

CHAPTER -I

INTRODUCTION

Agriculture Development Bank Nepal (ADB/N) was established in 1968 with the objective of providing agricultural loan and other supporting activities to the rural poor farmers. Before the establishment of ADB/N Co-operative Bank was established in 1963, was the main source of agriculture credit. The bank was started to cater the credit needs of the co-operative societies. Land Reform Saving Co-operative (LRSC) was established to mobilize the compulsory saving generated of the village level and to provide agriculture credit to needy ones. In 1966, both of these institutional credits management had a limit scope to provide loan in agriculture. To overcome this limitation and to provide funds from government and non government sector other strong, organization with branch offices all over the country is fell off. In 1968 Agriculture Development Bank was established under the Agriculture Development Bank Act 1968. After establishment of ADB/N, in 1973 the L.R.S.C. was also merged.

Loan investment of development banking of ADB/N refers agriculture credit granted by ADB/N in agriculture sector. Agricultural loan is provided such as term wise, purpose wise and development region wise in urban and rural areas to farmers. The purpose of granting rural credit is to uplift life standard of farmers by income generating activities to create self employment opportunities and reduce poverty through social mobilization activities. Likewise loan collection of ADB/N indicates collection of development loans principal from its farmers, invested early for the difference purposes.

1.1 Background Information

Nepal is landlocked, mountainous, least developed, agrarian country in the world, having an area and population of 147181 km² and 23151423 respectively according to the census of 2001 but the present population should be almost 27146080 on the basis of growth rate and census of 2001.

In our country farmers are all over the country, not only one geographical location specific, so to provide agriculture loan, and other support to the farmers the branches of AD Bank are also all over the country. This bank not only provides agriculture loan but it also provides different subsidies from different NGOS, INGOS to poor farmers. Agriculture Development Bank is a bank of farmers. Asian Development Bank, World Bank, International Monetary Fund provide loan at very low rate, sometime provide subsidies for poor farmers, and ADB/N works as a mediator. It also provides loan at low rate than that of other banks.

According to geographical climate Nepal is classified in three areas:

- i. Terai
- ii. Hill
- iii. Himalayan

Above mentioned natural geographical regions of the country differ from each other especially by climatic condition, living pattern, cultural heritage, religion etc. Administratively Nepal is also divided into five development regions, 14 zones and 75 districts.

- a) Eastern development region

- b) Central development region
- c) Western development region
- d) Mid-western development region
- e) Far-western development region

The main purpose of administrative divisions of Nepal is to balance development in all development regions and to equally distribute the national income to all people of different regions.

Agriculture is the backbone of Nepalese economy. The growth rate on GDP in F/Y 2005/06 is 1.67%, F/Y 2006/07 is 0.94%. Per capita income of Nepalese people in F/Y 2006/07 is US \$320 according to Central Bureau of Statistics. Agriculture sector provides inputs to the industrial sector.

In our country, we have a large amount of water resources or in other words we are second richest country in water resource, but we are not able to utilize the resources because of lack of capital and technology. So in order to utilize water resource, first of all we should develop agricultural sector and should collect capital for Hydroelectricity Project and Irrigation Project. To develop agriculture sector, there is most necessary of ADB/N. It initially provides loan for different agricultural projects such as irrigation, agriculture plant and machinery development projects, to purchase modern productive seeds for farmers, to purchase fertilizer and fertilizer related industries, investment in farming for livestock, finance agriculture marketing. Agriculture Development Bank also accepts deposit from farmers and encourages them for saving by providing interest in their saving.

There are so many commercial and development banks operating in Nepal, but ADB/N is different in nature from others. The main objective of ADB/N is to provide loan in agriculture sector in accordance with government priorities. Nepal is an agrarian least developed mountainous country in the world. Almost 65% of total populations are engaged in agriculture sector, so the future of Nepal is based on agriculture development. By considering these facts, Agriculture Development Bank encourages farmers to increase production by investing in agriculture sector.

Agriculture Development Bank provides different terms loan such as short term, medium term, and long term 20-40 years loan to farmers of all over the country. It makes, targets or sets goal as development region wise, district wise, and different term wise investment plan. In order to fulfill its goal, government banks have made different target for different purpose for investment. In agriculture sector there may be different sectors. Such as agriculture, business, cash crops, fisher industry, agriculture marketing, horticulture, irrigation, etc.

Nepal is ranked 142th country among 177 countries in the world in accordance to UNDP's Human Development index 2007.

The topography and climatic condition of Nepal is not also good for agricultural production. Agricultural production does not depend only on geographical condition but also on modern technology of farming such as chemical fertilizers, irrigation, bio-gas and power-development, pump-sets, agro-tools, tractor and in some extent political-condition of nation and mostly on government policy on agriculture development.

In our country, people who plough land have no land. The ownership of land and actual farmers are different in most of the places. On the other hand, government hasn't enough support to farmers. Our cultivation style is traditional types. Farmers are unable to use modern productive seeds, enough fertilizer, and tools and equipment in farming. So in our country though more than 65% people engaged in agriculture sector, its contribution for GDP is less than 38%. In this context, Agriculture Development Bank/Nepal have played supportive activities for farmers. It is also rolled and pulled between government and farmers.

Poor people don't create poverty. Poverty is created by institution's concepts and policies of government. We don't need foreign loan with the slogan of poverty alleviation. We need small packages programs with the mobilization of local resources by the local people.

Small Farmers Development Program (SFDP) was conducted since 1975 as specific poverty alleviation program to attain an aim of improving the life standard of small farmers, tenants and landless laborers. Small Farmer's Co-operatives limited (SFCL) is an outcome of (SFDP). ADB/N has been converting SFDP into SFCL and planned to convert all SFDP into SFCL. SFDP is a pioneer form of rural micro financing tool of eradication poverty and empowering ultra poor by bringing them main stream of development process through social mobilization of rural micro finance constitutions mobilization of saving and extension of credit micro finance. Uplifts socio-economic condition of ultra poor as well as provides financial and non financial services. SFCL have been operating in Nepal by Apex Bank called Sana Kisan Bikas Bank i.e. a bank for and by the poor S.K.B. S.K.B.B. refinances as well as also provide technical support to SFCL (ADB/SKBB) (GTZ 2004: 1-2)

Poverty alleviation is the main objective of Nepal since 8th plan. Being an agricultural majority in Nepalese people agriculture is the main support to poverty alleviation and to achieve sustainable economic development in rural economy. In tenth plan there have been declared long term agricultural plan and program up to fiscal year 2006/07. The line of poverty reduced to 30% from 38%. Government of Nepal has determined fixed pricing sector on agriculture such as chemical fertilizer, agribusiness etc. including seventy nine sub heading. In addition to ADB/N micro credit will be provided to poor and ultra poor through SFCL Saving and Credit Co-operative (SAC cops), NGOS, INGOS. Financial resources support will be given to rural Micro Finance Development Center to strengthen institutional provision Rural Micro Finance Development Centre (RMDC) will provide wholesale refinancing credit to German Bikas Bank and other financial institutions. But the major portion of the rural agricultural credit will be invested through ADB/NNRB will be mobilized for supervision and monitoring role.

Only a few studies have been conducted on loan investment and collection analysis of ADB/N. Except than ADB/N there are other development banks and micro finance institutions operating in Nepal but the financing problems especially in the field of development credit sector is not yet solved. So the necessary of study is felt and done. This study may be a milestone in Nepalese context especially in the field of development credit and having significance and value to society in general.

1.2 Statement of the Problem

Nepal is an agricultural, least developed South Asian country in the world. Contribution of agriculture sector on GDP is 38% approximately in F/Y 2006/07 (Economic survey 2007/08).

In our country 86% population is living in the rural area. According to government sources, 32% of country's total population is living below poverty line. The contribution of agriculture on GDP is decreasing due to substance nature of farming, unsuitable geographical structure for farming, depending on uncertain monsoon, lack of area based research, traditional farming system, lack of long term government plan and policies, lack of infrastructure of development, lack of agriculture market, lack of technical support for farming, lack of modern plant equipment and tools for farming, and lack of adequate motivation and inspiration in agriculture sector.

This is the age of globalization. In this context, most of the countries have engaged in W.T.O. Nepal became full member of W.T.O. by 23 April 2004. Nepal is also 148th member of W.T.O. There are threats as well as opportunities of Nepal. We have to restructure our agriculture sector to be competitive and to face competition globally. We have to create portfolios on agriculture and have to identify possible line of agricultural opportunities. To take advantages being a membership of W.T.O., Nepal requires huge investment in agriculture sector. This research constitutes and explores existing problems in agriculture sector to invest and collect money/credit.

Government of Nepal has advocated poverty alleviation which is the major objective since 8th plan to 10th plan. Condition of poor and ultra

poor is being complicated day by day continuously. ADB/N is the formal agricultural rural credit granting pioneer institution. Poor Nepali are facing too many problems. Most of Nepalese people still depend upon non-institutional money lenders. Generally three types of agencies flow rural agricultural include bank and finance companies, semi formal agencies include, co-operatives, NGOS and INGOS and informal agencies include landlords, merchants, and rich/wealthy people. Institutional money lenders still have not been able to provide adequate agricultural financing to rural people. Generally non-institutional money lenders charge high interest rate to farmers. Due to high interest rate farmers are unable to pay loan and interest on fixed time. Loan increases year by year and farmers and their heir's pass away with debt. So, Nepalese farmers and generations are born in debt and live in debt. This system also compels them to transfer their property to money lenders and as a result they become landless.

The agriculture credit is increasing day by day. If investment and collection don't occur timely, each and every organization cannot survive for ever. Because of past political insurgency and instability, the loan investment and collection system was greatly affected. This topic is selected because of following ways:

-) There is still gap in agriculture loan demand and supply.
-) Loan investment and collection is not satisfactory.
-) Nepalese agriculture loan is not still institutionalized or most of the loan is from informal sector.
-) Farmers haven't got enough debt for agriculture.
-) Nepalese farmers are looking for technology for farming with agriculture loan.

-) Agriculture Development Bank has not been able to make proper policies for loan investment and collection.
-) Agriculture Bank is facing bad debt problem.

1.3 Objectives of Study

1. To study about targeted and actual loan investment and collection of ADB/N.
2. To study region wise and total loan investment and collection of ADB/N.
3. To study sector-wise loan investment and collection of ADB/N.
4. To examine the achievement on loan investment and collection.
5. To give suggestions to ADB/N on the basis of finding.

1.4 Significance of the Study

Nepal is poor and agriculture based country. Development of the country requires the development of different sectors, and in our country agriculture is the main sector. More than 65% population of Nepal are engaged in agriculture sector and its combination in GDP is only 38%, so by considering this facts, we have to invest for large amount in agricultural sector so that it supports for farming through scientific way by using modern technology. ADB/N is the best mediator for the agricultural sector. Therefore, the study of loan investment and collection in agriculture sector through ADB/N is very much important for every aspect of our life.

Mainly the study is important for the following aspects:

- i. It is important for the bank to assess its present loan investment and collection policies.

- ii. It is important to the farmers and entrepreneurs because the study will disclose the priority sectors of investment of ADB/N resources.
- iii. It is important for the policy makers to assess their policies for loan investment and collection on the basis of result achieved.
- iv. The study is important for the government for the development of other financial institutions for investment in agriculture sector.
- v. It is important to research scholars.

1.5 Limitations of the Study

Every research has to conduct within certain size. So existing limitations of this research may be as:

- i. This research is based on only the transaction of ADB/N and it excludes other commercial banking transactions.
- ii. This study will be based on secondary data which is received from annual reports, M.S. division, loan division, accounting division, planning and project division, loan investment and collection division of ADB/N.
- iii. This study will include only five years data.
- iv. This research focuses only on loan investment and collection of ADB/N not overall aspects of ADB/N.
- v. Resource constraint is another factor which has significant impact on the study. For a student, time for study, cost of the study, access of obtaining authentic and sufficient information and data for the study etc. are important and they can limit the scope of the study.
- vi. Conclusion and recommendations of the study is reactive.

1.6 Organization of the Study

Each and every research is organized according to the nature and requirement of the study. The organization of the study is classified in five chapters.

Chapter 1: Introduction

Chapter 2: Review of Literature

Chapter 3: Research Methodology

Chapter 4: Presentation and Analysis of Data

Chapter 5: Summary, Conclusion and Recommendation

CHAPTER-II

REVIEW OF LITERATURE

Review of Literature is a process of identifying what has been already done on a particular area of subject. It is a preliminary search, which helps us to find out about what kinds of provisions has already done on loan investment and collection of ADB/N. Critical review is useful and informative because it is a part of this research paper. Theoretical review on loan investment and collection from loan manual, loan collection manual, text book journal and post thesis are presented in this sector.

2.1 Conceptual Review of Literature

Loan investment and collection is as old as like Bank. Before establishment of banking system, the rich people used to give loan to people who need loan. Those were informal loan agencies, and after establishment of bank, it started to grant systematic formal loan for needy people. Generally the people who needs loan for different productive and service sectors take loan and banks & different financial institutions provide loan.

In the ancient time, human being used to live in jungle. They used to eat jungle's vegetables, they had no special inhabitations. They used to pass visiting life from one place to another. That age was called as Jungle era. After this era, people started to feel something comfort by staying in a special place by farming, then they started cultivation and they became able to produce foods for their needs. That age was preliminary agricultural era. After that era, people tried to find new and new thing day

by day then they entered in mass production. They started to find out new plant and equipment for farming and after then they were able to create different machinery for making industrial goods. That era was called as pre industrial age. After that era, people were able to create automatic machine and different types of means of transportation. That was the industrial age. In that age, They started for large amount of investments, for large of amount investment they started to establish different banks and financial institutions. So by observing the term "loan investment and collection" it was started after agricultural era and it became increasing with the movement of time, and in that age there started huge amount of loan investment in different sector. In each and every country, if government feels to develop any special sector then there needs large amount of investment. Once the loan is invested their recovery should be effective in the form of collection otherwise there would be the end of existence of investment companies.

