Also, some of the village leaders motivated small farmers to form informal groups. Some groups were also formed with the help of money lenders who without the knowledge of the SFDP take commissions from the small farmers on the loans which were borrowed from SFDP. Several groups
reported that they were motivated to form their own group by looking at the activities of other groups.

Duration of Group Formation

Most of the groups studied were formed when the SFDP project started in the area. All four groups studied in Anandaban were at least three years old. The duration of the groups' formation in Tupche varied between two and four years, but two successful groups were at least four years old.

Size of the Group

The average size of the group in Anandaban was ten members, ranging from five to twenty-three. The average size of the groups studied in Tupche was eighteen members and ranged from seven to twenty-five. Many of the groups in Tupche have twenty-five members which is the ceiling membership allowed by SFDP. The successful groups in Anandaban had lower than average membership while in Tupche unsuccessful groups had lower than average membership. Several of the larger groups had problems in holding group meetings with a hundred percent attendance and making unanimous decisions. Small groups did not have these problems, but groups considered to be unsuccessful in Tupche had dominant leaders and there was no democratic procedure in their decision-making process.
Activities Undertaken by SFDP Groups

Activities undertaken by participant farmers in SFDP can be divided into categories which are described as follows.

1. **Individual Production Activities**

A member of an informal group may decide to grow crops or raise livestock on his farm. For this purpose he will make a plan and present it during the group meeting which is held once a month. Other members discuss his plan and may approve it with modifications if needed. If the farmer needs credit, the group decides on the volume of the loan, its use and the length of the loan. The group approves the loan and all members go to the SFDP office to apply for a loan. When the loan is approved, all the members must again sign a promissory note. The loan is received by the borrowing member from the cooperative or ADB branch at the district headquarters. He uses the loan for the specified purpose. Projects in this category include the purchase of seeds, fertilizers and insecticides, milk, meat and draft animals, tools for rural artisans and establishment of small cottage industries such as basket-making. Most of the farmers participating in SFDP have taken loans for these types of activities.
2. **Group Production Activities**

In this type of activity, the individual groups decide to do group production, such as the purchase of a handloom, and establishment of a group orchard. The members of the group decide which project to implement, the scale of operation, the level of needed investment, the sharing of the investment and the workload, the level of employment and the projected income. If funding is needed, they decide as a group and apply for the loan to SFDP. The project chief evaluates their proposal and gives further advice if needed. If the loan is approved the farmers proceed with their planned actions.

Successful groups in both places have undertaken group production activities. Unsuccessful groups had only individual production activities. Group production activities have created jobs in the rural sector and generated off-farm income for the farmers. These projects have also created hopes of undertaking large projects by small farmers by utilizing their unused time and other resources. Group projects also have created group harmony and unity.

3. **Group Savings**

Group saving is an important part of the group activity. The amount of each group's deposit is agreed on and is deposited in a monthly group meeting. The amount
saved by each member monthly varies between Rs 5 and Rs 10. In some groups, savings are collected only at harvest time.

The purpose of group saving was to encourage farmers to save and to make themselves financially self-sufficient. When the SFDP provided production credit to small farmers in Tupche, money lenders did not provide consumption credit to the participant farmers. Group savings were used initially as a hedge against the boycott by money lenders. Later on, group saving funds were invested in group projects.

In each group there is an elected group leader and a treasurer. The treasurer collects the group savings. The savings funds are handled by the group itself in Tupche, whereas most of the funds in Anandaban are deposited in a savings account in a commercial bank. In times of need, any member can borrow from the savings fund. The term structure of the loan varies from group to group.

Group members borrow from their savings fund to purchase consumption goods, to cover the cost of festivals, marriage ceremonies, death and medical expenses and sometimes to repay an installment on their SFDP loans. Generally, interest rates charged on loans for medical expenses and other emergencies is less than 24 percent per year. If the loan is borrowed for other purposes, the interest rate charged may be up to 60 percent per year.
The reasons for charging high rates of interest on loans from the group savings fund were to rapidly increase the size of the savings fund and to discourage borrowing from this fund unless it was urgent. The purpose of charging low rates of interest on the loans for medical expenses and death expenses was to share the unprecedented hardship among the members of the group.

The size of group savings in all 60 groups in Anandaban was about Rs 25,000 while it was above Rs 70,000 in the 49 groups in Tupche. The average size of group savings in Anandaban was Rs 1,780 while it was Rs 3,857 in Tupche. The average group savings of successful groups in Anandaban was Rs 1,400, while the average group savings of successful groups in Tupche was Rs 6,650. The average group savings of unsuccessful groups in Anandaban was Rs 2,160 while it was Rs 1,163 in Tupche. The amount of savings depends on the time since the group was formed, the size of the savings made each month and the number of members in the group.

The characteristics of the successful groups with regard to group savings in both places include: 1) continuous group saving by all members of the group without interruption; and 2) good management of the saving funds by the treasurer and the group leader. The unsuccessful groups do not deposit the savings every month. In most
cases, the group leader or the treasurer are dominant and they use group savings for their own purposes. Other members are often afraid to question leader's actions.

4. **Intergroup Production Activities**

If a project is not feasible by one group, because of the large capital investment and labor requirement, many groups can unite and decide to undertake the project. A twenty loom, handloom project in Tupche is an example of this type of activity. Seven successful groups are undertaking this project which employs 50 persons. It is governed by a board of directors elected from all seven groups and managed by hired managers. The majority of the investment is done through borrowings from SFDP on joint liability to all the members of the seven groups. Drinking water and irrigation water projects, reforestation and soil and water conservation projects are some other inter-group projects taken by the SFDP participant farmers.

5. **Social Activities Taken by the Group**

SFDP encourages participant farmers in areas such as family planning, health care and nutrition, sanitation, adult education and farmer training. Many group members have taken part in these activities. In each group one or two farmers are trained in agronomy, horticulture, cottage industries, animal husbandry and animal health.
Training in these fields has helped farmers increase their income. Festivals and marriages are very expensive in Nepal. SFDP encourages farmers to spend less on these activities and many groups have followed this procedure. Some successful group members in Tupche have celebrated traditional rituals in groups which has reduced costs significantly. Marriages between sons and daughters of group members have also taken place with little expenditure. Small farmer groups have united and worked together to construct homes. All these types of activities have taken place in successful groups in both places.

Group Exit and Entry

None of the members of any group studied has dropped out of the group. One group member from the SFDP in the Tupche area was forced to quit the SFDP because he had underreported his income and was not a qualified small farmer. In Anandaban one entire group disintegrated because all members of the group decided to sell their land and migrate to another district.

When new group formation was halted by SFDP, other small farmers wanted to join successful groups. Most of the successful groups in Tupche initially started with a membership of ten. They have added new members over time and have already reached the maximum membership of 25 members. Successful groups in Anandaban were formed
at the creation of the SFDP and they have not permitted any new members to join their group.

Repayment of the Loans

The project chiefs in Anandaban and Tupche defined successful and unsuccessful groups on the basis of the repayment performance and the number of groups and individual activities taken by the group. The comparison between a successful and an unsuccessful group in Anandaban is given in Table IV-1. Successful groups have taken higher amounts of money and their default rate is a little over seven percent. Unsuccessful groups have taken smaller amounts of money and their default rate is more than 50 percent.

| TABLE IV-1: Repayment Performance of Successful Groups and Unsuccessful Groups in Anandaban |
|---------------------------------------------|-----------------|-----------------|
|                                          | Outstanding Loan | Amount Yet to Mature | Amount in Arrears |
|                                          | Rs               | Rs               | Rs               |
| Successful groups                        | 48,107           | 44,651           | 3,456            |
|                                          | *(100)            | (92.8)           | (7.2)            |
| Unsuccessful groups                      | 21,367           | 10,378           | 10,987           |
|                                          | (100)            | (48.6)           | (51.4)           |

Source: SFDP Anandaban.

Exchange Rate: U.S. $1 = Rs 12.

* Figures in the parentheses indicate percentages of the first column.
Groups gave various reasons for their delay in loan repayment. The following are the main reasons: 1) crop failure or the death of the animal on which the borrowed funds were used; 2) sickness or death in the farmer's family; 3) unrealistic repayment schedules followed by SFDP for animal purchase loans; 4) the marketing problem of dairy products; 5) small farmers do not produce sufficient food. By using credit, they have been able to increase yields but increased yields are not sufficient to satisfy consumption needs. Thus, consumption needs were more pressing than the need to repay loans. As one farmer put it, "I used to produce food for 6 months previously. Now I grow food for 9 months. I am eating better, but have not been able to repay the loan."

6) Old debts which were borrowed from money lenders cost more, so they are repaid first.

Advantages of SFDP

The group members interviewed felt the following were the advantages of SFDP: 1) Many government officials and other persons are visiting their area. Previously, farmers used to be shy in speaking. Now they are not shy. They can go to the district headquarters and demand the services which they need. They go to cooperatives and demand better prices for their products. In Tupche, even
the village chairman is a small farmer. Small farmers have gained political power by electing the local officials from the group. Thus, there is leadership development.

2) Farmers responded that their income has risen and they are better off than before the project was started.

3) Farmers have hopes that through joint action they will be able to undertake new and larger projects and execute them efficiently.