Investment inspires the production. After investing in productive sector, there we get return. So the borrower repays loan with interest. After loan investment, loan collection is compulsory other wise there will be the end of the existence of investment companies.

2.2 Review of Literature

Nepal is agriculture based country. Without the increment of agricultural production poverty cannot be minimized. For the agriculture development, huge amount of investment is needed. ADB/N is the best mediator for the development of agricultural sector. Since the establishment 1967, it has lunched so many programmes in the sector. It has been investing its resources to raise the economic position of the

farmers and to ensure overall agricultural development. The bank has flown huge amount of loan on different agricultural purpose.

Agricultural sector in Nepalese economy has occupied very significant role to contribute for the overall economic development of the country. In order to agricultural development, large amount of fund should be invested. But the farmers cannot meet the entire amount, so the gap must be bridged by other institutions. In our country the major institutions for investing in agriculture sector is Agriculture Development Bank. The major goal of ADB/N is to provide loan to farmers. Agriculture credit plays a great role for the development of agriculture sector of a nation.

According to the view of W. Webster Johnson and Echonie Jonson (1954) "Agriculture investment is necessary for the proper functioning of the present day production and investment in agriculture has been called the blood of modern economic society."

In our country the large majority of poor farmers are born in debt, lived in debt have low saving status which refrains them from introducing new techniques of the firm so for all these reasons the financing of this sector usually comes through external sources, but the loan on the credit is most essential to the economy of Nepalese like others. Agriculture financing is one of the most important factors for economic development in the general improvement of the condition of the rural small farmers, in particular, the central bank, Nepal Rastra Bank conducted the agricultural credit survey in 1969/70. Its work is also taking varieties of organizational and financial problems relating to credit supplies marketing and extension at the grass root and material level. Y.P. Pant and S.C. Jain, *Agricultural Development in Nepal* 1969 writes in spite of

the fact that agriculture is the main occupation in economic life of Nepal, Most of the agricultural producers are still poor and illiterate. They have limited credit facilities as an account of their business on a small scale. The available credit facilities are also not properly used. The farmers take loan and they use for fertilizers, seeds and so on. For the proper utilization of agricultural credit, there must be irrigation facilities in agriculture sector otherwise agricultural credit will not give sound return. Due to the lack of irrigation facility, the productivity is decreasing and farmers are not benefited.

According to the authors here are three purposes of loan for farmers.

- a) Repayment of old debt
- b) Borrowing of unproductive purposes.
- c) Loan for improvement purposes

Unproductive loan is useless and such type of loan should be avoided. One loan must be for development purposes. Loan should not be unproductive and consumption purposes.

In our country the major causes of debt are general poverty of cultivations, unfavourable climate leading to uncertain of monsoon, irregularity and insufficiency of income, loss of cattle due to diseases, heavy rain, heavy rent, inadequacy of institutional credit, large family members and unproductive expenditures etc. These types of misuses must be removed first then agricultural credit or investment in agriculture sector will be effective otherwise it will be useless.

2.2.1 Theoretical Framework of Lending and Recovery Policy and Procedures of ADB/N

Agricultural Development Bank provides loan and collection back of loan by following certain rules and regulations. The following theoretical reviews give information guideline for effective lending and recovery policy of ADB/N.

2.2.2 Lending Policies and Procedure

Lending policies and procedures of ADBIN are based on following consideration.

- N.R.B's supervision and direction
- Price water house coopers report
- Eligible borrowers of ADB/N
- Security and margin policy
- Interest rated ADB/N
- Loan limit/line of credit
- Pocket area group loan and total production loan.
- Green card
- Procedure of lending

NRB's Supervision and Direction

N.R.B is the head of all other banks. It controls banks and financial institutions and tries to keep them with in a certain rule and regulations. N.R.B supervises and gives direction to other banks. N.R.B's direction to development banks is given below.

- a) Adequate provision on authorized capital, issued capital and paid in capital.
- b) Loan classification and loan loss provision.
- c) Financial sources collection limit.

- d) Compulsory cash reserve ratio management
- e) Provision of priority sector and sector wise loan limit.
- f) Provision of accounting policy and financial statements
- g) Provision of effective monitoring, follow up and supervision for loan utilization.
- h) Provision of audit and audit committee
- i) Provision of good governance
- j) Provision on investment
- k) Provision on bank's right sizing. (ADB/N, 2004:7)

Price Water House Coopers Report

Asian Development Bank has been providing different financial and technical support to ADB/N. Through Asian Development Bank, price water house coopers completed. Financial and operational review of ADB/N. ADB has kept pre conditions to ADB/N to give financial and technical support for financial restricting, according to approval report of H.M.G, the major pre-condition is given below.

- a) To do improve in organizational structure.
- b) To do financial restructuring.
- c) Training and proper management of human resource.
- d) Preparation of three year corporate planning.
- e) Implementation of transactions in integrated way in bank offices.
- f) Right management of portfolios and to center loan investment on small and medium scale enterprises.
- g) Classification of offices into business centre and cost control and starting employees work responsibility center.
- h) Transparent accounting system and provision of internal audit committee to control internal regulation.

- i) Enlargement of quality of MIS division.
- j) Provision of assets and loan management committee to risk management.
- k) To give emphasis on work capacity of credit appraisal for loan quality (ADB/N 2004: 5-6)

Eligible borrowers of ADB/N

In order to get loan from ADB/N, the applicant should possess the following qualification.

- a) Must be Nepali citizen, if the applicant is a cooperative cooperative body, it must be registered in the related government department.
- b) The applicant or his representative must have the required knowledge experience and skill to operate enterprises.
- c) The applicant must have paid principal and interest account in time if he/she has already loan taken.
- d) The applicant must be willing to meet the equity contribution for the project as required by ADB/N's rule and regulation. (ADB/N, 1989:13)

Security and Margin Policy

While providing loan ADB/N keeps some collateral. ADB/N has following provision and margin policy. ADB/N requires immovable property such as land, building, bus, car, different business firms etc.

Table 2.1

Security and Margin policy

S.N.	Property	Maximum loan granting	Margin
1	Land	80%	20%

2.	Cemented house/go-down and cold storage	70%	30%
3.	Machinery	50%	50%
4.	Long term horticulture tea and coffee (1 or 2 year plant's real price)		

Source: ADB/N loan Division 2004

Interest Rate of ADB/N

ADB/N charges discriminatory interest rate policy depending upon the borrowers and purpose of loans. The effective rate of interest of ADB/N is given below:

Table 2.2

Current interest rate charged by ADB/N

S.N.	Purpose	Prime lending rate per annum% if interest is paid monthly
1.	Agriculture	
	1.1 Cereal crop	11.0
	1.2 Cash crop	11.0
	1.3 Special crop	11.0
	1.4 Agro-tools	12.5
	1.5 Irrigation	12.0
	1.6 Livestock	12.5
	1.7 Horticulture	10.0
	1.8 Tea and coffee	10.0
2.	Industry	
	2.1 Go down construction	10.0

	2.2 Cold storage construction	10.0
	2.3 Bio gas and power	12.0
	2.4 Agro industry	12.5
3.	Service business	
	3.1 Non-agricultural credit	12.0
	3.2 Tourism	12.0
	3.3 Other service business	12.0
4.	Land Development	
	4.1 Housing and land development	12.0
5.	Derived class credit	8.5
	5.1 Sana Kisan Bikas Bank Ltd.	10.5
	5.2 Small Farmer Cooperatives Ltd.	10.5
	5.3 Unions/institutions, Sajha Cooperatives	10.5
6.	Trade	
	6.1 Marketing	12.5
	6.2 Working capital call	12.5
	6.3 other business loan	12.5

Source ADB/N loan Division

Notes:

- a) Prime interest rate will be charged if interest is paid monthly and 20% interest discount is removed.
- b) Additional 1% and 3% medium term interest will be charged on deprived class credit and other credit respectively if interest is not paid monthly.
- c) 2% and 4% high interest rate will be charged in medium term interest on deprived class credit and other credit respectively.

Source: ADB/N loan Division 2004.

Loan Limit/Line of Credit

Depending upon purpose and types of loan, ADB/N provides 80% to 90% of total project cost. The remaining should be bore by the borrower. The line of credit is a provision where the total requirement of credit to the borrower within one year is declared at a time (ADB/N 1989:33)

Pocket Area Group Loan and Total Production Loan

The lending policy of ADB/N is broadly based on two considerations. If bank offices classify loan according to geographical structure such as climate, condition of natural resources, physical infrastructure, facility, marketability etc. to provide agricultural credit within his work center's different places, then it is called pocket area group loan. ADB/N generally follows this approach to provide agricultural loan in easy and smooth manner to the people for balanced economic development of the country. Pocket area loan group includes 5 to 20 members. Under total production loan, ADB/N approves total requirement of credit to borrower in different purposes such as rice, millet, mustard etc, within one year period. ADB/N 1989: 106-102

Procedure of Lending

The loan needed person or institution from ADB/N must fill up the prescribed loan application form supplied by ADB/N. The applicant should submit supportive documents with the application form such as certificate of land ownership, receipt of land revenue payment or certificate of government registration for corporate and co-operative organizations and in some cases in big projects, project feasibility report is essential.

After receiving application, the Bank officials inspect applications form and check about accuracy the things which are filled up in application form. Bank officials observe about collateral and if feel suitable and accept loan but the collateral it also emphasis to the feasibility of project and if project seems technically feasible economically viable, politically suitable and socially acceptable then, the field visit observation committee approves the loan.

2.2.3 Recovery Polices and Procedures of ADB/N

After granting loan, these loans require to recover. ADB/N provides different term loan such as short term, medium term, and long term loan with fixed lending period. The recover period instalment is different with size and term of loan. ADB/N has loan recover, manual 1992 which was issued in 1992 under the ADB/N Loan Recovery Regulation 1975 and ADB/N Act 1967. The loan recovery manual is considered as main base/guideline to collect the loan invested early to farmers effectively within its loan instalment period. The recovery polices and procedures of ADB/N are:

- Objectives of loan recovering manual.
- Authority of bank, if breaking of agreement.
- Provision for interest, penalty and rebate
- Provision for memorandum letter
- Punishment stage of recovery
- Provision for sick period
- Correction of payment period
- Per-notice for publication of borrower's name in magazines.
- Provision of action of collateral
- Doubtful loan

- Provision for black list (ADB/N 1992:3)

Authority of Bank if Breaking the Agreement

ADB/N has the following authority if breaking agreement.

- a) The bank has the authority to sell or auction of the collateral to recover the loan amount and interest.
- b) If the collateral value not enough to collect interest and principal amount then bank has an authority to recover total amount by other property of the borrower.
- c) Bank has authority to transfer the title of collateral to third party.
- d) In case of failure to pay loan amount by borrowed bank have right to sell or auction the collateral but if the collateral value is more than loan amount then the excess amount should returned to the borrower.
- e) Bank may request to the land registration office for registration or transfer the collateral title with it self or other third party, which from the selling or any other process. (ADB/N 1992:4-5)

Provision for Interest Penalty, and Rebate

ADB/N charges different interest rate in different purposes which is shown in previous page. The extra provisions on interest rate, penalty and rebate are given below:

- a) ADB/N charges one percent service charge, if the loan amount and outstanding is more than Rs. 50000.
- b) ADB/N charges different interest rate such as the interest rate to corporate organization is less than individual borrower.

- c) Sometimes ADB/N publishers notice of rebate especially file closing time. 75% to 85% rebate is given on non performing loan's interest to farmers' ADB/N (1992:8-9)

Punishment Stage of Recovery

There are two stages of punishment i.e. one is general stage and another is critical stage. The first, second and third memorandum letters are to be sent in general stage. After third memorandum letter, 35 days notice will be published in newspaper in critical stage, it is also called legal punishment stage.

Provision for Sick Project

Under the following condition projects are considered as sick projects.

- a) Partial or absolute loss from natural. Calamities such as earthquake, flood, and land slide, fire etc.
- b) If projects can't be run through lack of raw materials, adequate market, increase in tax, electricity charge etc.
- c) After project's entrepreneur's death, if other people and family members aren't to operate project.
- d) If ADB/N is unable to grant credit on time, less loan is approved.
(ADB/N, 1992:38)z

Correction of Payment Period

If project is considered as sick then correction of payment period will be made by ADB/N under the following conditions:

- a) If the project is affected by different diseases.

- b) Due to systematic cause that is born by the borrower and if project will not be started in time.
- c) If project is going on loss by the causes of natural calamities such as earthquake, heavy rain, robbery and other causes.
- d) If the borrower's family request after the death of main proprietor, if the project may be operated successfully or it becomes difficult to operate.
- e) If products become damaged because of lack of market (ADB/N 1992:40)

Provision of Auction of Collateral

If borrower became unable to pay loan than ADB/N takes legal action in order to re-back loan. The bank publishes notice in difference national newspapers for the auction of collateral. The bank has decentralized the auction power the different level of officials, which are given below:

- a) If the loan's principal and interest up to Rs. 500000, district level auction committee has decision power.
- b) If the loan's principal and interest up to Rs. 500001 to Rs. 700000, supervision and controlling office has decision power.
- c) If the loan's principal and interest up to Rs. 700001 to Rs. 1500000 than decision power goes to DGM level committee.
- d) If loan's principal and interest is more than Rs. 1500001 decision power goes to the general manager level committee or the BOD of the bank. (ADB/N 1992:55-56)

Doubtful Loan

ADB/N announces the doubtful loan if the amount will not be possible to recover. Doubtful loan is considered under the following conditions.