Disadvantages of SFDP

Group farmers gave the following disadvantages of SFDP: 1) loss of freedom to make their own decisions; 2) the amount of loans provided by SFDP was as little as one-tenth of the value of the property which they pledged as collateral. They expect a loan of at least 50 percent the value of the property used as collateral.

Summary

Availability of credit was the main factor which motivated farmers to form informal groups. However, most successful groups have realized other advantages of groups that less successful groups have not. Most successful groups have taken individual and group production activities and participated in social programs. They have strong, dedicated and active leaders. The decisions are made by democratic process. The successful groups hold
group meetings and collect savings regularly. The least successful groups have taken only individual production activities. They have dominant group leaders who make decisions for the entire group. The group meetings and collection of savings are irregular. Most of the time, the savings of the least successful groups are utilized by the group leaders themselves.

Case Study of Two SFDP Project Chiefs

The person in charge of an SFDP project area is known as group organizer/action-cum research fellow and his title is Project Chief (PC). The activities of two PCs are described below.

1. Organize groups after conducting area and household surveys.

2. Evaluate loan demand application forms and give recommendations to the loan sanction committee. This committee is composed of the cooperative manager, the chairman of the board of directors of the cooperative and the project chief himself as the chairman.

3. Supervise the loans.

4. Coordinate between SFDP and the local level coordination committee.

5. Serve as a member of the district level SFDP coordination committee which is composed of
all the government and semi-government agencies working on rural development.

6. Conduct evaluation of the project at the local level.

7. Give advice and guidance to the group members.

8. Organize farm visits and train farmers.

9. Provide information to higher authorities and visitors.

10. Coordinate between the line agencies who provide services and the farmers who receive them.

To perform these duties, PCs also have to work as leaders in the village. The roles of village leader include mediating disputes among the farmers and giving advice to individual farmers on their personal problems. Both the PCs studied indicated that they have to spend about 40 percent of their time to perform the roles of a village leader. About 30 percent of their time was spent on the coordination of the line agencies and the farmers. Only 30 percent of their time was presently being used for lending business.

Background and Training

The PC at Anandaban is an agricultural graduate who worked as a loan officer in ADB for more than three years. His previous job was to make farm plans, evaluate loan
applications and make recommendations, supervise the loans and provide technical information to the farmers. Before joining SFDP he was given one week of orientation in one of the SFDP projects in Nepal.

The PC in Tupche worked as a junior technician in the Department of Agriculture for 20 years. He is a graduate in humanities and social science and also has training in agricultural extension. At the start of the SFDP program he was borrowed by ADB from the Department of Agriculture to organize SFDP because he was one of the finest middle level agricultural extension agents in the country. His previous job was to provide agricultural information to the farmers through group meetings and discussions, to do farm visits, give various demonstrations, organize farmers training and take farm problems to research centers. He has no previous banking or SFDP experience. There was no SFDP program in Nepal when he joined SFDP so he could not receive any orientation. He started the SFDP project and his sole source of information was an SFDP manual prepared by ADB.

Site Selection

Anandaban and Tupche panchayats were selected as SFDP program sites by the policy makers in Kathmandu without any local feasibility studies. But the general guidelines for new sites include: 1) representation of hill and
Tarai agriculture. Anandaban represents Tarai and Tupche represents hill agriculture; 2) the area selected had large numbers of small farmers. About 98 percent of the total farm households in Tupche are classified as small farmers, whereas in Anandaban, about 82 percent of the total farm households are small farmers; 3) situated in accessible districts for easy delivery of the services; 4) Tupche was also selected on the basis of the presence of an ongoing integrated rural development program which was financed by the World Bank. Anandaban was not included in any rural development project at the beginning of SFDP.

Procedures Followed in Starting an SFDP Project

In both places, PCs spent about three weeks at the beginning of the project to study local agriculture and conduct an area survey. Later, a household survey of each farmer was conducted to determine potential participants. At first, the target group was determined on the basis of the size of holdings which later on was changed to per capita income. Any farm family which has less than Rs 950 per capita income per year was considered as a small farmer and hence was included in the target group. PCs in each location organized small farmer meetings, visited the house of each farmer and pointed out the advantages of the small farmers group and encouraged farmers to form
groups. At first, both the PCs admit that they were not well received by small farmers and they had to use village elites to help induce group formation. In both places, village money lenders discouraged the farmers from forming groups and some of the groups formed later disintegrated. A few groups were given credit immediately to discourage disintegration. Some were given credit within 24 hours of group formation.

Loans were used to purchase animals. Traditionally, small farmers borrowed animals from landlords and money lenders when they did not have their own animals or funds. Animals play a vital role in Nepalese agriculture. A cow is considered a sacred animal. It provides milk and also manure for fertilizer. Bullocks are used as draft animals. Goats are used as milk and meat animals. Buffaloes are used for milk, meat and draft purpose. The extent of the SFDP loans provided for animal purchase is shown in Table IV-2, which indicates the importance of the animals in Nepalese agriculture as well.

Since the start of the project in April, 1980, forty-five groups were formed in Tupche, whereas 61 groups were formed in Anandaban. No new groups are being formed at present. If a group decides to include a new member in the existing group, it is allowed in both the places. The cost of group formation cannot be assessed because the groups were formed in a period of three to four years.
TABLE IV-2: Percent of Total SFDP Loans Used for Animal Purchase in Anandaban and Tupche (1975-79)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Anandaban</th>
<th>Tupche</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-76</td>
<td>N.A.</td>
<td>93</td>
</tr>
<tr>
<td>1976-77</td>
<td>73</td>
<td>88</td>
</tr>
<tr>
<td>1977-78</td>
<td>75</td>
<td>73</td>
</tr>
<tr>
<td>1978-79</td>
<td>76</td>
<td>63</td>
</tr>
</tbody>
</table>

(in percentage)

Source: Field survey data.

N.A.: The SFDP program in Anandaban was started only in the fiscal year 1976-77.

Coordination

The local coordination committee is composed of the PC, the chairman of the local village panchayat, three members or leaders of active informal groups, one progressive ward member and the Sajha manager. The local coordination committee in Tupche was reported to be an excellent body. This was attributed to the heavy involvement of the chairman of the panchayat. He is a small farmer himself and works in SFDP programs enthusiastically. In Anandaban, the chairman of the panchayat is a big farmer and had been barred from participating in SFDP. He does not take any initiative for SFDP and is unavailable when his services are needed. The coordination committee there
is functioning only because of the personal relationship of the PC with other local elites.

Both the PCs have problems in meeting the needs of small farmers through district level coordination committees. Most of the officers of district level government and semi-government agencies are members of the coordinating committee. The agricultural development officer is its coordinator. All the member officers have to look over the whole district which consists of more than 25 panchayats. SFDP in both districts covers only two panchayats each. Providing necessary services with limited man-power and infrastructure has been a very serious impediment for SFDP activities. Due to heavy workloads, monthly meetings of SFDP coordination committees cannot be arranged on short notice. Many members of the coordination committee, in both places, do not attend the meetings and thorough discussions of SFDP problems facing each department are not held.

In both areas it was reported that the members of the coordination committee had little incentive to support SFDP activities. They were not pushed by their ministries to help SFDP. The SFDP program is new for them and they do not know much about it. Both project chiefs believe that members of coordination committees should be directed to participate in SFDP by their
ministries, and that they should be instructed about the program through short courses. It was also suggested that they should be paid for their participation in the meetings. At present, both PCs were getting coordination only through personal contact and personal relationship with individual members.

A national level coordination committee for SFDP is composed of the secretaries in various ministries. It is the policy making body for SFDP. Both the PCs believe that participation of some of the PCs in the national coordination committee meetings may result in better policy decisions.

Staffing

Most SFDP project areas have four staff members. In addition to the PC, there is one loan assistant who is an agricultural technician, an accountant and a messenger. In Tupche, there was difficulty in loan supervision because only one loan assistant was in the office. There is no easy transportation system to go to each farmer's door. Sometimes a group is located at a distance of several miles which takes a full day of trekking to reach. Thus, the PC and/or loan assistant may only visit the group once a year. In Anandaban, loan supervision was comparatively easy in the dry season because the PC and/or loan assistant can reach each group farmer by motorcycle.
agents. The agricultural extension agent is a full-time Department of Agriculture employee who is responsible for providing agricultural know-how to the villagers. There are also some agricultural assistants who are trained progressive farmers who work with agricultural extension agents as part-time employees of the Department of Agriculture. These people are responsible for carrying out the programs of their respective departments. SFDP does not have any control over their services. Both the PCs feel that there is a duplication in the services provided by the Department of Agriculture and SFDP with respect to agricultural extension. Close ties of these agents to SFDP increases the quality of extension services.

Repayment of the Loan

The default rate at Anandaban was 2.7 percent and in Tupche it was 31.9 percent. Both the PCs on the other hand feel that all of the amounts which are in arrears are collectable. They give the following suggestions for improving the repayment of the loan.

1. Farmers need production as well as consumption loans. Insisting on production loans compels small farmers to seek consumption loans from informal sources at a higher rate of interest than SFDP's rate of interest. At the time of repayment, farmers repay informal
loans first. Meeting all credit needs of borrowers will change this and improve repayment.