- a) If borrower succeeds to take loan from the bank by submitting duplicate document i.e. cheating, and the bank fails to find out the borrower and may not get success to recover loan by legal process.
- b) If loan provided under the security of project and if the project is failure.
- c) If the borrower and collateral are in undetermined conditions
- d) If the collateral value is less due to natural calamities or not possible to collect all loans by collateral.
- e) If the loan amount may not be possible to recover when lending is made from the security and insurance of loan amount.

Provision for Black List

In the following conditions borrowers names are kept in black list.

- a) If the borrowers don't complete the project and misuse the loan.
- b) If the borrower submits application to the bank by writing forge name.
- c) If borrower hides own collateral and takes loan by showing other people's collateral.
- d) If borrower sells the projects or collateral without notifying the bank.
- e) If a borrower submits the duplicate document as an original document. (ADB/N 1992:72)

2.3 Review of Journal, Newspaper and Text Book

Some of the relevant review of literature from journal, newspaper and textbook are presented below.

One of main problems of Nepalese agriculture is low productivity. Some of the main factors responsible for the low productivity are inadequate supply of improved varieties of seeds, lack of viz fertilizers, lack of adequate irrigation facilities, insecticides and lack of knowledge on the part of the cultivation of improved techniques. Other factors conditioning the slow growth of agricultural output are the poor farming techniques, insufficient incentive to augment production under the traditional system of land tenure, lack of adequate agricultural credit and marketing facilities (Pant and Jain 1969:22)

Rural banks will largely serve the credit need of small and marginal farmers, artisans and landless labours. The banks will be run as a commercial line but they will look after mostly the needs of those areas that are under or inadequately banked. The problem of coordinating the effort of commercial banks with those of cooperative institutions the supply of credit has yet not been solved. (Bhatia, 1977:203)

Agricultural Development Bank was established 20-30 years ago to extend financial services, mainly credit of subsidized interest rates, to customers not considered creditworthy by commercial banks. They are largely state-owned and funded by government and international donor agencies. In general, ADB/N has focused on providing credit rather than accepting deposits, a practice that has undermined their self reliance as well as their viability. Given the high cost of administrating large number of small loans, the banks have tented to provide bigger loans to better off

farmers. Because farming is a seasonal occupation, agricultural lending institutions experience the boom and bust of the cash flows, with loan requirements drastically increasing during the sowing season. In addition, an emphasis on providing loans strictly for agricultural activities, mainly crop production as opposed to providing credit for other kinds of rural income generating activities has limited the potential of ADB/N to serve a wider clientele. Such preferential credit programs have tended to curtail rather than expand their out reach to small farmers and other customers in rural areas (Kunwar 2002-116)

Bank Rakyat of Indonesia's experience shows that micro-lending is an effective way to access enormous, under-served market. Banks in developing countries look to expand their lending portfolio especially in their vast rural-markets, BRI offers lessons that some are seeking out. In deed BRI's (Success may show that micro credit can help maintain a bank's long term stability in times of crisis) of the highest of Asian crisis in 1998, BRI's micro lending unit still recorded a pre-tax profit of \$89 millions, while its corporate and retail banking unit posted losses of \$3.5 billion. The bank was restructure the crisis of focus on micro credit and retained banking. Its micro lending branches collect-twice as much in deposits as they lend out and transfer the balance to the banks full-service branches of a profitable internal transfer rate. So the micro lending unit is an important source of liquidity for BRI's retail and corporate banking units. A profit linked pay scheme encourages staff to take responsibility for their branch's performance. "We have low NPL's because there is trust, from the bank, from the community" says Vijay, BRI's micro banking head. "In the village they are awake," if I don't use it well this is a lost opportunity (Pristay and Cioms, 2003:36-37)

2.4 Review of Previous Study

Some of researches which are already done in the field about loan investment and collection of ADB/N are presented below:

Uma Nath on his study “Agriculture Financing in Nepal,” emphasised that institutional credit facility helps to increase the rate of agriculture development. So according to him, adequate agriculture credit should be extended to small and medium size of farmers by well organized agricultural credit institutions. ADB/N is only one institution to help the poor farmers of rural areas it should maximize to raise the farm productivity. His major recommendations are:

- a) To expand the institutional credit services to the needy farmers in rural areas to save them from the exploitation of money lenders. ADB/N should open branches in rural part of country.
- b) ADB/N financing are more concentrated especially in mid region but this will not fulfill the goal of balanced development. So it needs to be diverted to the less developed areas of the country especially to the western and far-western development region.
- c) The process of loan disbursement by ADB/N is more complex and lengthy, and needy formalities are also unnecessary types. So there should be quick as well as simplified loan granting process (Oli, 1979: 57:58)

Maha Prasad found on his study “An Evaluation of Loan Disbursement and Collection of ADB/N,” the economic conditions of farmers are very poor, because of the low productivity of land. So to increase productivity, there should provide agriculture credit to farmers. So that farmers can enter new technology, modern fertilizer, tool,

improved seeds in farming then productivity also increases. His major recommendations are as follows:

- a) ADB/N should minimize the variance between targeted loan disbursement and collection.
- b) Mid and far western development regions seem to be poor as compared to the central development region from the point of view of flow of agricultural finance in these areas. Hence, efforts must be given to remove such imbalance.
- c) Poor recovery is the case of weak supervision, high interest and other charges laid by the bank, political interference, poor liquidity power of borrowers etc. So political interference should be neglected, and to improve farmer's liquidity the bank must manage marketing of agriculture products.
- d) The bank must reduce interest rate in agriculture sector, loan supervision should be continuously in each and every office, supervisor must visit the lending field, whether the borrower utilizes the total loan amount for concerned people. Supervisor must motivate to the borrower to utilize the full loan amount in loan purpose (Pandey, 1999:114-115)

Chabindra Nath found in his study “Analysis of Loan Disbursement Pattern of ADB/N of Nepal,” that the role of agriculture in economic development of Nepal is very important. Agriculture credit is one of the most vital factors for increasing agricultural production. His major recommendations are:

- a) The amount of the banks loans disbursement largely depends upon the amount of loan repayment in each year. So the bank should

encourage the farmers by various ways such as subsidy, low interest on loan etc. for the repayment of loan.

- b) The ADB/N should emphasis to fulfill the maximum credit gap between small and big farmers.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the overall framework to conduct research programme or it is a way of systematically solving research problem. It may be understand as a science of studying how research is done scientifically. Research methodology helps in defining research problem, formulating research hypothesis, how the data have been collected and what kinds of techniques have been used.

The objective of this research is to find out or to see the trend, relationship between loan investment and collection of ADB/N. This chapter follows the research design, population and sample of the study, source of data, variable and measure tools for analysis statistical data and presentation.

3.2 Research Design

‘Research design is the plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance.’ It is a conceptual framework or structure within which the research is conducted. It is also an overall scheme or programme of research to achieve research objectives and a strategy to tackle the problems encountered in the research. Proposed study is basically analytical and descriptive rather than experimental.

This research is focused on loan investment and collection of ADB/N. Therefore correlation research design has been used to assess the

relationship between loan utilization for agricultural development and loan disbursed by ADB/N. This technique ascertains the extent to which how much money has been invested by ADB/N and how much it has been able to collect.

3.3 Population and Sample

It is impossible to study about total loan investment and collection in agriculture sectors by different development banks, and financial institutions. So, here it has taken as sample only of ADB/N. In this research, it has taken sample of loan investment and collection by ADB/N in different development region wise and as a whole nation wise.

3.4 Source of Data

This research is mainly based on secondary data and the secondary data are collected through different published sources of ADB/N. Annual reports of 2058/59 to 2063/64 are the main source of data for the study. To facilitate the research work and for the effective achievement of research objectives subsidiary information and data are collected from the bank news of ADB/N, periodic publication of Nepal Rastra Bank, Newspapers, economic surveys etc.

Annual reports of ADB/N includes, reports of record of loan disbursement and loan collection on the various sector according to objectives of loan, time period of loan, and types of borrows. Reports also includes the profit and loss A/C, balance sheet, report of outstanding loan, outstanding interest, operating and non operating expenditures of ADB/N.

Other published data relating to study include publication of Finance Ministry, National Planning Commission, Central Bureau of

statistics, Nepal Rastra Bank, research report related to ADB/N, dissertation, relating to ADB/N etc. which are collected from the respective sources as per the requirement of research work for achieving research objectives.

In this research, primary data are also collected from bank offices, farmers of different development regions to make the research significant.

3.5 Variables and Measures

A variable is a symbol to which numerals or values are assigned. In other words variable can take on values. For the research work it is not possible to observe all the dependent and independent variables. But there are some variables which have direct impact on loan collection of ADB/N such as productivity of loan a farmer taking from ADB/N, repayment ability and so on.

Thus, the variables such as productivity of loan, repayment ability of borrowers, outstanding loan, interest rate on loan, rate of growth of investment are considered as main variables of the study.

3.6 Tools for Analysis

3.6.1 Financial Tools

Ratio Analysis

- i. Targeted Loan Collection to Investment Ratio =

$$\frac{\text{Targeted Loan Collection}}{\text{Targeted Loan Investment}} \times 100$$

- ii. Actual Loan Collection to Investment Ratio =

$$\frac{\text{Actual Loan Collection}}{\text{Actual Loan Investment}} | 100$$

iii. Actual Loan Investment to Targeted Loan Investment Ratio =

$$\frac{\text{Actual Loan Collection}}{\text{Targeted Loan Investment}} | 100$$

iv. Actual Loan Collection to Targeted Loan Collection Ratio =

$$\frac{\text{Actual Loan Collection}}{\text{Targeted Loan Collection}} | 100$$

v. Development Region Wise Loan Collection to Investment Ratio =

$$\frac{\text{Loan Collection (Development region wise)}}{\text{Loan Investment (Development region wise)}} | 100$$

vi. Purpose Wise Loan Collection to Investment Ratio =

$$\frac{\text{Loan Collection (Purpose wise)}}{\text{Loan Investment (Purpose wise)}} | 100$$

3.6.2 Statistical Tools

a) Chart Analysis

Under this, to analyze loan investment and collection on the basis of targeted and actual loan investment & collection, development region wise loan investment and collection, and purpose wise loan investment & collection, different charts have been presented.

b) Karl Pearson's Coefficient of Correlation

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}}$$

Where,

r = coefficient of correlation

$$x = (X - \bar{X})$$

$$y = (Y - \bar{Y})$$

x = independent variable

y = dependent variable

Following diagram is considered to describe relationship between variables.

If r is

-1	-0.7	-0.3	0	+0.3	+0.7	+1
Perfect	strong	weak	perfect	weak	strong	perfect
-ve	-ve	-ve	independent	+ve	+ve	+ve

c) T-Statistics Test

T-statistics is used for the test of significance of each correlation coefficient (r)

test statistics:

$$t^* = \frac{r}{\sqrt{\frac{1-r^2}{n-2}}}$$

Decision rule:

The tabulated critical value of t at 5% level of significance for two tailed test at 3 degree of freedom is 3.182. If t is found greater it is marked as significance, otherwise insignificant.

d) Hypothesis

Hypothesis is a conjectural statement about the relationship between two or more variables which needs to be investigated for the truth by valid and reliable data. The research of this study strongly holds that the hypothesis formulated meets the above mentioned criteria. The hypothesis of this research work is as follow.

F-Test:-

[a] Hypothesis First:

(H₀) : $\sim X_1 X \sim X_2 X \sim X_3 X \sim X_4 X \sim X_5$ (There is no significance difference of loan investment of ADB/N among the development regions)

(H_A) : $\sim X_1 | \sim X_2 | \sim X_3 | \sim X_4 | \sim X_5$ (There is significant difference of loan investment of ADB/N among the development regions)

[b] Hypothesis Second:

(H₀) : $\sim X_1 X \sim X_2 X \sim X_3 X \sim X_4 X \sim X_5$ (There is no significant difference of loan outstanding of ADB/N among the development regions)

(H_A) : $\sim X_1 \mid \sim X_2 \mid \sim X_3 \mid \sim X_4 \mid \sim X_5$ (There is significant difference of loan outstanding of ADB/N among the development regions)

[c] Hypothesis Third:

(H_o) : $\sim X_1 X \sim X_2 X \sim X_3 X \sim X_4 X \sim X_5$ (There is no significance difference of loan collection of ADB/N among the development regions)

(H_A) : $\sim X_1 \mid \sim X_2 \mid \sim X_3 \mid \sim X_4 \mid \sim X_5$ (There is significant difference of loan collection of ADB/N among the development regions)

T-test:

[d] Hypothesis Fourth:

(H_o) : $\sim X_1 X \sim X_2 X \sim X_3 X \sim X_4 X \sim X_5$ (There is no significant difference between the ratios of targeted loan investment and actual loan investment)

(H_A) : $\sim X_1 \mid \sim X_2 \mid \sim X_3 \mid \sim X_4 \mid \sim X_5$ (There is significant difference between the mean ratios of targeted loan investment and actual loan investment)

e) Hypothesis fifth:

(H_o) $\sim X_1 X \sim X_2$ (There is significant difference between the mean ratios of targeted loan collection and actual loan collection.)

(HA) $\sim X_1 \mid \sim X_2$ (There is significant difference between the mean ratios of target loan collection and actual loan collection)

This research is conducted within the periphery of this research methodology which is the crucial part of this research to find out findings of the study.

3.7 Presentation and Analysis

The study is analytical in nature; collected data are arranged in table and studied with the help of statistical tools.

CHAPTER – IV

DATA ANALYSIS & PRESENTATION

4.1 Introduction

This chapter includes the collection, of secondary data and analysis of these data. This study covers the period 2002/03 to 2006/07 data. Data presentation is the basic organization and classification of data of loan investment and collection from different perspectives for analysis.