2. The law specifies that defaulters on loans borrowed from ADB are treated the same as defaulters on tax payments. In both places, however, the court process is very long and it is difficult to force repayment. ADB itself has a policy of increasing interest rates as penalty on the loans which are in arrears but this is seldom done. Thus, the farmers think that a lag in the repayment of a loan does not harm them personally. It is necessary to increase the penalty of not paying institutional credit to induce timely repayment.

3. According to the policies of ADB and SFDIP, the length of the loan is decided on the basis of the purpose of the loan. The interest rate is also charged on the basis of the purpose of the loan. For example, animal purchase loans are granted for three years and carry an eleven percent interest annually. Three years of time for repayment is given on the assumption that an animal pays its cost in three production
years. But, in most of the cases, farmers do not buy a mature animal. Both the PCs note that the majority of the loans are given for animal purchase and that a majority of the defaults are also in animal purchase loans. More realistic loan scheduling may increase loan repayment.

4. Support services for animal health in the rural areas are poor. Animals often die prematurely. Both PCs believe that effective support service in animal health will increase the repayment of the loan.

5. According to the practices followed, no new loans are given before repayment of old loans. If the loan repayment is delayed due to death of an animal or failure of the crop, rescheduling of these loans for a long period and providing loans for short-term purpose will increase the income of the farmer and his repayment capacity. Both the PCs felt this procedure would increase loan repayment.
CHAPTER V

METHODOLOGY AND DESCRIPTION OF VARIABLES

This chapter is divided into two sections. The first section describes the statistical methods used in the analysis. The second section describes the variables used.

Methodology

An objective of this study is to compare the loan transaction costs of different kinds of borrowers and lenders and the level of technological adoption among different kinds of borrowers. The study includes a random sample of SFDP participant borrowers and non-participant informal borrowers in two different SFDP project areas. These samples are used to analyze the borrowing costs and the level of adoption of new technology by different types of borrowers. The lender's cost of transaction is estimated through the collection of actual costs incurred by the lenders as well as some assumed costs. For the analysis of the data, two different approaches are pursued which are described as follows.
Descriptive Analysis

The formal lender's cost of transaction was obtained from the expenses incurred by SFDP in two different places. Informal lender's costs were estimated using conservative assumptions about the opportunity costs of capital and expected minimum profit required for the informal money lenders. The project sites were selected purposively. The number of money lenders interviewed in each place was limited to only two persons. Thus, the sample is extremely small. Application of any statistical tests is not feasible for such small samples, so the cost of lending and repayment performance is analyzed solely on the basis of descriptive analysis.

Statistical Analysis

A major emphasis of this study is to differentiate between mean values of several variables obtained from the studies of different types of borrowers. To test the difference between two sample means the hypothesis may be stated in one of two forms: 1) The two populations have the same means but different variances; and 2) the two populations have the same means and the same variances; that is, the populations are essentially the same. Since the samples have been drawn from small farmers, it is assumed that the two populations have the same means and same variances. The variance of the population is unknown
and it has to be estimated through sample variance. The two population means can be differentiated either by a z-test or by a t-test. The normal distribution of z and t-distribution are approximately the same in large samples. But, if the sample is small, the t-distribution is more reliable and is preferred.

To find the difference between two mean values by the t-test, the null and alternative hypotheses can be stated as follows:

Null hypothesis \( H_0: \mu_1 - \mu_2 = D_0 \)

Alternative hypothesis \( H_a: \mu_1 - \mu_2 > D_0 \)

\( \mu_1 - \mu_2 < D_0 \)

\( \mu_1 - \mu_2 \neq D_0 \)

where \( \mu_1 \) = mean value of population 1;

\( \mu_2 \) = mean value of population 2; and

\( D_0 \) = any specified value which can be zero.

If the alternative hypothesis is stated either greater than or less than, then a one tail test is performed. If the alternative hypothesis is stated as not equal, then a two tail test is performed. The general formula for a t-test is as follows (Shao, 1972).
\[ t = \frac{\bar{x}_1 - \bar{x}_2 - D_0}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \]

and \[ s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}} \]

where \( n_1 \) = size of sample 1.
\( n_2 \) = size of sample 2.
\( s \) = the combined standard deviation of sample 1 and sample 2.
\( s_1^2 \) = variance of sample 1.
\( s_2^2 \) = variance of sample 2.
\( \bar{x}_1 \) = mean value of sample 1.
\( \bar{x}_2 \) = mean value of sample 2.

The decision is made by comparing the calculated t-value with the value of t obtained from a t-distribution table at \( n_1 + n_2 - 2 \) degrees of freedom. If the calculated t-value is within the table t-value the null hypothesis is accepted and if it falls beyond the table t-value, the null hypothesis is rejected.

Description of Variables

Cost of Borrowing

Cost of borrowing include the following: 1) interest costs; 2) travel cost to visit the lender in negotiating and repayment of the loan; 3) opportunity costs of the
work days lost in loan negotiation and repayment; 4) service charges associated with the loan such as application fee, land mortgage fee; and 5) gifts, bribes, labor and other miscellaneous charges which a borrower pays in acquiring the loan. Each of these costs were calculated as follows.

1. **Interest Cost**

   Interest is the payment made for the use of capital. The amount of interest paid varies from loan to loan depending upon size of loan, length of loan and the rate of interest. In this study, interest costs for each loan were calculated by weighting the size of the loan by length of loan and multiplying by the rate of the interest on that particular loan. Weighting size of the loan with length of loan was necessary to give uniformity in calculation. However, some of the loans borrowed from informal sources did not have fixed length. In those cases, the loans were treated as one year loans.

2. **Travel Cost**

   Travel cost is defined as the expenses incurred to visit the lender in the negotiation and repayment of the loan. It includes transportation expenses as well as food expenses incurred while negotiating the loan.
3. **Opportunity Cost of Work Days Used in Loan Negotiation and Repayment**

Each farmer was asked to provide information about the number of days he used in the loan negotiation and repayment process. Information about whether there was work in the farm or not, whether the work days lost were only for loan negotiation and repayment or shared with other activities was also obtained. If there was no work on the farm, the opportunity cost of the loan negotiation and repayment was considered as zero. The cost of leisure was assumed to be insignificant because Nepalese farmers do not have work on their farm for one-third of the working days in a year. But, if there was work that needed to be done on the farm and the time was not shared with other activities except loan negotiation and repayment, the number of work days lost was multiplied by the prevailing wage rate which might have been paid to others to perform the work to obtain the opportunity cost. If the loan negotiation time was shared with other activities, the amount of time shared was deducted from the total work time lost. This was multiplied by the expected wage rate to obtain the opportunity cost.

In the case of group farmers, they attended group meetings each month. It was assumed that each meeting lasted for two hours and that the total number of work hours lost in one year was considered to be three working
days. The opportunity cost of these three work days was added to the cost of each loan. About sixteen percent of the group members were non-borrowers from SFDP in a particular year. But, all members of the informal groups had to go to SFDP to apply for the loan and sign promissory notes if some members were borrowing. Thus, one-sixth of the cost incurred by other group members in attending meetings was also added to each loan.

4. **Service Charge**

This type of cost includes the application fee, land mortgage fee if land is provided as a collateral, and the fee for the evaluation of the plan and property by the lender. In both the areas of study no service charge expense was reported. Thus, this cost was zero.

5. **Gifts, Bribes, Labor and Other Miscellaneous Expenses**

In formal borrowing, bribes may be involved. Sometimes bribes are also given as gifts. No gift or bribe was reported in either study site. In informal borrowing, labor and gifts are a major expense. Generally, the lenders are large landowners and at the time of transplant and harvest, they require labor services from their borrowers. On the other hand, when loans are made for animal purchases, a certain amount is discounted or a verbal agreement for supplying a fixed amount of ghee
(clarified butter) is made. The borrowers pay according to the contract. The cost of these different types of expenses is included in this category.

The total costs of borrowing for each loan was obtained by summing all the above described cost. The total cost of each loan was divided by the weighted size of the loan and multiplied by a hundred to find the per Rupee cost of borrowing for each loan per year. The mean value of each category of farmers group was calculated for use in further analysis.

Cost of Lending

The cost of lending includes: the cost of administration, expenses to supervise and collect the loan, the cost of obtaining the loanable funds, the cost associated with default, and the profit required to pay the owners of capital lent. Each of the costs is described in detail as follows.

1. **The Cost of Administration, Supervision and Collection of the Loan**

   For the administration, supervision, and collection of the loan, SFDP has to incur two types of expenses. First, SFDP maintains its own offices and staff to motivate the farmers to borrow and to supervise the loans, as well as for providing technical advice. Also, it channels the loans through local cooperatives and pays a
margin to the cooperative. The interest rate charged by ADB/N to cooperatives, and corporate bodies and individuals is given in Table V-1. As mentioned earlier, cooperatives get a margin of four percent on all their loans except those for special projects.

The expenses incurred by SFDP for its own office and staff have to be divided not only for loan administration, supervision and collection, but also coordinating functions that are done to provide other services to farmers. As explained in Chapter IV, the project chiefs respond that 40 percent of their time is spent in working with other line agencies. Another 30 percent of their time is spent in working as a village leader and the remaining 30 percent is spent on actual loan administration, supervision and collection. However, other staff members are devoted to loan administration, supervision and collection activities. Coordination and the role of village leader, on the other hand, also result in better repayment and loan utilization. Without any detailed study, it is very difficult to determine the exact expenses for loan administration, supervision and collection.

SFDP incurs two types of expenses, namely, current expenses and expenses on durable goods such as furniture, office equipment which is depreciated over a number of years. Current expenses include salaries and supplies.
TABLE V-1: Interest Rates Charged by ADB/N on Loans to Corporate Bodies, Individuals, and Cooperatives

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Corporate Bodies and Individuals</th>
<th>Cooperatives</th>
<th>Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Special projects (storage and biogas projects)</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2. Horticulture</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3. Livestock, poultry, fisheries, apiculture and sericulture</td>
<td>11</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>4. Agrobased industries</td>
<td>11</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>5. Other agricultural loans</td>
<td>14</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>6. Overdue loans</td>
<td>As fixed by the bank</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Current expenses also may help in creating goodwill and can be treated as investment. Taking into consideration all of these factors, it is assumed that 30 percent of yearly budget expenses are attributed to the loans made for the year. This is the same percentage of time that SFDP people reported using in loan activities.

Money lenders make loans without any written contract. Money lending is not a full-time job. Informal lenders don't supervise loans and they don't make any significant extra effort to collect most loans. Most of the loan administration, supervision and collection takes place informally and at the end of work. Therefore, the loan administration, supervision and collection cost of the money lenders is assumed to be insignificant in this study.

2. The Cost of Obtaining Loanable Funds

The main sources of funds for ADB/N are government appropriations, borrowed funds from the Asian Development Bank and loans and grants obtained from other international agencies. ADB/N also utilizes the funds collected earlier from a compulsory saving scheme in Nepal. It currently does not mobilize savings. Being a development bank there is no cost on government appropriations. It pays less than two percent service charge for the funds borrowed from the Asian Development Bank. It pays a nominal interest of five percent on the funds obtained from the
compulsory saving scheme. The volume of funds coming from different sources varies widely but the majority of the funds come from the sources where the cost is very little. But, diversion of public funds to lend to small farmers has an opportunity cost to the society which is included in the profit required to pay to the owners of the capital. It is assumed that ADB's average cost for obtaining loanable funds is two percent.

The money lenders reported that they make loans entirely from their own savings. The best method to find the cost of these owned funds is to estimate the opportunity cost of capital which depends on alternative investment possibilities, expected income from these alternative investment possibilities, gestation period, and the risk factor. In some studies the opportunity cost of capital for money lenders in India is reported to be at least 50 percent of the interest charged (Singh, 1968) to the borrowers. In this study, the opportunity cost of capital for money lenders is assumed to be in a range of 12 percent and half of the average rate of interest charged in a particular place. Twelve percent is the annual interest rate paid by commercial banks on fixed deposit. Half of the average rate of interest is charged as opportunity cost based on the studies in India (Singh, 1968).
3. The Cost Associated with Default

There are different measures used in the measurement of the default rate. The Agricultural Development Bank of Nepal reports default as the percentage of the portfolio which is in arrears and uses the following formula for default rate calculation:

\[ Q_n = \frac{\Sigma A_n}{\Sigma P_n} \]

where \( Q_n \) = the proportion of portfolio in arrears in the period \( n \).

\( \Sigma A_n \) = the amount in arrears at the close of period \( n \).

\( \Sigma P_n \) = the size of the total loan portfolio at the close of period \( n \).

If the volume of loan made by the lender is large in one period and small in another, this measure does not provide accurate default rate information. In the formula, the denominator, \( \Sigma P_n \) accounts not only for the matured loans which are not paid back, but also the current loans which have not yet matured. If the volume of lending is increasing, this measure indicates lower default rates than the actual rate, since \( \Sigma P_n \) is increasing. Other measures used in the repayment performance include collection ratios, aging of arrears, average collection period,
the proportion of borrowers meeting repayment obligations and repayment indexes (Von Pischke, 1977). Due to its simplicity, the percentage of the portfolio which is in arrears is used widely in development banks and default is measured by this method in this study. SFDP in Anandaban has a default rate of 2.7 percent, whereas in SFDP in Tupche the default rate was reported to be 31.9 percent. The cost associated with default is calculated on the basis of the above percentages for SFDP. Money lenders interviewed reported that they did not have default. So their cost of default is assumed to be zero even though other money lenders may have some default.

4. The Profit Required to Pay Owners of Capital

Most of the equity capital of ADB is provided by the government and the central bank which also directs ADB to finance agriculture. There is an opportunity cost of capital to the society when public funds are used to finance agriculture. The profit required to pay for the use of public funds can be estimated through the calculation of the opportunity cost of capital. The rate of return from different public projects must be known for estimation of the opportunity cost of capital. No such estimate is available. Thus, a conservative estimate of 5 to 10 percent is assumed to be the social opportunity
cost and, hence, the profit required for payment for the use of public funds.

For the money lenders, the motive of lending money is to earn a profit. It is very difficult to define what is the proper profit which should be paid to a particular entrepreneur. As the risk increases, income should also increase. Here it is assumed that the proper amount of profit is 10 percent of the money lender's investments.

Level of Adoption of Innovations

It is hypothesized that group borrowers adopt more innovations than other types of borrowers. To test this hypothesis, the farmers were asked about the types of crops they grew and the types of animals they raised. Use of improved varieties of crops and improved breeds of animals are considered to be innovations. In addition, fertilizer and insecticide use were also considered good measures of the level of adoption of new technology. The quantification of these variables was done as described below.

1. **Crops**

   Farmers were asked to provide information about major crops they grew and varieties used. If at least one improved variety of a particular crop was cultivated by the farmer, he was considered to have adopted a new
technology. On the other hand, those farmers who did not grow improved varieties in any crop were considered to be traditional cultivators. The mean values of the number of major crops grown and their improved varieties by SFDP participant farmers and informal borrowers are used in the comparison between SFDP borrowers and informal borrowers.

2. **Livestock**

Nepalese farmers raise different kinds of livestock along with crops. The level of adoption of new technology in this case is measured through types of livestock raised and their improved breeds. The procedure followed in the measurement of the level of technology in crops was used in livestock.

3. **Fertilizer**

Group borrowers as well as informal borrowers were asked about the amount of fertilizers they used in the last year. The amounts were reported in kilograms. By dividing total amount of fertilizer used by the size of operation, the average number of kilograms of fertilizer per hectare for each farmer was calculated. The mean value of fertilizer use for each group of farmers was used for comparison purposes.
4. **Insecticides**

Although farmers buy insecticides by containers, it was observed that one container was shared between two farmers on many occasions, so the measure used in this study is the expenditure. Farmers were asked to report their expenses in insecticide in the last year. The reported expense was divided by the size of operation to find per hectare expenses for insecticide. The mean value of each type of farmer's group was calculated for comparison.
CHAPTER VI

ANALYSIS OF DATA

In this chapter the hypotheses presented in the first chapter will be tested with the data gathered in the field interviews. The first section presents the data on cost of borrowing for different types of borrowers. The second section presents a comparison of the cost of lending among different lenders followed by the default rates by different types of borrowers. The last section describes the level of technological adoption by different types of borrowers.

The Cost of Borrowing

The borrowing costs of Anandaban and Tupche farmers is described separately as follows.

Anandaban

Table VI-1 describes the loans received by 30 SFDP participants and 8 non-participant informal borrower farmers in Anandaban. The participant farmers borrowed 19 formal and 11 informal loans in the period April 15, 1979 to April 14, 1980. The average number of loans per farmers
TABLE VI-1: Loan Description of 30 SFDP Participant and 8 Non-Participant Farmers in Anandaban (1979-80)

<table>
<thead>
<tr>
<th></th>
<th>Thirty Participant Farmers</th>
<th>Eight Non-Participant Farmers Informal Loans Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formal Loans</td>
<td>Informal Loans</td>
</tr>
<tr>
<td>Number of loans reported</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Average size of the loan (Rs)</td>
<td>1,680</td>
<td>1,667</td>
</tr>
<tr>
<td>Average length of the loan (months)</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>Weighted average size of loan by</td>
<td>4,441</td>
<td>2,233</td>
</tr>
<tr>
<td>length in years (Rs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average interest rate (% per year)</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Average total cost/loan (Rs)</td>
<td>603</td>
<td>686</td>
</tr>
<tr>
<td>Average cost/Rs loan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(percent/year)</td>
<td>28</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>(26.33)*</td>
<td>(17.88)*</td>
</tr>
</tbody>
</table>

Source: Field survey data.

* Figures in the parentheses give sample standard deviations.
is one.Eight informal borrowers, on the other hand, borrowed 12 loans which makes an average of 1.5 loans per farmer. The average size of the loans borrowed by SFDP participant farmers from SFDP was Rs 1,680. They also borrowed from informal sources where the average size of the loan was Rs 1,667. Informal loans borrowed by non-participant farmers had an average size of Rs 725. The average length of formal loans borrowed by SFDP participant farmers was 23 months. If SFDP participant farmers borrowed from informal sources the average length of the loan was 14 months. Non-participant farmers borrowed loans only from informal sources. The average length of these loans was only 7 months. The weighted average size of the loan of Rs 4,441, Rs 2,233 and Rs 465 was obtained by multiplying the size of the loan by duration in years and taking a mean value of all loans. The average rate of interest charged by SFDP to its borrowers was 13 percent per year. Informal sources charged an average interest rate of 30 percent per year to SFDP participant farmers and 49 percent per year to non-participant farmers.