Organization and processing of data include editing, coding, classification and tabulation of row data. Tabulation is the process of transferring classified data from data gathering tools to the tabular form, in which they may be systematically examined. Data is presented in table and chart diagrams to make some sense to the researcher as well as to the readers of this thesis.

The main purpose of analyzing the data of ADB/N is to change it from an unprocessed form to an understandable form. The analysis of data consists of organizing, tabulating, performing, statistical analysis and drawing figure of different data of ADB/N. Data is analyzed by using proper statistical tools such as correlation coefficient t-test and f-test etc, to fulfill the objectives of this research. To test the relationship between loan investment and collection in different development region wise and sector wise correlation coefficient is used, to find the significance, t-test and f-test are used on the basis of different data regarding ADB/N's loan investment and collection focuses on overall investment and collection of ADB/N in different sector wise and development region wise. In this research, it is also tried to study and know about causes of nonpayment and delay payment by farmers. In this chapter, it has also included about

targeted and actual loan investment and collection by ADB/N, and tried to find out how much deviation is. The all kinds of analysis in this chapter is based on secondary data collected from head office of ADB/N. From this chapter, it has tried to find out the actual condition on the areas of loan investment and collection by ADB/N on sector wise and development region wise. From this study, it is also tried to find out whether the loan investment and collection is increasing or decreasing rate in different development regions, whether the investment amount in different development regions is different or not and how much amount is allocated in different purposes.

4.2 Targeted Loan Investment and Collection

Planning and project department of ADB/N determines targeted loan investment and targeted loan collection for each and every year. This is basic standard for granting loan to collect such granted credit/loan. The targeted loan investment and collection of ADB/N in different year is given below:

Table 4.1
Targeted Loan Investment and Collection

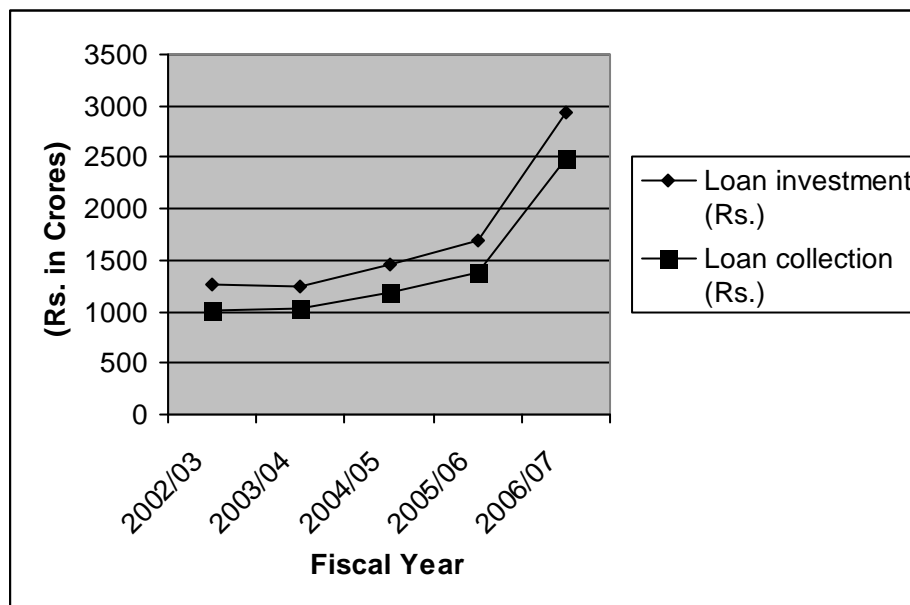
(In Rs. Crores)

F/Y	Loan investment (Rs.)	Growth rate %	Index	Loan collection (Rs.)	Growth rate %	Index
2002/03	1270.82	-	100	1016.66	-	100
2003/04	1250.77	-1.58	98.42	1031.88	1.5	101.5
2004/05	1454.82	16.31	114.73	1178.40	14.2	115.7
2005/06	1697.04	16.65	131..38	1384.32	17.47	133.17
2006/07	2944.2	73.35	204.73	2495.21	80.02	243.19

Source: ADB/N Annual Program and Budget from F/Y 2002/03 to 2006/07

Chart 4.1

Line Diagram of Targeted Loan Investment and Collection



In the above table, targeted loan investment is decreased in fiscal year 20003/04 then increased every year there after. The lowest targeted amount in 2003/04 is Rs. 1250. 77 crores and the highest targeted amount in 2006/07 is Rs. 2944.2 crores. In fiscal year 2003/04 the targeted loan amount decreased by 1.58% in fiscal year 2004/05, 2005/06 and 2006/07 increased by 16.31%, 16.65% and 73.35% respectively which is shown on chart 4.1. In the table, the market index was 100 in the base year 2002/03 and it reached 204.73 in F/Y 2006/07. In the chart, the targeted investment line is downward slope first and then, it has started to upward slope.

In the above table, the targeted loan collection amount is increasing each and every year. The targeted loan collections in fiscal year 2002/03,

2003/04, 2004/05, 2005/06, 2006/07 are Rs. 1016.66, Rs. 1031.88, Rs. 1178.40, Rs. 1384.32, and Rs. 2495.21 crores respectively, which is increasing by 1.5%, 14.2%, 17.47%, and 80.02% in each year respectively. The same increasing trend of targeted loan collection is found, which is shown in chart 4.1. The index 243.19 represents the base year's index 100 reached 243.19 in F/Y 2006/07 which is in upward slope.

The coefficient of correlation value calculated between targeted loan investment and collection is 0.99 (see appendix I) which is positively correlated. Coefficient of determination (i.e. $r^2=0.98$) indicates that 98% of the total variation in dependent variable (Y) i.e. targeted loan collection is explained by independent variable (X) i.e. targeted loan investment.

The tabulated critical value of t at 5% level of significance for two tailed at 3 degree of freedom is 3.182 which is less than the calculated value of t^* 12.155. Therefore, the coefficient of correlation shows the significant relationship between targeted loan investment and collection, i.e. increase/decrease in investment also increase/decrease in collection.

4.3 Actual Loan Investment and Collection

Actual loan investment and collection is the amount which is actual investment amount by ADB/N. It is a sum of total invested amount in five development regions and collection amount is the total amount collected by ADB/N.

Table 4.2

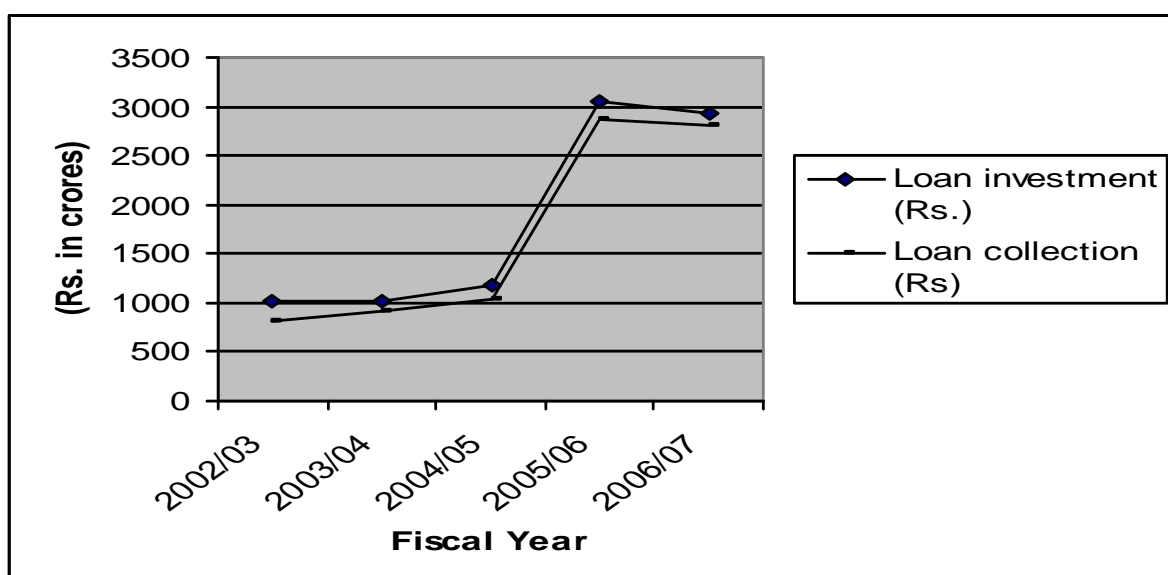
Actual Loan Investment and Collection

(In Rs. Crores)

F/Y	Loan investment (Rs.)	Growth rate%	Index	Loan collection (Rs)	Growth rate %	Index	Loan Collection
2002/03	1011.5271	-	100	816.7332	-	100	80.74%
2003/04	1014.8569	0.33%	100.33	907.7415	11.14%	111.14	89.445%
2004/05	1181.7057	16.44%	116.77	1033.0873	13.8%	124.95	87.42%
2005/06	3061.3889	159.06%	275.83	2861.2217	176.96%	301.91	93.46%
2006/07	2928.5522	-4.34%	271.49	2815.5899	-1.59%	300.32	96.14%

Source: ADB/N Annual Report from F/Y 2002/03 to 2006/07

Chart 4.2



In the above table the actual loan investment is increasing for year 2005/06 and it has a little decreased in fiscal year 2006/07. The lowest

amount of investment in the year 2002/03 is Rs. 1011.5271 crores and the highest amount of investment amount is Rs. 3061.3889 in fiscal year 2005/06. From the table, the investment amount is Rs. 3061.3889 in fiscal year 2005/06. From the table the investment amount has increased by 159.06% in fiscal year 2005/2006 or it has reached index 286.12217 instead 100 in fiscal year 2002/03. The increasing trend in total investment amount is also presented in chart 4.2.

From the above mentioned table and figure, it is clear that the actual collection amount is increasing every year. The actual loan collection amount in fiscal year 2002/03 is Rs. 816.7332 crores and Rs. 907.7415 crores in fiscal year 2003/04, which is 11.14% more than 2002/03. The collection amount reached Rs. 1033.0873 crores in 2004/05, 2861.2217 crores in 2005/06 and Rs. 2815.5899 crores in 2006/07. The collection amount in 2006/07 is 1.59% less than collection in fiscal year 2005/06. The collection index assumed in F/Y 2002/03 100 then the index reached 111.4, 124.95, 301.91 and 300.32 in F/Y 2003/4, 2004/05, 2005/06 and 2006/07 respectively. In the chart 4.2 the collection line also increasing year by year.

From the table 80.74% in fiscal year 2002/03, 89.445% in fiscal year 2003/04, 87.42% in fiscal year 2004/05%, 93.46% fiscal year 2005/06 and 96.14% in fiscal year 2006/07 have collected from the respective year's investment. It is only collection of principal amount not interest is included in this amount.

The coefficient of correlation value calculated between actual loan investment and collection is 0.99 (Appendix-II), which is positively correlated. Coefficient of determination i.e. ($r^2=0.98$) indicates that 98%

of the total variation independent variable 'Y' i.e. actual loan collection is explained by independent variable (x) i.e. actual loan investment.

The tabulated critical value of t and 5% level of significance for two tailed at 3 degree of freedom is 3.182, which is less than the calculated value of 12.12. Therefore, the coefficient of correlation shows the significance relationship between actual loan investment and collection i.e. increase/decrease in investment also increase/decrease in collection.

4.4 Targeted and Actual Loan Investment and Collection

Table 4.3

Targeted and Actual Loan Investment and Collection

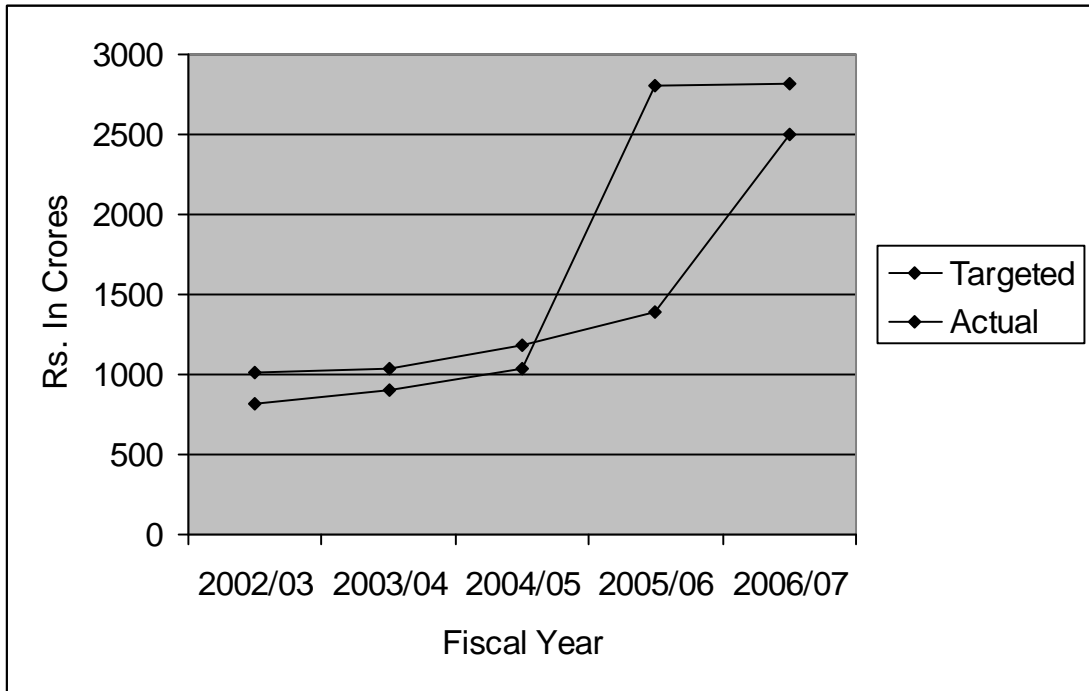
(In Rs. Crores)

F/Y	Loan Investment		Percent change	Loan Collection		Percentage change
	Targeted	Actual		Targeted	Actual	
2002/03	1270.82	1011.53	-20.4%	1016.66	816.73	-19.66%
2003/04	1250.77	1014.56	-18.86%	1031.88	907.741	-12.03%
2004/05	1454.82	1181.7	-18.77%	1178.40	1033.09	-12.33%
2005/06	1697.04	3061.39	80.4%	1384.32	2801.22	102.35%
2006/07	2944.2	2928.55	-0.53%	2495.21	2815.59	12.84%

(Source:- ADB/N annual report and annual program budget 2002/03 to 2006/07)

Chart 4.3

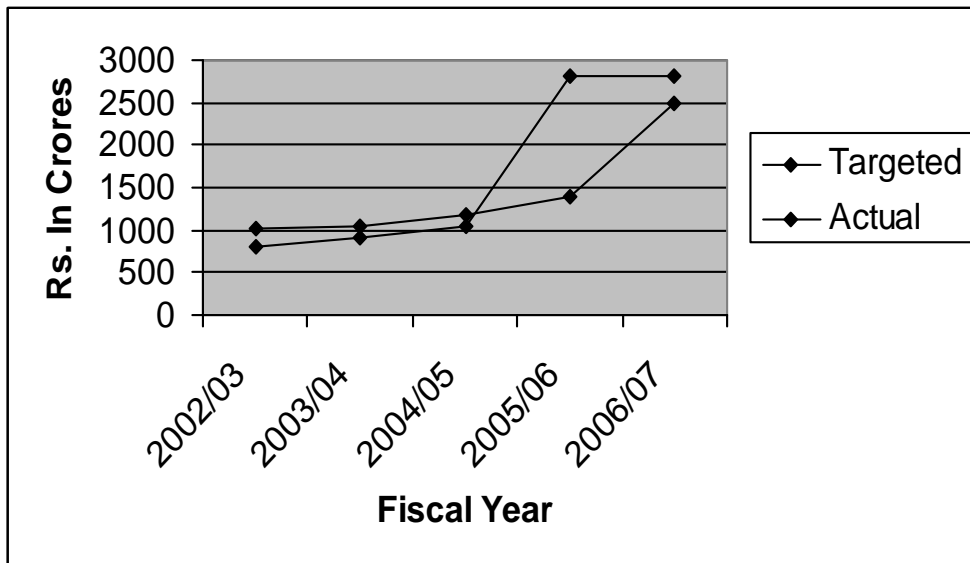
Line Diagram of Targeted and Actual Loan Investment



Targeted and actual loan investment is increasing every year. The lowest targeted loan investment amount is Rs. 1250.77 crores in F/Y 2003/04 and the highest targeted loan investment amount is Rs. 2944.2 crores in F/Y 2006/07. The actual investment is 20.4%, 18.864% and 18.77% less than targeted investment in F/Y 2002/03, 2003/04 and 2004/05. In F/Y 2005/06, the actual loan investment amount is 80.4% more than targeted amount and in F/Y 2006/07 it has 0.53% less investment than targeted.

Chart 4.4

Line Diagram of Targeted and Actual Loan Collection



Targeted and actual loan collection amount is increased every year. The lowest targeted loan collection amount is Rs. 1016.66 crores in F/Y 2002/03 and the highest is Rs. 2495.21 crores in F/Y 2006/07. The lowest actual loan collection is 816.73 crores in F/Y 2002/03 and highest loan collection is Rs. 2815.59 crores in F.Y 2008/07. There were 19.66%, 12.03% and 12.33% less amounts collected than targeted loan collection in F/Y 2002/03, 2003/04 and 2004/05 respectively. In F/Y 2005/06 102.35% more amounts was collected than targeted and in F/Y 2006/07 12.84% more amounts was collected than targeted.

The difference or percentage change between targeted and actual loan investment and collection shows error in setting standard of targeted loan investment and collection because of deviation.

4.4.1 T-Test of Targeted and Actual Loan Investment and Collection

Null hypothesis (H): $\mu_{x_1} = \mu_{x_2}$ (There is no significant difference between the ratios of targeted loan investment and actual loan investment)

Alternative hypothesis (HA): $\mu_{x_1} \neq \mu_{x_2}$ (There is significant difference between the mean ratios of targeted loan investment and actual loan investment).

Table 4.4

Targeted and Actual Loan Investment

Where x_1 = targeted loan investment

x_2 = actual loan investment

(in Rs. Crores)

F/Y	X₁	x_1^2 X(x₁ Z_{x₁)²}	X₂	x_2^2 X(x₂ Z_{x₂)²}
2002/03	1270.82	205689.46	1011.53	685709.86
2003/04	1250.77	223504.85	1014.86	680212.56
2004/05	1454.82	72205.06	1181.7	4332845.57
2005/06	1697.04	701.72	3061.39	1492746.36
2006/07	2944.2	1490035.25	2928.55	1185796.32
Total	x_1 X8617.65	x_1^2 X1992136.34	x_2 X9198.03	x_2^2 X4477304.67

(Source:- ADB/N annual report and annual program budget)

$$N = 5$$

$$\bar{X}_1 = \frac{\sum x_1}{N} = \frac{8617.65}{5} = 1723.53$$

$$\bar{X}_2 = \frac{\sum x_2}{N} = \frac{9198.03}{5} = 1839.61$$

$$s^2 = \frac{\sum x_1^2 - \frac{(\sum x_1)^2}{N}}{n_1 - 1} + \frac{\sum x_2^2 - \frac{(\sum x_2)^2}{N}}{n_2 - 1}$$

$$= \frac{1992136.34 - \frac{8617.65^2}{5}}{5 - 1} + \frac{4477304.67 - \frac{9198.03^2}{5}}{5 - 1}$$

$$= 808680.13$$

Test statistics under H_0 ,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{s^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

$$t = \frac{1723.53 - 1839.61}{\sqrt{808680.13 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$= -0.204$$

$$|t| = 0.204$$

Critical Value

The tabulated value of t and 5% level of significance at 8 degree of freedom for two tailed test is 2.306.

Decision

Since the calculated value of t is less than the tabulated value of t, the null hypothesis (H_0) is accepted. In other words, there is no significant difference between the targeted and actual loan investment of ADBIN.

T-test for targeted and actual loan collection null-hypothesis (H_0), $\mu x_1 = \mu x_2$ (There is no significant difference between the mean ratios of targeted loan collected and actual loan collection).

Alternative hypothesis (H_A): $\mu x_1 \neq \mu x_2$ (There is significant difference between the mean ratios of targeted loan collection and actual loan collection)

Table 4.5

Targeted and Actual Loan Collection

Where, x_1 = targeted loan collection

X_2 = actual loan collection

(Rs. in Crores)

F/Y	X_1	x_1^2 $X(x_1 - \bar{x}_1)^2$	X_2	x_2^2 $X(x_2 - \bar{x}_2)^2$
2002/03	1016.66	163728.67	816.73	736404.26
2003/04	1031.88	151640.15	907.741	588488.44
2004/05	1178.40	58995.55	1033.09	411881.57
2005/06	1384.32	1366.78	2801.22	1268664.32
2006/07	2495.21	1153304.17	2815.59	1301242.12
Total	X_1 7106.47	x_1^2 1529035.32	X_2 8374.37	x_2^2 4306680.71

$$N = 5$$

$$\bar{X}_1 = \frac{\sum x_1}{N} = \frac{7106.47}{5} = 1421.29$$

$$\bar{X}_2 = \frac{\sum x_2}{N} = \frac{8374.37}{5} = 1674.87$$

$$s^2 = \frac{\sum x_1^2 - \frac{(\sum x_1)^2}{N}}{n_1 - 1} = \frac{1529035.32 - \frac{7106.47^2}{5}}{5 - 1}$$

$$= \frac{1529035.32 - 4306680.71}{5}$$

$$= 729464.5$$

Test statistic under H_0 ,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{s^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

$$t = \frac{1421.29 - 1674.87}{\sqrt{729464.5 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$= -0.47$$

$$|t| = 0.47$$

Critical Value

The tabulated value of t at 5% level of significance for two tailed test at 8 degree of freedom is 2.306.

Decision

Since, the calculated value of t is less than the tabulated value of t, the null hypothesis (Ho) is accepted. In other words, there is no significant different between the targeted and actual loan collection of ADB/N.

4.5 Actual Loan Investment and Collection of Development Region-Wise

ADB/N provides loan in different purpose to farmers of all five development regions. The purpose of division in to five development region is to achieve sustainable and equal development of all five regions and distribute return equally to all people of that area, ADB/N invests loan in all the five regions. Actual loan investment and collection of eastern, central, western, mid-western and far-western development regions is given below.

Table 4.6

Actual Loan Investment and Collection of Development Region-Wise (Rs. in 000)

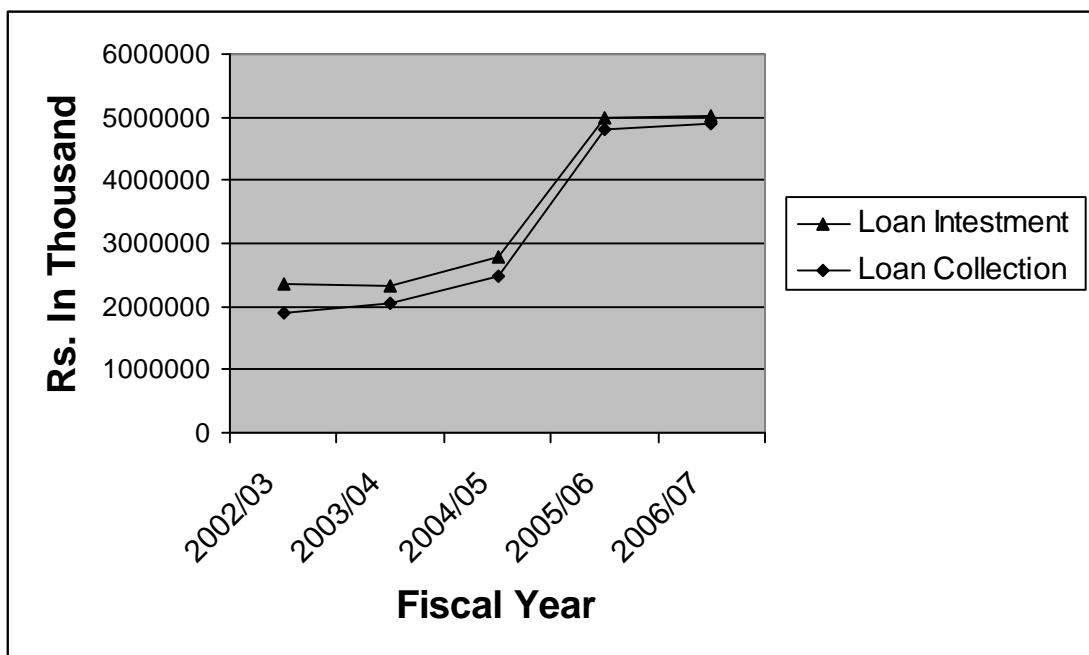
Development Region	Loan	F/Y				
		2002/03	2003/04	2004/05	2005/06	2006/07
Eastern	Investment	2372278 (23.45%)	2339831 (23.06%)	2789283 (23.6%)	4999218 (16.33%)	5030036 (17.18%)
	Collection	1910608 (23.39%)	2063022 (22.73%)	2474763 (23.96%)	4795504 (16.76%)	4883207 (17.34%)
	% age of collection of investment	80.53%	88.17%	88.72%	95.925%	97.08%

Central	Investment	3189000 (31.53%)	3124758 (30.79%)	3816766 (32.3%)	15645662 (51.11%)	14484187 (49.46%)
	Collection	2487181 (30.45%)	2796789 (30.81%)	3236433 (31.33%)	14486704 (50.63%)	13938679 (49.5%)
	% age collection of investment	77.99%	89.5%	84.79%	92.59%	96.23%
Western	Investment	3075772 (30.41%)	3132392 (30.87%)	3450185 (29.2%)	6013935 (19.64%)	6632210 (22.65%)
	Collection	2508526 (30.71%)	2788754 (30.72%)	3085650 (29.87%)	5598201 (19.57%)	6217026 (22.08%)
	% age collection of investment	81.56%	89.03%	89.43%	93.09%	93.74%
Mid-western	Investment	911539 (9.01%)	1003476 (9.89%)	1074437 (9.1%)	2051629 (6.7%)	2090470 (7.06%)
	Collection	771481 (9.45%)	911696 (10.04%)	965129 (9.34%)	1916874 (6.7%)	1987616 (7.14%)
	% age collection of investment	84.63%	90.84%	89.83%	93.43%	95.08%
Far western	Investment	566682 (5.64%)	548112 (5.4%)	686386 (5.8%)	1903445 (6.22%)	1048619 (3.58%)
	Collection	489536 (6%)	517144 (5.7%)	568898 (5.51%)	1814934 (6.34%)	1129371 (4.01%)
	% age of collection of investment	86.39%	94.35%	82.88%	95.35%	107.7%
Total	Investment	10115271	10148569	11817057	30613889	29285522
	Collection	8167332	9077415	10330873	28612217	28155899

4.5.1 Eastern Development Region

Chart No. 4.5

Line Diagram of Actual Loan Investment and Collection of Eastern Development Region



Loan investment of eastern development region is in increasing trend. The lowest loan investment amount is Rs. 2339831 thousands in F/Y 2002/03 and the highest investment amount is Rs. 5030036 thousands in F/Y 2006/07. The percentage of investment of whole nation is 23.45%, 23.06%, 23.6%, 16.33%, and 17.18% from F/Y 2002/03 to 2006/07, respectively, where the lowest is 16.33% in F/Y 2005/06 and highest is 23.6% in F/Y 2004/05.