Total costs of each loan was obtained by adding total interest cost, negotiation and repayment costs, travel costs, labor, gifts, bribes and other miscellaneous costs incurred by the borrower while receiving the loan. Average
total cost per loan for SFDP participant farmers was Rs 603, for participant farmers who borrowed from informal sources it was Rs 686 and for informal borrowers it was Rs 213. When total costs were divided by weighted size of each loan per Rs, the cost of borrowing per year was obtained. The average per Rs cost of borrowing for SFDP participant farmers was 28 percent per year if they borrowed from SFDP. If the loan was borrowed from informal sources the average per Rs cost of borrowing was 33 percent. For non-participant farmers who borrowed from informal sources average per Rs cost of borrowing was 56 percent annually.

The comparison among the costs of borrowing for different types of borrowers was done by using the above mentioned average per Rs cost of borrowing figures. The null hypothesis was stated as there is no difference between the average per Rs cost of borrowing per year for SFDP participant farmers who borrowed from SFDP, and SFDP participant farmers who borrowed from informal sources. The alternative hypothesis is stated as there is a difference between the average per Rs cost of borrowing per year for the above mentioned types of borrowers. The same types of null and alternative hypotheses were also stated between SFDP participant farmers borrowing from SFDP and non-participant farmers borrowing from informal sources, and SFDP participant farmers borrowing
from informal sources. A two-tailed t-test at 95 percent level of confidence interval and $n_1 + n_2 - 2$ degrees of freedom was applied to test these hypotheses. The results of these tests are given in Table VI-2.

In all three cases, as shown in Table VI-2, the null hypothesis is accepted. So it is concluded that there is no significant statistical difference between the costs of borrowing from SFDP or informal sources for SFDP participant and non-participant small farmer borrowers.

Tupche

The description of the loans borrowed by 32 SFDP participants and 8 informal borrowers in Tupche is given in Table VI-3. Thirty-two SFDP participant farmers borrowed 24 formal loans and 19 informal loans. Eight informal borrowers received 16 informal loans. The average SFDP participant farmers had 1.3 loans and the average informal borrower had 2 loans. The average size of the formal loans borrowed by SFDP participant farmers was Rs 529. The informal loans borrowed by the participant farmers had an average size of Rs 997. The informal loans borrowed by non-participant borrowers had an average size of Rs 625. Formal loans provided by SFDP had an average length of 16 months. Informal loans borrowed by SFDP participant farmers and informal borrowers had an average length of 10 months (some loans were unspecified
**TABLE VI-2:** The Results of the t-test Applied to Test Significance of Differences Among the Borrowing Costs of Different Types of Borrowers in Anandaban

<table>
<thead>
<tr>
<th></th>
<th>Calculated $</th>
<th>t$-value$</th>
<th>Table $t$-value at $n_1+n_2-2$ Degrees of Freedom</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant farmers formal and informal loans</td>
<td>0.5577</td>
<td>2.048</td>
<td>Accept $H_0$</td>
<td></td>
</tr>
<tr>
<td>Formal loans for participant farmers and informal loans for non-participant farmers</td>
<td>1.2366</td>
<td>2.045</td>
<td>Accept $H_0$</td>
<td></td>
</tr>
<tr>
<td>Informal loans for participant farmers and informal loans for non-participant farmers</td>
<td>1.7520</td>
<td>2.080</td>
<td>Accept $H_0$</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Analysis of the field data.*
<table>
<thead>
<tr>
<th></th>
<th>Thirty-Two Participant Farmers</th>
<th>Eight Non-Participant Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formal Loans</td>
<td>Informal Loans</td>
</tr>
<tr>
<td>Number of loans reported</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Average size of the loan (Rs)</td>
<td>529</td>
<td>997</td>
</tr>
<tr>
<td>Average length of the loan (months)</td>
<td>16</td>
<td>10*</td>
</tr>
<tr>
<td>Weighted average size of the loans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>by the length in years (Rs)</td>
<td>1,218</td>
<td>832</td>
</tr>
<tr>
<td>Average interest rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(percent per year)</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>Average total cost/loan (Rs)</td>
<td>188</td>
<td>465</td>
</tr>
<tr>
<td>Average cost/Rs of borrowing/loan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(percent per year)</td>
<td>57 (70.45)**</td>
<td>58 (31.12)</td>
</tr>
</tbody>
</table>

Source: Field data collection.

* Some loans were unspecified in length and are treated as one year long loans.

** Figures in the parentheses give sample standard deviation.
in length and were treated as one year long loans). The weighted average size of the loans by the length of the loans in years for SFDP loans was Rs 1,218, for informal loans borrowed by SFDP farmers it was Rs 832 and for informal loans borrowed by informal borrowers it was Rs 740. The average interest rate charged by SFDP was 13 percent per year. Informal lenders charged SFDP borrowers an average rate of interest of 50 percent annually for the loans they made. On the other hand, informal lenders charged only an average rate of interest of 38 percent to informal borrowers. This is lower than charged to participant farmers. As described in Chapter IV, local money lenders at Tupche were transferring their loanable funds to cities and investing in lucrative businesses such as construction contracts. Also, economic hostility between money lenders and SFDP participant farmers had increased. This might have resulted in higher rates of interest charged to SFDP participant farmers by money lenders than to informal borrowers.

The average total cost per loan for SFDP borrowers was Rs 188. For SFDP farmers who borrowed from informal sources average total cost per loan was Rs 465, while for informal borrowers who borrowed only from informal sources the average total cost per loan was Rs 276. The average cost of borrowing a loan of one unit of money for a period
of one year from SFDP by participant farmers was 57 percent. When a participant farmers borrows from informal sources it is 58 percent and for non-participant farmers it is only 44 percent. However, the sample standard deviations of the borrowing costs on loans borrowed by SFDP farmers is higher than those of other categories of farmers.

The comparison among the costs of borrowing for different types of borrowers was done by using the above mentioned average per Rs costs of borrowing. The null hypothesis was stated as there is no difference between the average per Rs cost of borrowing per year for SFDP participant farmers who borrowed from SFDP and SFDP participant farmers who borrowed from informal sources. The alternative hypothesis is stated as there is a difference between the costs of borrowing among these borrowers. The same types of null and alternative hypotheses were stated in the comparison of other types of borrowers and their borrowing costs. A two-tailed t-test at 95 percent confidence interval and at \( n_1 + n_2 - 2 \) degrees of freedom was conducted to test these hypotheses. The results of the tests are given in Table VI-4. In all three cases, the null hypothesis is accepted. Therefore, it is concluded that there is no significant statistical difference between the costs of borrowing from SFDP or informal sources for SFDP participant and non-participant small farmer borrowers.
TABLE VI-4: The Results of the t-test Applied to Test Significance of Differences Among the Borrowing Costs of Different Types of Borrowers in Tupche

<table>
<thead>
<tr>
<th></th>
<th>Calculated</th>
<th>Table t-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant farmers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>formal and informal loans</td>
<td>0.057</td>
<td>1.96</td>
<td>Accept $H_0$</td>
</tr>
<tr>
<td>Formal loans for participant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>farmers and informal loans</td>
<td>0.6870</td>
<td>1.96</td>
<td>Accept $H_0$</td>
</tr>
<tr>
<td>for non-participant farmers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informal loans for participant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and non-participant farmers</td>
<td>1.2869</td>
<td>1.96</td>
<td>Accept $H_0$</td>
</tr>
</tbody>
</table>

Source: Field data analysis.
Cost of Lending

The cost of lending, as described earlier, includes administration, supervision and collection cost, the cost of obtaining loanable funds, the costs associated with default and the profit required to pay the owners of capital. The cost of lending to SFDP participant farmers in Anandaban and Tupche is presented in Table VI-5. The office expense of 9.2 percent of the value of loans extended at Anandaban and 4 percent at Tupche was obtained by dividing 30 percent of the budget expenses by the volume of the loans made in that particular year. All the loans are dispersed through Sajha and the commission paid to Sajha is 4 percent in both places. At the national level, the cost to ADB of obtaining loanable funds was assumed to be 2 percent by conservative estimates. The same figure is assumed on SFDP loans. Anandaban had a default rate of 2.7 percent and Tupche had a default rate of 31.9 percent. This default rate is considered to be a cost and included as such. Although SFDP uses public funds, there is a social opportunity cost of capital and a social cost should be assigned to the use of this capital. The exact social opportunity cost is not known. So a conservative range of 5 to 10 percent is assumed and included in the cost. Thus, the total cost
### TABLE VI-5: The Cost of Lending to SFDP Borrowers in Anandaban and Tupche (1978-79)

<table>
<thead>
<tr>
<th></th>
<th>Anandaban</th>
<th>Tupche</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Office expenses</td>
<td>9.2</td>
<td>4</td>
</tr>
<tr>
<td>Commission to Sajha</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cost of obtaining loanable funds</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Default rate</td>
<td>2.7</td>
<td>31.9</td>
</tr>
<tr>
<td>Profit required to pay the owners of capital</td>
<td>5-10%</td>
<td>5-10%</td>
</tr>
<tr>
<td>Total Cost</td>
<td>22.9-27.9%</td>
<td>46.9-51.9%</td>
</tr>
</tbody>
</table>

Source: Field data and assumptions made in Chapter V.
of lending in Anandaban varies between 22.9 percent and 27.9 percent, whereas in Tupche it varies between 46.9 to 51.9 percent of the total amount of the loan made. The higher cost in Tupche than in Anandaban is a reflection of the higher default rate in Tupche. These costs ignore inflation which is about 12 percent currently.