The loan collection in eastern development region is also increasing trend. The lowest actual loan collection is Rs. 1910608

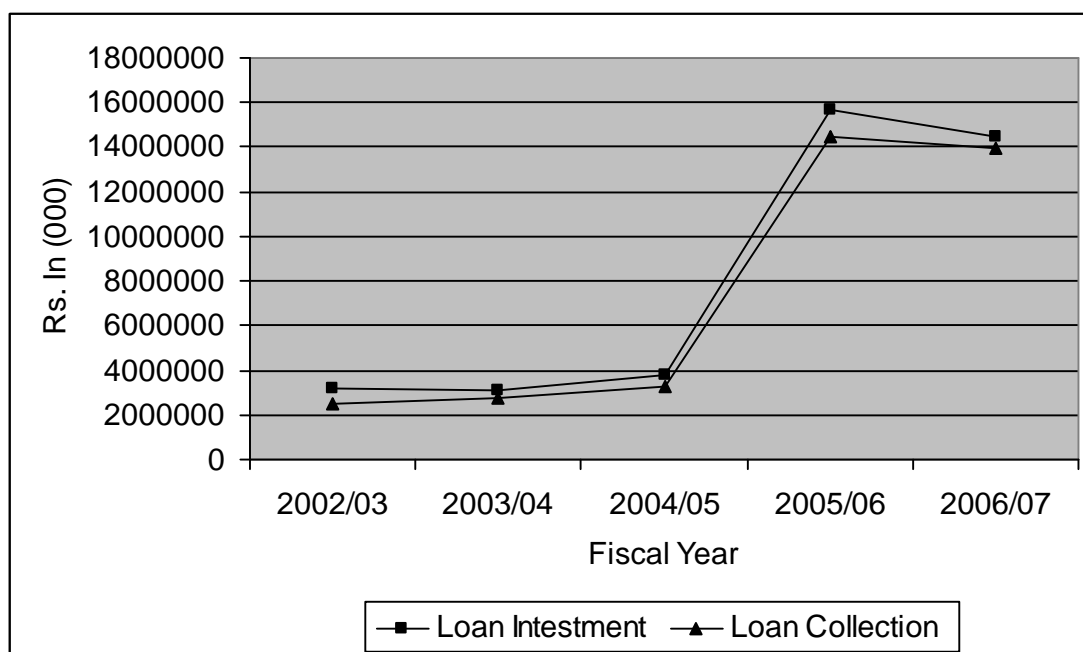
thousands in F/Y 2002/03 and the highest is Rs 4883207 thousands in F/Y 2006/07. The percentage of actual loan collection to total loan collection is 23.39%, 22.73%, 23.96%, 16.76% and 17.34% from F/Y 2002/03 to 2006/07 respectively, where the lowest is 16.76% in F/Y 2005/06 and the highest is 23.96% is F/Y 2004/05.

The percentage of loan collection to investment is 80.54%, 88.17% 88.72%, 95.92% and 97.08% from F/Y 2002/03 to 2006/07 respectively, where the highest collection is 97.08% in F/Y 2006/07 and the lowest collection is 80.54% in F/Y 2002/03.

4.5.2 Central Development Region

Chart 4.6

Line Diagram of Actual Loan Investment, and Collection of Central Development Region



From the table and chart, we can easily find out that there is close relation between loan investment and collection. If investment amount

increased the collection amount also automatically increased. The loan investment of central development region is in increasing trend. The lowest loan investment amount is Rs. 3124758 thousands in F/Y 2003/04 and the highest investment amount is Rs. 15645662 thousands in F/Y 2005/06. The percentage of investment of central development region to total investment is 31.53%, 30.79%, 32.3% 51.11% and 49.46% from F/Y 2002/03 to 2006/07 respectively. Where the highest is 51.11% in F/Y 2005/06 and lowest is 30.79 in F/Y 2003/04.

The loan collection amount also increased every year. The lowest loan collection amount is Rs. 2487181 thousand in F/Y 2002/03 and highest loan collection amount is Rs. 14486704 thousands in F/Y 2005/06. The percentage of loan collection of central development to total collection of all development regions are 30.45% 30.81%, 31.33%, 50.63% and 49.5% from F/Y 2002/03 to 2006/07 respectively, where the lowest is 30.45% in F/Y 2002/03 and 50.63% in F/Y 2005/06.

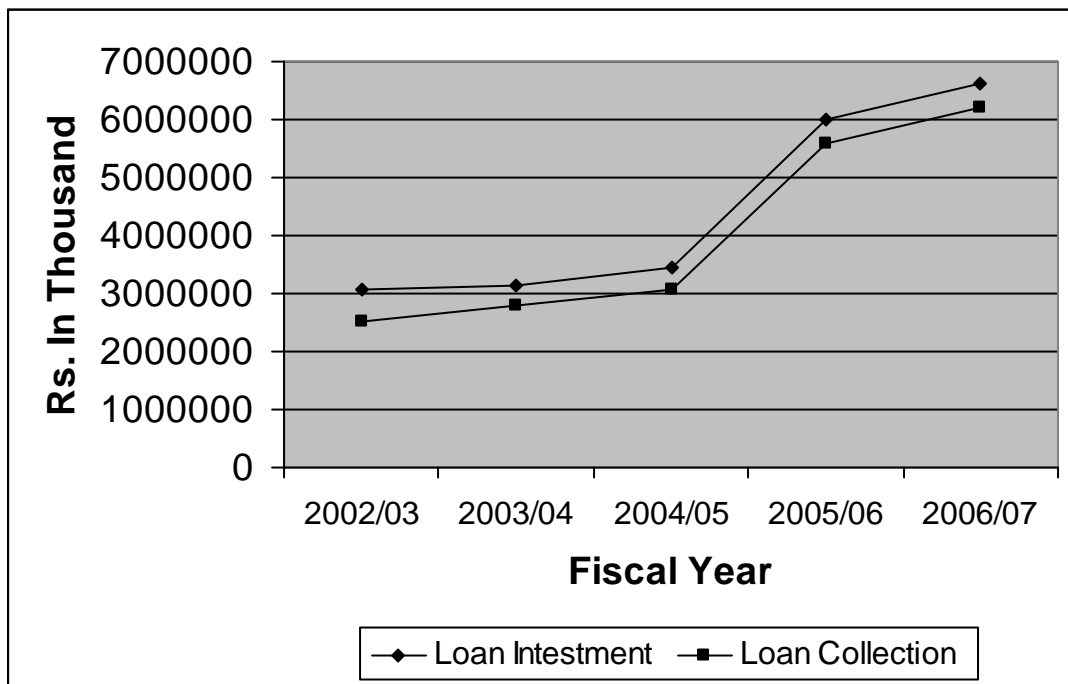
The percentage of loan collection to total loan investment of central development region of 77.99%, 89.5%, 84.79%, 92.59%, and 96.23% from F/Y 2002/03 to 2006/07 respectively, where the lowest is 77.99% in F/Y 2002/03 and the highest is 96.23% in F/Y 2006/07.

ADB/N have invested highest portion of investment fund in central development region. In F/Y 2005/06 it has invested 51.11% in central development region of total investment.

4.5.3 Development Region

Chart 4.7

Line Diagram of Actual Loan Investment and Collection of Western Development Region



From the table and chart the actual investment and collection amount is increasing every year in western development region. The highest investment is Rs. 6632210 thousand in F/Y 2006/07 and the lowest investment is Rs. 3075772 thousand in F/Y 2002/03. The percentage of investment in western development region to total investment is 30.41%, 30.87%, 29.2%, 19.64% and 22.65% from F/Y 2002/03 to 2006/07 respectively, where the highest is 30.87% F/Y 2003/04 and the lowest is 19.64% in F/Y 2005/06.

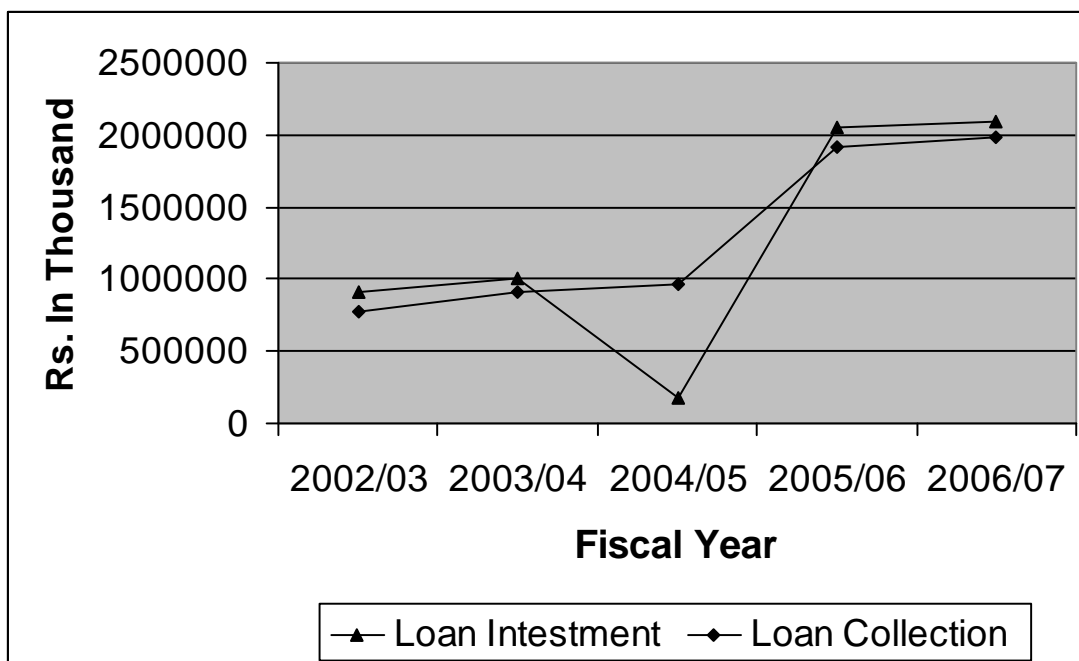
The highest loan collection amount is Rs. 6217026 thousand in F/Y 2006/07 and the lowest collection amount is Rs. 2508526 thousand in F/Y 2002/03. The percentage of collection in western development region to total loan collection is 30.71%, 30.72%, 29.87%, 19.57%, and 22.65% from F/Y 2002/03 to 2006/07, respectively, where highest collection is 30.72% in F/Y 2003/04 and the lowest collection 19.57% in F/Y 2005/06.

From the table, there is collecting invested amount 80% to 90% range. The loan collecting percentage is increasing one year after another, in western development region. The percentage of loan collection to total loan investment of western development region of 81.56% 89.03%, 89.43%, 93.03%, 93, 74% from F/Y 2002/03 to 2006/07 respectively, where the lowest is 81.56% in F/Y 2002/03 and 93.74% in F/Y 2006/07.

4.5.4 Mid-Western Development Region

Chart 4.8

Line Diagram of Actual Loan Investment and Collection of Mid-Western Development Region



From the above table and chart, the loan investment and collection amount is increasing every year. There is nearest positive relationship between loan investment and collection or increase/decrease in investment results in increase/decrease in collection. The lowest investment in Mid-western development region is Rs. 91539 thousands in F/Y 2002/03 and the highest investment in that region is Rs. 2090470 thousands in F/Y 2006/07. The percentage of investment of Mid-western development to total investment of all region is 9.01%, 9.89%, 9.1%, 6.7% and 7.14% from F/Y 2002/03 to 2006/07 respectively, where the lowest is 6.7% in F/Y 2005/06 and highest is 9.89% in F/Y 2003/04.

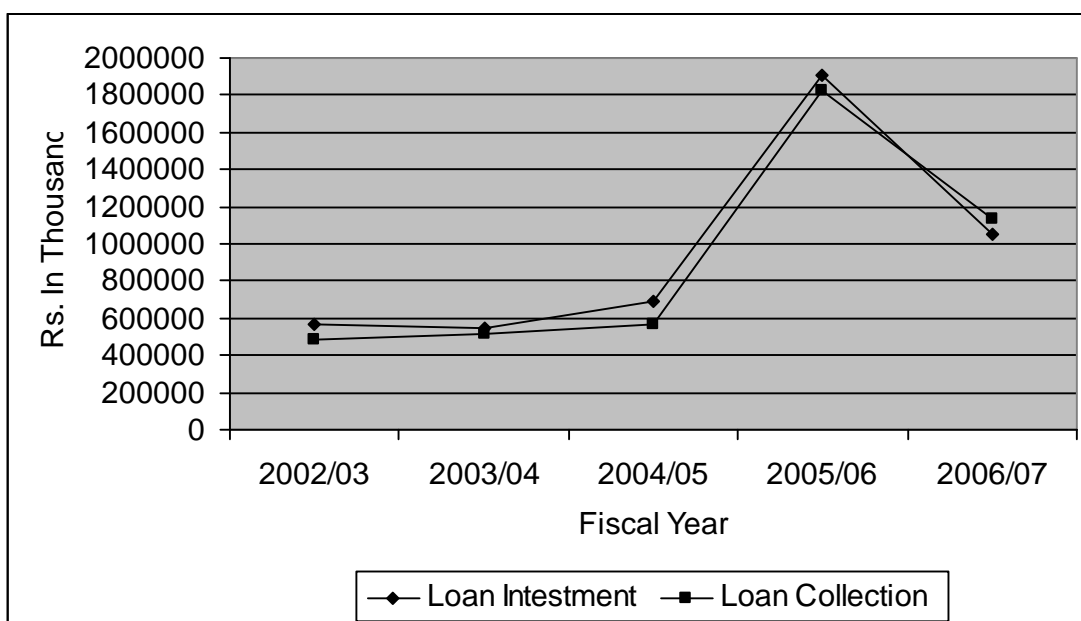
The collection amount in Mid western development region is also increasing. The lowest collection amount is Rs. 771481 thousands in F/Y 2002/03 and the highest loan collection is Rs. 1987616 thousand in F/Y 2006/07. The percentage of collection of Mid-western development to total collection of all region is 9.45%, 10.04%, 9.34%, 6.7%, and 7.06% from F/Y 2002/03 to 2006/07 and the lowest is 6.7% in F/Y 2005/06.