The average rate of interest charged on loans by SFDP is 13 percent. If this rate is deducted from the cost of lending, the net loss annually varies between 10 and 15 percent in Anandaban and 34 and 39 percent in Tupche of the value of loans extended. If the inflation rate is included in the costs, the net losses increase by approximately 12 percentage points in each category. The ADB needs to increase the interest rates charged to the borrowers to cover its costs and to preserve the purchasing power of money.

The cost of lending can be decreased by lowering the cost of administration, supervision and collection of the loan. This cost includes the cost of office expenses and the commission given to Sajha. If the amount of loans made is increased without increasing the office expenses the cost also can be lowered. On the other hand, most of the loan administration, supervision and collection is done by SFDP but a commission of 4 percent is given to Sajha. If the whole function was done by SFDP and the
commission was not paid to Sajha, the cost also could be reduced.

The most important cost component in Tupche is the high rate of default. All of the 31.9 percent may not be lost, and some may be recovered later. This high rate of default is a result of several factors. First, large investments in animal purchases have not generated the cash flow needed to repay loans. Many farmers produce milk but are unable to sell it. Also, the length of SFDP loans to small farmers for animal purchase was fixed as three years on the assumption that the income generated from three lactations would be sufficient to repay the loan. Many farmers bought young cows and buffalo which have only one or two lactations within a three year period. As a result, sufficient income has not been generated to pay loans. A second reason for the high default is due to high mortality rates among the animals. Many SFDP farmers are willing to pay for veterinary services, but it is not available. When an animal dies there is no other enterprise to generate the income to repay loans. So, more realistic cash flow estimation and scheduling of the loans, along with strong support services to farmers may reduce the default rate and the cost of lending.
The money lender's loan, administration, supervision and collection costs were assumed to be insignificant. They do not require promissory notes, do not supervise the loan and usually do not have to make special efforts to collect the loans. They do not give any commissions to anybody. They also generally do not have default problems. Thus, the main cost items for money lenders were the cost of obtaining loanable funds plus a profit. Because of lack of saving mobilization and borrowing for lending purposes, the only source of loanable funds to money lenders is their own income and savings. The cost of obtaining loanable funds for owned capital can be estimated by measuring the opportunity cost of capital to the money lenders. In this study, the opportunity cost of capital for money lenders is estimated conservatively. The commercial banks pay 12 percent interest on fixed saving deposits which was assumed to be the low end of the range of the opportunity cost of capital for money-lenders.

The opportunity cost of capital for Indian village money lenders was estimated by Singh (1968) to be 50 percent of the rate of interest charged by the money lenders to their borrowers. Using Singh's results, the money-lenders' opportunity cost of capital at Anandaban was assumed to vary between 15 and 25 percent (50 percent of 30 and 49 percent, the rate of interest charged by money-
lenders to SFDP participant and informal borrowers (Table VI-1). The opportunity cost of capital for money-lenders in Tupche varied between 19 and 25 percent (50 percent of 38 and 50 percent rate of interest charged to informal borrowers and SFDP participant farmers; Table VI-3). The profit required to pay the owners of the capital in both places was assumed to be 10 percent per year. Thus, the total cost of lending to informal money lenders varied between 22 and 35 percent in Anandaban and Tupche. Because of the small sample and many cost items that had to be assumed, the statistical analysis to compared money lenders loan transaction costs and SFDP's loan transaction costs cannot be done. However, the SFDP loan transaction costs at Anandaban varied between 23 and 28 percent, whereas money lenders transaction costs at the same place varied between 22 and 35 percent. The SFDP loan transaction costs at Tupche varied between 47 and 52 percent, whereas money lenders loan transaction costs varied between 22 and 35 percent. These data suggest that SFDP has a higher loan transaction cost than money lenders.

The comparison between the costs and returns for SFDP and money lenders at Anandaban and Tupche is given in Table VI-6. The SFDP at Anandaban experienced a loss ranging between 10 and 15 percent per year while the
**TABLE VI-6: Comparison Between the Cost and Benefit for SFDP and Informal Money Lenders in Anandaban and Tupche**

<table>
<thead>
<tr>
<th></th>
<th>SFDP</th>
<th>Informal Money Lenders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anandaban</td>
<td>Tupche</td>
</tr>
<tr>
<td>Total cost</td>
<td>23-28</td>
<td>47-52</td>
</tr>
<tr>
<td>Average interest rate</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Net loss or gain</td>
<td>(10-15)*</td>
<td>(34-39)*</td>
</tr>
</tbody>
</table>

Source: Field data.

* Figures in the parentheses are net losses.
range of loss for SFDP at Tupche varied between 34 and 39 percent per year. On the other hand, the money-
lenders have a gain of 4 to 17 percent in Anandaban and 9 to 22 percent in Tupche per year.

Default

To test the default rate, the hypothesis is stated that there is less default in group loans than in indi-
vidual mortgage loans due to joint liability. The amount of outstanding loan, overdue amount and the default rate at different levels of SFDP and ADB as a whole for the year 1978-79 are presented in Table VI-7. The outstanding loan amount at Anandaban, Tupche and SFDP nationally are Rs 342, Rs 1,258, Rs 5,579 thousand, respectively. The overdue loan amounts in the same places are Rs 9, Rs 401, and Rs 891 thousand. The rate of default in Anandaban is 2.7 and in Tupche it is 31.9 percent. On the national level which includes all 24 different SFDP projects, the default rate is 16 percent. The ADB national default rate is 27.2 percent.

The national SFDP default rate is only 16 percent while ADB's overall default rate on all its lending is 27.2 percent. The lower SFDP national default rates may or may not be due to joint liability. It is necessary to consider additional factors such as types of borrowers,
TABLE VI-7: The Amount of Outstanding Loan and Overdue Along with the Default Rate at Different Levels of SFDP and ADB as a Whole (1978-79)

<table>
<thead>
<tr>
<th></th>
<th>Outstanding Loan Amount</th>
<th>Overdue Loan Amount</th>
<th>Default Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs '000</td>
<td>Rs '000</td>
<td>Percent</td>
</tr>
<tr>
<td>SFDP in Anandaban</td>
<td>342</td>
<td>9</td>
<td>2.7</td>
</tr>
<tr>
<td>SFDP in Tupche</td>
<td>1,258</td>
<td>401</td>
<td>31.9</td>
</tr>
<tr>
<td>SFDP at national level</td>
<td>5,579</td>
<td>891</td>
<td>16.0</td>
</tr>
<tr>
<td>ADB at national level</td>
<td>425,000</td>
<td>115,700</td>
<td>27.2</td>
</tr>
</tbody>
</table>

purpose of the loan, size of the loan, extent of loan supervision, length and rates of interest and the quality of the support services provided by the lender to the borrower. These factors also affect the repayment of the loan and are discussed individually as follows.

Types of Borrowers

SFDP provides loans to informal groups of small farmers on joint liability whose per capita income is less than Rs 950 annually. On the other hand, ADB provides other loans to all types of farmers on individual liability. About 73 percent of ADBs individual loans are borrowed by big farmers (Adhikari, 1980). ADB also provides loans to corporate bodies who deal with agricultural inputs and processing of agricultural products.

Purpose of the Loan

A majority of the SFDP loans are provided for animal purchase. On the other hand, a majority of ADB individual loans are provided to purchase inputs for cereal and cash crop production.

Size of the Loan

Being small farmers, the borrowing capacity of SFDP borrowers is low. They have little security to offer and thus borrow small amounts. On the other hand, big farmers have more land and other capital assets to secure
the loan and generally borrow relatively large amounts of money.

Length and Interest Rates

The length of loan and the rate of interest charged to both types of borrowers is the same. However, the large section of the ADBs portfolio is crop production loans which are short term and the rate of interest is 14 percent. A majority of the SFDP loans are for animal purchase which are medium term loans and the rate of interest is 11 percent.

Support Services

SFDP loans are closely supervised and the economic activities of the borrowers are closely monitored. The SFDP offices are located in the rural areas and Project Chiefs coordinate with other government agencies to provide support services to the borrowers. ADB offices are mainly located in district headquarters and business centers. The loans are supervised, but the economic activities of the borrowers are not monitored. ADB does not coordinate with other government agencies to provide support services to the borrowers as it does in the SFDP program.

Due to these differences, it cannot be concluded that better repayment of SFDP loans at national level, than the ADB national level loans, is only due to joint
liability. Lower default of SFDP loans than on ADB loans in general is likely a result of a combination of many of these factors. However, group borrowers from SFDP responded that the group evaluates and rations the size of the loan for each member depending upon his investment plan (Chapter IV). They also examine the repayment schedule of each member and press the defaulting member to pay his/her loan. Sometimes, they also help each other financially to meet loan repayments. If some member wants to extend the length of the loan due to inability to repay, it has to be approved by the group. All these group actions have an impact on loan repayment. But, it is difficult to isolate what part of the better loan repayment in SFDP is attributed to group pressure and joint liability.

When the default rate at Anandaban and Tupche is compared, there is a vast difference. The lower default in Anandaban than Tupche cannot be explained by group characteristics because most of the groups are similar. On the other hand, the land in Anandaban is more productive, farmers have more education, have larger sizes of holdings and operations than in Tupche. Thus, farmers have higher income. There are also better transport and marketing facilities in Anandaban than in Tupche which might also contribute in higher income and better supervision. This may also result in better repayment.
The Level of Technological Adoption

The level of technological adoption between two groups of farmers can be measured by comparing the types of crops grown and the varieties used, major animals raised and the breeds used and the level of fertilizers and insecticides used. These factors are used to measure the level of technological adoption in this study. They are described individually as follows.

Major Crops Grown and the Varieties Used

Farmers in Nepal usually grow more than one major crop. They also grow many varieties of a single crop depending upon the soil, climate and taste of the farm family. A farmer who grows corn, wheat and paddy was considered to have grown three major crops in this study. If he grew at least one improved variety of one of the crops in question, it was considered that he had adopted new technology. On the other hand, if a farmer had not cultivated at least one improved variety of a crop, he was considered not to have adopted new technology. The mean values of the types of major crops grown and their improved varieties for SFDP participant farmers and informal borrowers at Anandaban and Tupche are presented in Table VI-8.
TABLE VI-8: The Comparison Between SFDP Participant Farmers and Informal Borrowers with Regards to Average Number of Major Crops Grown and Their Improved Varieties in Anandaban and Tupche

<table>
<thead>
<tr>
<th></th>
<th>Formal Borrowers</th>
<th>Informal Borrowers</th>
<th>Calculated t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anandaban</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farmers</td>
<td>30</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>interviewed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of major</td>
<td>3 (.74)*</td>
<td>3.25 (0.4629)</td>
<td>-.9043</td>
</tr>
<tr>
<td>crops grown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of</td>
<td>2.3 (.70)</td>
<td>3.0 (0.5345)</td>
<td>-2.6217</td>
</tr>
<tr>
<td>improved crops grown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tupche</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farmers</td>
<td>32</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>interviewed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of major</td>
<td>3.03 *(.59)</td>
<td>3.38 (.52)</td>
<td>-1.5326</td>
</tr>
<tr>
<td>crops grown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of</td>
<td>1.56 (.95)</td>
<td>2.0 (1.07)</td>
<td>-1.1437</td>
</tr>
<tr>
<td>improved crops grown</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Analysis of field data.

* Figures in the parentheses are sample standard deviations.
The participant farmers in Anandaban, on the average, grew three major crops, against 3.25 major crops grown by non-participant informal borrowers. The average number of improved crops grown by SFDP participants at the same place was 2.7 against 3.0 improved crops grown by non-participant informal borrowers. In Tupche, SFDP participant farmers grew an average of 3.03 major crops against 3.38 major crops grown by non-participant informal borrowers. The average number of improved crops grown by SFDP participants and non-participant farmers was 1.56 and 2.0, respectively in Tupche.

To compare the difference between the SFDP participant farmers and informal borrowers with regards to average number of major crops grown and the average number of improved crops grown, a one-tail t-test was conducted. The null hypothesis was stated as, the SFDP participant farmers grew the same average number of major crops and improved varieties as non-participant farmers. The alternative hypothesis is that SFDP farmers grew a larger average number of major crops and improved varieties than non-participant informal borrowers. The t-test was conducted at the 95 percent confidence interval. The calculated t-values were compared with table t-values at \( n_1 + n_2 - 2 \) degrees of freedom. All the calculated t-values were less than the table t-value (1.645). It was
therefore concluded that the participant farmers grow the same average number of major crops and improved varieties as non-participant informal borrowers in both places.

Major Livestock Raised and Their Improved Breeds

Nepalese farmers raised cattle, buffalo, goats, sheep and poultry as major animals. Animals are an integral part of Nepalese agriculture because they provide milk, meat and manure along with draft power. Most of the breeds of animals raised are local breeds. The average number of animals raised and the average number of improved breeds for Anandaban and Tupche farmers are given in Table VI-9.

The average number of major animals raised by SFDP participant farmers and informal borrowers in Anandaban was 2.37 and 2.875, respectively. The average number of improved animals raised by SFDP participant farmers was 0.37, whereas informal borrowers did not raise any improved breeds of animal. In Tupche, the SFDP participant farmers raise an average of 2.56 major animals, whereas informal borrowers raised 3.25 major animals per farm. The average number of improved animals raised by SFDP participant farmers was only 0.09 animals per farm against 0.13 animals per farm for informal borrowers.
### TABLE VI-9: The Comparison Between SFDP Participant Farmers and Informal Borrowers with Regards to Average Number of Major Animals Raised and Their Improved Breeds in Anandaban and Tupche

<table>
<thead>
<tr>
<th></th>
<th>Formal Borrowers</th>
<th>Informal Borrowers</th>
<th>Calculated t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anandaban</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farmers interviewed</td>
<td>30</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Average number of major animals raised</td>
<td>2.37 (1.0)</td>
<td>2.875 (.8345)</td>
<td>-1.431</td>
</tr>
<tr>
<td>Average number of improved animals raised</td>
<td>.37 (.56)</td>
<td>0 (.0)</td>
<td>-1.850</td>
</tr>
<tr>
<td><strong>Tupche</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farmers interviewed</td>
<td>32</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Average number of major animals raised</td>
<td>2.56 *(1.16)</td>
<td>3.25 (1.16)</td>
<td>-1.5047</td>
</tr>
<tr>
<td>Average number of improved animals raised</td>
<td>.09 (.30)</td>
<td>.13 (.35)</td>
<td>- .3266</td>
</tr>
</tbody>
</table>

**Source:** Analysis of the field survey data.

* Figures in the parentheses are sample standard deviations.
A one-tailed t-test was conducted to measure the difference between SFDP participant farmers and informal borrowers with regard to average number of major animals raised and their improved breeds. The null hypothesis was stated as, there is no difference between major animals raised and their improved breeds by SFDP participant farmers and informal borrowers. The alternative hypothesis was that the average number of major animals and their improved breeds raised by SFDP participant farmers is more than the average number of major animals and improved breeds raised by informal borrowers. All the calculated t-values are less than 1.645, the table t-value at 95 percent level of confidence interval, and \( n_1 + n_2 - 2 \) degrees of freedom. Thus, it is concluded that there is no difference between the average number of major animals raised and their improved breeds by SFDP participant farmers and non-participant informal borrowers in both places.

Fertilizer Use

The level of fertilizer use on the basis of kilograms/ha for 30 participant farmers and 8 informal borrowers at Anandaban was 80.33 kg/ha and 42.375 kg/ha, respectively. On the other hand, the average kilograms of fertilizer per hectare used by 32 SFDP participants and 8 informal borrowers at Tupche was 259.97 and
<table>
<thead>
<tr>
<th></th>
<th>Formal Borrowers</th>
<th>Informal Borrowers</th>
<th>Calculated t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anandaban</strong></td>
<td>80.33 * (95.45)</td>
<td>42.375 *(42.84)</td>
<td>1.087</td>
</tr>
<tr>
<td><strong>Tupche</strong></td>
<td>259.97 (302.62)</td>
<td>110.875 *(107.43)</td>
<td>1.363</td>
</tr>
</tbody>
</table>

**Source:** Analysis of field survey data.

* Figures in the parentheses are sample standard deviations.
110.875, respectively. A one-tailed t-test was again applied to test the difference in means. The null hypothesis was stated as there is no difference between the level of fertilizer used by SFDP participant farmers and informal borrowers. The alternative hypothesis was stated as, SFDP participant farmers use higher levels of fertilizers than informal borrowers. The calculated t-values given in the table are smaller than 1.645, the table t-value at 95 percent confidence interval and $n_1 + n_2 - 2$ degrees of freedom and the null hypothesis is accepted. Thus, it is concluded that there is no difference between SFDP participant farmer's level of fertilizer use and informal borrower's level of fertilizer use in both places.

Insecticide Use

The level of insecticides used by the farmers was obtained through the expenses which the farmers incurred in insecticide purchases in 1979-80. The average expenses for insecticide per hectare of land for different kinds of borrowers in Anandaban and Tupche is given in Table VI-11. The SFDP participant farmers incurred an average of Rs 10.43 per hectare in insecticide expense, whereas informal borrowers spent Rs 17.12 per hectare at Anandaban. The SFDP participant farmers at Tupche spent
TABLE VI-11: The Average Cost of Insecticide, Rs per Hectare Used by SFDP Participant Farmers and Informal Borrowers in Anandaban and Tupche (1979-80)

<table>
<thead>
<tr>
<th></th>
<th>SFDP Formal Borrowers</th>
<th>Informal Borrowers</th>
<th>Calculated t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anandaban</td>
<td>10.43</td>
<td>17.125</td>
<td>-.845</td>
</tr>
<tr>
<td></td>
<td>*(18.65)</td>
<td>*(24.44)</td>
<td></td>
</tr>
<tr>
<td>Tupche</td>
<td>43.59</td>
<td>38.5</td>
<td>.1272</td>
</tr>
<tr>
<td></td>
<td>*(110.49)</td>
<td>*(39.10)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Analysis of the field survey data.