The percentage of collection range from investment in Mid-western development region is 80% to 90%. The loan collecting percentage is increasing one year after another in Mid-western development region. The percentage of loan collection to total loan investment of mid-western development region of 84.63%, 90.84%, 89.83%, 93.43%, and 95.08% from F/Y 2002/03 to 2006/07 respectively, where the lowest is 84.63% in F/Y 2002/03 and 95.08% in F/Y 2006/07.

4.5.5 Far Western Development Region

Chart 4.9

Line Diagram of Actual Loan Investment and Collection of Far-Western Development Region



From the above table and chart, the loan investment and collection amount is increasing each and every year. The increase/ decrease in loan investment results increase, decrease in loan collection. The lowest investment is Rs. 548112 thousands in fiscal year 2003/04 and the highest loan investment is Rs. 1903445 thousand in fiscal year 2005/06 in the Far-western development region. The percentage of loan investment in the Far-western development to total investment of all regions is 5.6%, 5.4%, 5.81%, 6.22% and 3.58% from fiscal year 2002/03 to 2006/07 respectively, where highest investment in percentage is 6.22% in F/Y 2005/06 to lowest in 3.58 in F/Y 2006/07.

The collection amount in Far-western development region is also increasing trend. The highest loan collection is Rs. 1814934 thousands in F/Y 2005/06 and the lowest loan collection is Rs. 489536 in F/Y 2002/03. The percentage loan collection in the Far-western development region to the total collection all region is 6%, 5.7%, 5.5%, 6.34% and 4.034% from the F/Y 2002/03 to 2006/07 respectively, where the highest percent is 6.34% in F/Y 2005/06 and lowest percent is 4.34% in F\Y 2006/07.

The percentage of loan collection from the investment is in increasing trend. It is a positive sign for investment bank. In F/Y 2006/05 the loan collection amount is higher than loan investment amount or 107.7% loans have been collected. The percentage of collection from investment are 86.39%, 94.35%, 82.88%, 95.35% and 107.7% from F/Y 2002/03 to 2006/07 respectively, where the lowest percentage collection is 86.39% in F/Y 2002/03.

4.5.6 F-Test Analysis of Variance of Development Regions

a) Hypothesis First

(Ho): $\sim x_1 = \sim x_2 = \sim x_3 = \sim x_4 = \sim x_5$ (There is no significant difference of loan investment of ADB/N among the development regions)

(HA): $\sim x_1 | \sim x_2 | \sim x_3 | \sim x_4 | \sim x_5$ (There is significant difference of loan investment of ADB/N among the development regions)

Under test Ho, statistics is:

$$F = \frac{\text{Mean sum of squares between samples}}{\text{Mean sum of squares within samples}}$$

$$= \frac{403548.32}{93569.959}$$

$$= 4.31 \text{ (see appendix- III)}$$

Critical Value

The tabulated value of F at 5% level significance for 4 and 20 degree of freedom is 2.87.

Decision

Since the calculated value of 'F' is greater than the tabulated value of F, the null (Ho) is rejected and the alternative hypothesis (HA) is accepted. In other words, there is significant difference of loan investment of ADB/N among the development regions.

Loan Collection

Hypothesis Second

(Ho): $\sim x_1 = \sim x_2 = \sim x_3 = \sim x_4 = \sim x_5$ (There is no significant difference of loan investment of ADB/N among the development regions)

(HA): $\sim x_1 \mid \sim x_2 \mid \sim x_3 \mid \sim x_4 \mid \sim x_5$ (There is significant difference of loan investment of ADB/N among the development regions)

Under test H_0 , statistics is:

$$\begin{aligned} F &= \frac{\text{Mean sum of squares between samples}}{\text{Mean sum of squares within samples}} \\ &= \frac{336824.54}{89544.96} \\ &= 3.76 \text{ (see appendix- IV)} \end{aligned}$$

Critical Value

The tabulated value of F at 5% level significance for 4 and 20 degree of freedom is 2.87.

Decision

Since the calculated value of 'F' is greater than the tabulated value of F, the null (H_0) is rejected and the alternative hypothesis (HA) is accepted. In other words, there is significant difference of loan investment of ADB/N among the development regions.

4.6 Achievement of Purpose-Wise Loan Investment and Collection

ADB/N has invested development credit in different purposes to uplift the life standard of poor and ultra poor such as agriculture, industry,

trade, land development, deprived class credit and service business which is given below:

- a) Agriculture related purpose
- b) Marketing purpose
- c) Bio-gas and power development
- d) Housing and land development
- e) Agro-tools and irrigation
- f) Non-agricultural and tourism
- g) Others

4.6.1 Actual Loan Investment and Collection of Agriculture Related Sectors

The main focusing point of ADB/N is agriculture related sector. The main objective of the ADB/N is to invest in agriculture sector. Agricultural credit includes cereal and cash crop production loan, horticulture, livestock, tea and coffee etc.

Table 4.7

Actual Loan Investment and Collection of Agriculture Related Sector

(Rs. in 000)

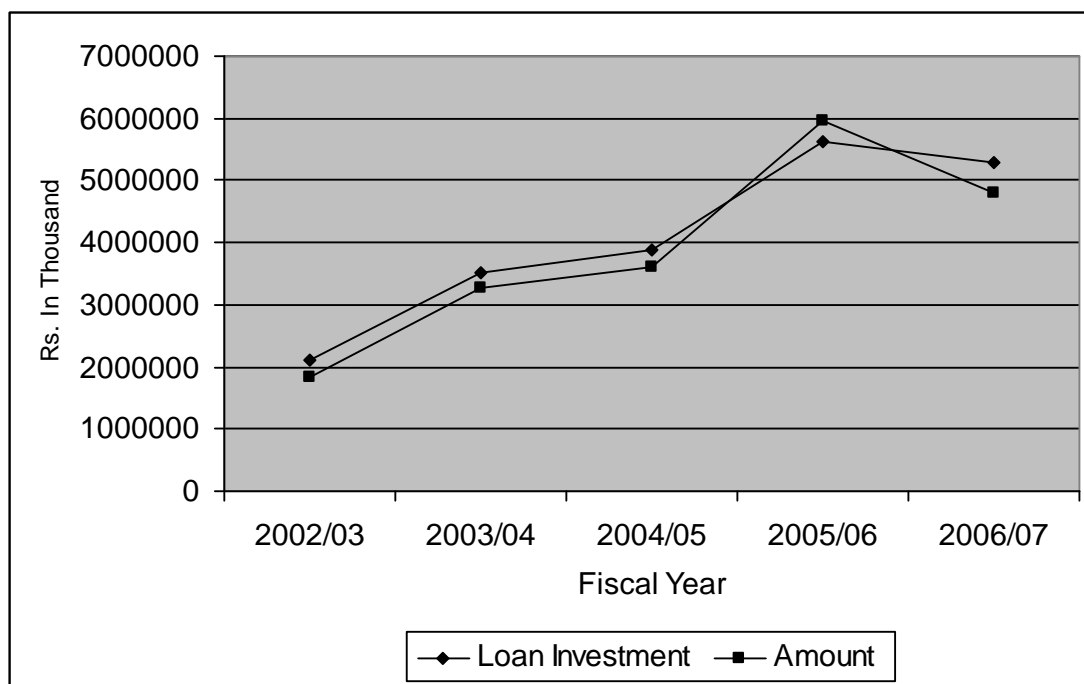
F/Y	Loan Investment			Loan Collection			%of collection
	Amount	Growth	Index	Amount	Growth	Index	

2002/03	2121509	-	100	1819676	-	100	85.77
2003/04	3513662	65.57%	165.57	3266210	79.49%	179.49	92.96
2004/05	3874121	10.26%	175.83	3621400	10.87%	190.36	93.48
2005/06	5629288	45.30%	221.13	5953102	64.39%	254.75	105.75
2006/07	5296964	-5.9%	215.23	4792954	-19.49%	235.26	90.5

(Source: ADB/N Annual Report from F/Y 2002/03 to 2006/07)

Chart 4.10

Line Diagram of Loan Investment and Collection of Agriculture Related Purpose



In the above table, loan investment has increased each year. The lowest actual loan amount on agriculture purpose is Rs. 2121509 thousand in F/Y 2002/03 and the highest is Rs. 5629288 thousand in F/Y 205/06. The highest growth in loan investment is 65.57% in F/Y 2003/04 and the lowest growth is -539% in F/Y 2006/07. The index 215.23 represents the 115.23% increase in loan investment amount in F/Y 206/07 than the base year 2002/03.

Actual loan collection amount is also increasing trend the lowest loan collection in agriculture purpose is Rs. 1819676 thousand in F/Y 2002/03 and the highest is Rs. 5953102 thousand in F/Y 2005/06. The highest growth in collection is 79.49% in F/Y 203/04 and lowest growth is -19.49% in F/Y 2006/07. The indices of loan collection are 100,

179.49, 190.36, 254.75 and 235.26 from F/Y 2002/03 to 2006/07 respectively.

The percentage of loan collection from the agriculture purpose are 85.77%, 92.96% , 93.48%, 105.75% and 90.05% from F/Y 2002/03 to 2006/07 respectively. The highest percentage of collection is 105.75% in F/Y 205/06 and the lowest is 85.77% in F/Y 2002/03.

The coefficient of correlation value calculated between loan investment and collection is to 96 (see appendix V), which is highly positively correlated. Coefficient of determination (i.e. $r^2 = 0.92$) indicates that 92% of the total variation in loan collection of agriculture purpose (Y) is explained by the loan investment of agriculture (X). The tabulated critical value of t at 5% level of significance for two failed test at 3 degree of freedom is 3.182, which is less than the calculated value of $t^* 15.94$. Therefore, the coefficient of correlation shows significant relationship between loan investment and collection.

4.6.2 Actual Loan Investment and Collection of Marketing Purpose

Agriculture credit is granted on marketing purpose to buy and sell agricultural goods such as chemical fertilizer, improved goods, pesticides, rice, millet, maize potato, mustard etc. for one year period. In this purpose, it has also included Bio-gas and warehousing.

Table 4.8

Annual Loan Investment and Collection on Marketing Purpose

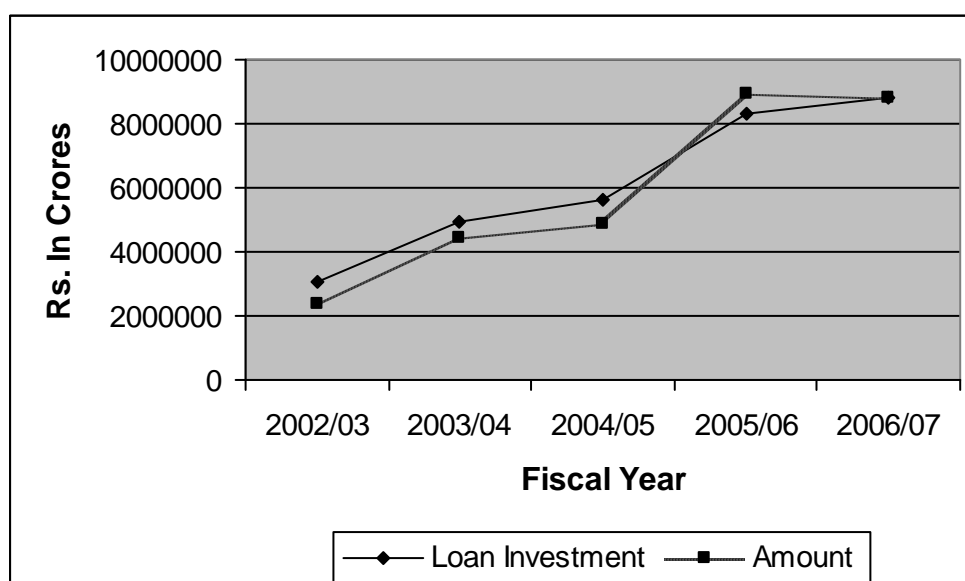
(Rs. in 000)

F/Y	Loan Investment			Loan Collection			%of collection
	Amount	Growth	Index	Amount	Growth	Index	
2002/03	3035310	-	100	2363995	-	100	77.88
2003/04	4965190	63.58%	163.58	4420526	87%	187	89.03
2004/05	5605296	12.89%	176.47	4857471	9.88%	196.88	86.66
2005/06	8305543	48.17%	224.64	8947113	84.19%	281.07	107.7
2006/07	8789386	5.51%	230.15	8802132	-1.62%	279.45	100.12

(Source: ADB/N Annual Report from F/Y 2002/03 to 2006/07)

Chart 4.11

Line Diagram of Loan Investment and Collection of Marketing Purpose



From the above table, we can find that the loan investment and collection amount is increasing year by year. In F/Y 2002/03 the total investment amount in marketing purpose is Rs. 3035310 thousand which reaches Rs. 4965190, thousand Rs. 5605296 thousand Rs, 8305543 thousand and Rs. 8789386 thousand from the year 203/04 to 2006/07 respectively. Where the highest loan investment amount is Rs. 8789386 thousand in F/Y 2006/07 and the lowest is Rs. 3035310 thousand in F/Y 2002/03. The growth rate in loan investment amount in F/Y 2003/04 to 2006/07 is 63.58%, 12.89%, 48.17%, 5.5% respectively. The index 230.15 in F/Y 2006/07 represents the 130.15% increases in loan investment amount then the 130.15% increases in loan investment amount than the base year 2002/03.