* Figures in the parentheses are sample standard deviations.
an average of Rs 43.59 per hectare on insecticides, whereas informal borrowers spent Rs 38.5 per hectare.

The comparison of the level of insecticide use was done by a one-tailed t-test. The null hypothesis was stated as there is no difference between the average expenses incurred by SFDP participant farmers and informal borrowers. The alternative hypothesis was stated as SFDP participant farmers use higher levels of insecticide than informal borrowers. The calculated t-values for Anandaban and Tupche farmers were considerably less than the table t-value of 1.645 at the 95 percent confidence interval and n₁ + n₂ - 2 degrees of freedom and the null hypothesis is accepted. Thus, it is concluded that the level of insecticide use of SFDP participant farmers and informal borrowers is not statistically different in either area.
CHAPTER VII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In the first section of this chapter, a summary of the research project, the results of the analysis of the data and conclusions are presented. In the later sections the recommendations and the limitations of the study are presented.

Summary

Many governments are exploring ways to provide formal financial services to the rural poor in LDCs. Commercial banks have not been very interested in rural areas due to the associated high risks and high lending costs. The Agricultural Development Banks are facing the same problems along with high default rates. Some innovations are taking place in rural financial markets that are aimed at reducing the costs of serving the poor. Group lending is one of these innovations which is supposed to have three advantages; namely, low default, low loan transaction costs to the borrowers and the lenders, and lower costs of providing technical services to the rural poor.
The Small Farmer Development Program (SFDP) is a group lending project in Nepal. The objective of this study is to evaluate this group lending program. The objectives of this study are: 1) to determine and compare the loan transaction costs for the borrowers in group lending and informal lending; 2) to determine and compare the loan transaction costs for the lenders in group lending, and informal lending; 3) to evaluate the effectiveness of technological diffusion in group lending and individual mortgage lending; and 4) to evaluate the impact of peer pressure on repayment of the loan through joint liability.

To fulfill these objectives, two SFDP projects, namely SFDP in Anandaban village panchayat in Rupandehi District and SFDP in Tupche village panchayat in Nuwakot District of Nepal were selected. A random sample of 30 SFDP participant farmers and 8 informal borrowers was selected from Anandaban and another random sample of 32 SFDP participant farmers and 8 informal borrowers was selected from Tupche. Two money lenders in each place were also interviewed about their lending business. Four groups of SFDP participant farmers and the project chiefs in each place were also interviewed. There were no direct individual mortgage loans made to small farmers by ADB in either place studied. So the individual mortgage lending and borrowing behavior could not be studied.
Cost of Borrowing

Cost of borrowing includes the interest payments, travel cost, loan negotiation and repayment cost, service charges, gifts, bribes and other miscellaneous costs associated with the loan. The information regarding these costs were collected and analyzed. The average size of the loan borrowed by SFDP participant farmers from SFDP in Anandaban was Rs 1,680; if participant farmers borrowed from informal sources it was Rs 1,664 and the average size of the loan borrowed by non-participant farmers from informal sources was Rs 725. The average interest rate for these loans was 13, 30 and 49 percent per annum, respectively. But the effective average cost per unit of money borrowed for these loans was 28, 33 and 56 percent, respectively (Chapter VI).

The average size of the loan borrowed by SFDP participant farmers from SFDP in Tupche was Rs 529. If SFDP participant farmers borrowed from informal sources, the average size of the loan was Rs 997. The average size of the loan borrowed by non-participant farmers from informal sources was Rs 625. The average rate of interest for these loans was 13, 50 and 38 percent, respectively. The effective average cost of borrowing per unit of money borrowed was 57 percent for SFDP participant farmers if they borrowed from SFDP, 58 percent if they borrowed
from informal sources and 44 percent for non-participant farmers who borrowed from informal sources only (Chapter VI).

Cost of Lending

Cost of lending includes administration, supervision and collection of the loan, the cost of obtaining loanable funds, the cost associated with default and the profit required to pay the owners of capital. The costs of SFDP lending were obtained by adding their office expenses, default rates and various other conservative estimates made regarding costs of obtaining loanable funds and social opportunity cost of capital. The money lender's lending cost was calculated by using conservative estimates about opportunity cost of capital and reasonable rates of profit. The SFDP cost of lending varied between 23 and 28 percent in Anandaban and between 47 and 52 percent in Tupche. Higher lending costs in SFDP Tupche than in SFDP Anandaban were due to high default rate in Tupche. The cost of lending for money lenders in both places varied between 22 and 35 percent. The money lenders have two types of borrowers: the SFDP participant farmers and non-participant informal borrowers. The money lender's cost of lending to SFDP participant farmers varied between 22 and 25 percent in Anandaban and between 22 and 35 percent in Tupche. The money lender's cost of lending to non-participant informal borrowers varied between 22 and
35 percent in Anandaban and between 22 and 29 percent in Tupche. High SFDP lending costs were associated with high default rates and high overhead costs of loan administration, supervision and collection.

Default Rate

The ADB calculates default rates as a percentage of the portfolio which is in arrears. According to this measure, the default rate in Anandaban was 2.7 percent and in Tupche it was 31.9 percent. When all 24 SFDP programs were considered, the national SFDP default rate was 16 percent. Nationally, ADB/N had a default rate of 27.2 percent on its overall portfolio. The default rate in Anandaban was considerably lower than the SFDP national default rate and the ADB national default rate. The default rate in Tupche was higher than both SFDP and ADB national default rates. The money lenders in both places did not report any defaults.

The Level of Technological Adoption

Use of improved crop varieties, improved breeds of cattle, and use of fertilizers and insecticides were measured to compare the level of technological adoption between SFDP participant farmers and informal borrowers in both of the project areas. The results of t-test indicate that there was no significant statistical difference
between SFDP participant farmers and informal borrower's level of technological adoption. The SFDP participant farmers may have used much less new technology than the informal borrowers before the project, however. But, due to lack of the data, this cannot be confirmed.

Conclusions

Based on this study the following conclusions are drawn:

1. There is no difference between the borrower's transaction cost from formal source and informal source of credit.

2. The lender's transaction cost was higher in SFDP programs than informal money lending. High SFDP transaction costs were associated with high default rates and high overhead cost of loan administration, supervision and collection.

3. The default rate in Anandaban was lower than the national SFDP and ADB default rate, but it was higher in Tupche. The group characters in both places were similar, but the size of holdings, productivity of land, transport and marketing facilities were different. So, it can not be confirmed that better repayment of the loan is only associated with joint liabilities and group pressures.
4. There is no significant difference between the SFDP participant farmers and informal borrowers with regards to use of improved technology. SFDP farmers may have used much less new technology than informal borrowers before the project. But, due to lack of data this cannot be confirmed.

Recommendations

Loan transaction costs for lenders and borrowers are comparatively high in the SFDP. However, both costs can be lowered. The borrower's loan transaction costs can be reduced by waiving some of the procedures followed by the SFDP in the loan negotiation. These procedures include: 1) allowing only one or two members to apply for a loan, to negotiate that loan and to write promissory notes on behalf of all the members instead of requiring that this be done by all members of the group; 2) the loan can be delivered directly from SFDP rather than delivering it through the cooperative. Thus, a step in the loan negotiation will be reduced to the farmers which will reduce the loan negotiation costs to the borrower.

The loan transaction costs for SFDP can be reduced by lowering the overhead costs and decreasing the default rate. Overhead costs can be reduced by increasing the
size of investment without increasing the costs significantly. The size of investment can be increased either by area expansion or by expanding the number of groups. Area expansion is more feasible in Anandaban than in Tupche because of better transportation facilities. Overhead costs can also be decreased by having SFDP deliver and collect the loans itself rather than delivering and collecting the loans through the cooperatives.

Even if the lender's loan transaction costs are reduced significantly, the present rate of interest charged on the loans does not cover the costs. Thus, the SFDP program is decapitalizing. The costs can only be covered by increasing the rates of interest charged on loans. The market rate of interest in the village is the rate of interest charged by the money lenders. An increase in the rates of interest by ten percentage points over the present rate of interest will still be lower than the market interest rate. It may at least cover the cost of SFDP and stop decapitalization of capital. A government subsidy equal to the inflation rate is desirable after increasing the interest rates to keep the purchasing power of the capital of SFDP.

ADB/N reports default rate as the percentage of the portfolio which is in arrears. Most of the time this measure underestimates the actual default rate. ADB
should adopt better measures to report the default rate. Default rates can be decreased by: 1) following more realistic loan schedules for animal purchase loans; 2) improving support services especially veterinary services and better supervision which can be done by integrating agricultural extension services with SFDP at the local level; 3) providing consumption and production loans to small farmers so that they will have only one creditor; 4) providing marketing facilities for perishable products such as milk or rationing loans to the projects where there is a marketing problem; 5) job creation in the rural areas to increase non-farm income; and 6) applying a stiff penalty to defaulters without reasonable cause.

Limitations of the Study

Nepalese farmers keep neither farm nor household financial records. Therefore, most responses to the questionnaire survey depend on the memories of the farmer participants. As a consequence, the results of this study are only as valid as the data provided by the participants.
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