The lowest amount of loan collection is Rs. 2363995 thousand in F/Y 2002/03 and the highest amount is Rs. 8947113 thousand in F/Y 2005/06. The loan collection amount is increasing 87%, 9.88%, 84.19%, and -1.62% from F/Y 2003/04 to 2006/07 respectively. In F/Y 2005/06 the loan collection amount has increased by highest amount. The index 279.45 indicates that the index amount reacted 279.5 with respect it's base years 100. The loan collection percent from investment amount is increasing year by year. 77.88%, 89.03%, 86.66%, 107.7% and 100.12% of loan investment amount have been collected from F/Y 2002/03 to 2006/07 respectively. In F/Y 2005/06 it has collected 7.7% more amount than its investment.

The coefficient of correlation value calculated between loan investment and collection in marketing purpose is 0.99 (see appendix VI) which is highly positively correlated. Coefficient of determination (i.e. $r^2 = 0.98$) indicates that 98% of the total variation in loan collection of marketing purpose (Y) is explained by the loan investment of marketing

purpose (X). The tabulated critical value of t^* at 5% level of significance for two tailed test of 3 degree of freedom is 3.182, which is less than the calculated value of t^* 12.12. Therefore, the coefficient of correlation shows the significant relationship between loan investment and collection.

4.6.3 Actual Loan Investment and Collection on Tourism and Non Agricultural Credit

The total loan investment on tourism and non-agricultural sector includes investment in tourism industry such as hotels, restaurant, bar, casino, travel, tour, tourism, airlines company etc and non-agriculture sector includes all other service and productive industries than agriculture including tourism.

Table 4.9
Loan Investment and Collection on Tourism and Non Agricultural Credit

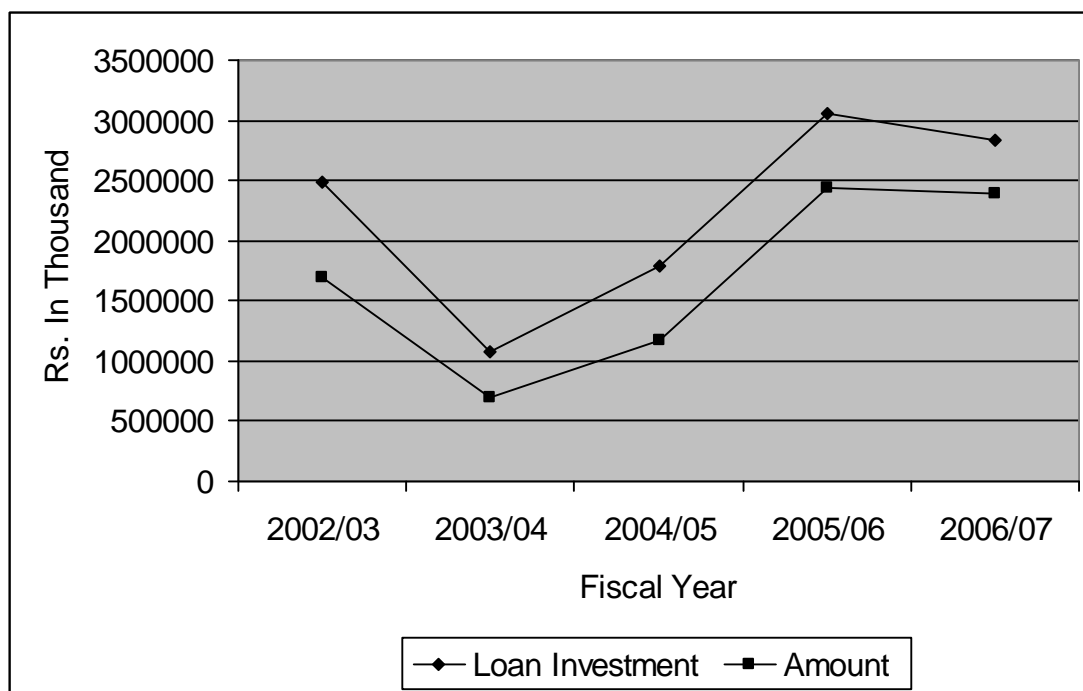
(Rs. in 000)

F/Y	Loan Investment			Loan Collection			%of collection
	Amount (Rs.)	Growth %	Index	Amount (Rs.)	Growth %	Index	
2002/03	2489295	-	100	1696794	-	100	68.16
2003/04	1069157	-57.05	42.95	696774	-58.94	41.06	65.17
2004/05	1797036	68.08	111.03	1177646	69.01	110.07	65.53
2005/06	3059007	70.23	181.26	2434667	106.74	216.81	79.59
2006/07	2839369	-7.18	174.08	2395199	-1.62	215.19	-

(Source: ADB/N Annual Report from F/Y 2002/03 to 2006/07)

Chart 4.12

Line Diagram of Loan Investment and Collection of Tourism and Non Agricultural Credit



In the above table, the lowest investment amount is 1069157 thousands in F/Y 2003/04 and the highest investment is Rs. 3059007 thousands in F/Y 2005/06. The growth in loan investment amount from F/Y 2003/04 to 2006/07 is -57.05%, 68.08%, 70.23% and -7.18% respectively. The index in F/Y 2006/07 174.08 represents, the loan investment amount reached 174.08 with respect 100 in base year 2002/03. By considering the loan investment amount, the investment amount is fluctuating each year.

In the table the loan collection amount is also fluctuating with the change of time. Rs. 1696794 thousands in 202/03, Rs. 696774 thousands in 2003/04, Rs. 1177646 thousands in 2004/05, Rs. 2434667 thousands in 2005/06 and Rs. 2395199 thousands in F/Y 2006/07 were collected. The

growth in collection amount is -58.94%, 69.01%, 106.74%, and -1.62% from F/Y 2002/03 to 2006/07 respectively. The index 215.19 indicates the base year's collection index 100 reached 215.19.

From the table it is clear that the highest percentage of loan collection from investment amount is 79.59% in F/Y 2006/07 and the lowest is 65.17% in F/Y 2003/04.

The coefficient of correlation value calculated between investment and collection is +0.97 (see appendix VII) which is highly positively correlated. Coefficient of determination i.e. ($r^2 = 0.95$) indicates that 95% or the total variation in loan collection of tourism and non agriculture purpose (Y) is explained by loan investment in such purpose (X). The tabulated critical value of t at 5% level of significance for two tailed test at 3 degree of freedom is 3.182, which is less than the calculated value of $t^* 7.513$. Therefore, the coefficient of correlation shows significant relationship between loan investment and collection. The coefficient of correlation shows significant relationship between loan investment and collection.

4.6.4 Loan Investment and Collection in Housing and Land Development

ADB/N has invested in land development and housing sector to farmers. Mostly ADB/N grants this type of loan for medium and long term to farmers. If natural calamities occur, Nepal government directs to invest this type of loan to bank.

Table 4.10**Actual Loan Investment and Collection in Housing and Land Development****(Rs. in 000)**

F/Y	Loan Investment			Loan Collection			%of collection
	Amount (Rs.)	Growth %	Index	Amount (Rs.)	Growth %	Index	
2002/03	20502	-	100	20538	-	100	100.17
2003/04	Nil	-	-	Nil	-	-	-
2004/05	Nil	-	-	Nil	-	-	-
2005/06	682867	-	3330.73	623423	-	3035.46	91.29
2006/07	635023	-7.006	3323.73	613317	-1.62	3033.84	96.58

(Source: ADB/N Annual Report from F/Y 2002/03 to 2006/07)

From the table, the loan investment on housing and land development in F/Y 2002/03 is Rs. 20502 thousand in F.Y 2003/04 and 2004/05 there is no investment. In F/Y 2005/06 and 2006/07 the loan investment is 682867 thousand and 635023 thousand. The loan investment in F/Y 2002/03 to 2006/07 is Rs. 20538 thousand, nil, nil, Rs. 303546 thousand and Rs. 3033.84 thousand respectively. The % of loan collection is 100.17% in F/Y 2002/03 and 91.29% and 96.58% in F/Y 2005/06 and 2006/07 respectively. Because of irregular investment on this purpose by ADB/N, the figure and other statistical analysis hasn't completed in this research work.

CHAPTER-V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Nepal is an agricultural country. More than 65% populations are still depending on agriculture. The majority of 86% of people are still living below poverty line. Contribution on GDP by agriculture sector is 34.3% in F/Y 2006/07.

ADB/N, established in 1968, and grants around 80% of its loan in institutional agriculture credit to farmers. The total requirement of agricultural rural credit of Nepal is much more than its supply.

Loan investment of development banking of ADB/N refers to agricultural credit granted by ADB/N such as term-wise, purpose-wise, and development region wise in urban and rural areas. The purpose of granting agricultural credit is to uplift life standard of the farmers by income generating activities, to create employment and self-employment and to reduce poverty through social mobilization. Likewise loan collection of ADB/N indicates collection of development loans, principal from its farmers invested early for different purposes.

Because of lack of banking sector in rural areas, non institutional money lender and non-institutional financing plays significant role in rural areas. Most of farmers have less than one hectare of land and also landless. Because of high interest rate of non-institutional loan, Nepalese farmers and their generation are born in debt, live in debt and die in debt.

Nepal government have kept poverty alleviation as the main objective since 8th plan to thereafter plans. Agricultural sector is the chief support to poverty alleviation and to achieve sustainable economic development in rural economy. Nepal becomes full member of W.T.O. by 23 April 2004. Being member of least developed country, Nepal is a food exporting country. After being membership of W.T.O. Nepal has threats as well as opportunities. Nepalese agricultural sector should be restructured. Investment on agriculture sector should be done by making portfolio and have to identified possible line of agricultural opportunities. This requires excessive homework, capital and technology in Nepal.

The general objectives of this research is to study development region wise and purpose wise targeted loan investment and collection of ADB/N. Specific and supportive objectives are kept to fulfill the general objectives and there are incorporated in the first chapter.

Review of literature, the preliminary search which helps us to generate and refine our research ideas on loan investment and collection, lending policy, collection procedure, textbook, journal and from post thesis, is reviewed in second chapter.

Research methodology, research design, such as statistical method of analyzing quantitative data, descriptive analysis for quantitative data are presented in third chapter.

In data presentation and analysis, data are presented in tabular form and in figures. Data is analyzed through organizing, tabulating, performing, statistical analysis drawing inferences about current loan investment and collection situation of ADB/N.

5.2 Conclusion

Banks are institutions that handle their day to day operation and earn money by investing and collecting process. If investment and collection do not occur timely, each and every organization can't be economically operated in sound and viable way. This research is focused on loan investment and collection of ADB/N. The following conclusion can be drawn from the study.

1. Conclusion from Targeted/Actual Loan Investment and Collection

From the study, the targeted loan investment and collection is increasing every year except in 2003/04. The targeted investment is Rs. 1270.82 crores in F/Y 2002/03 and the same targeted investment amount reached Rs. 29442.2 crores in F/Y 2006/07. The targeted loan collection is also in increasing trend. The growth rate of targeted loan collection with respect base year value are 1.5%, 14.2%, 17.47% and 80.02% in F/Y 2003/04, 2004/05, 2005/06 and 2006/07 respectively.

Actual loan investment and collection is also in increasing trend. The actual loan investment is Rs. 1011.5271 crores in F/Y 2002/03 which reached Rs. 3061.3889 crores and 2928.552 crores in F/Y 2005/06 and 2006/07 respectively. The actual loan collection is F/Y 2002/03 is Rs. 816.7332 crores and in F/Y 2006/07 is Rs. 2815.5899 crores.

There is small variation in targeted/actual loan investment and collection but through t-test it is found that there is no significant difference between targeted/actual loan investment and collection.

2. Conclusion from Development Region-wise loan investment and collection

By observing development region-wise loan investment and collection by ADB/N, there is not equal investment in each development region. Loan investment in Central Development Region is higher than that of other development regions. The lowest investment is in Far-Western Development Region. The collection from investment is almost on same range on all development regions or 70% to 90% loans are collected on different development regions. The collection percent from the loan investment on Eastern, Central, Western, Mid-western and Far-western development regions are 80.53%, 77.99%, 81.56%, 84.63% and 86.39% respectively on F/Y 2002/03. From the loan investment and collection by ADB/N in different development regions, we can reach to the conclusion that, ADB/N have invested large amount in Central Development Region. It has not invested on the basis of areas occupied by different development regions but on the basis of population size. Perhaps because of more population in Central Development Region, it has invested large amount in this region and because of low population than other development regions in ADB/N has invested only little money in Far-Western Development Region.

From the development region-wise loan investment and collection by ADB/N, we can reach to the conclusion that there is significant difference on loan investment in different development regions by ADB/N. The collection amount is based on investment rank. The percentage of collection from investment on different development region is almost same.

3. Purpose Wise Loan Investment and Collection on Different Development Regions

ADB/N has invested loan on different purpose. Because of this, the research is totally based on secondary data and ADB/N has not totally separated purpose wise loan investment and collection data, and because of policy change of ADB/N, it is much more difficult to separate investment amount in different purpose as possible as I have analyzed only some purpose loan investment and collection data.

) Loan Investment and Collection on Agriculture related Purpose

The main focusing point of investment of ADB/N is on agriculture sector and the key sector of agriculture are different agricultural crops, paddy, horticultural and agriculture business etc. The investment amount on agriculture sector is in increasing trend. It has increased 65.57%, 10.26%, 45.30% and 5.9% in F.Y. 2003/04, 2004/05, 2005/06, 2006/07 respectively. The collection is also in increasing trend. The % of collection in investment are 85.77%, 92.96%, 93.48%, 102.75%, 90.05% in F.Y. 2003/04, 2004/05, 2005/06, 2006/07 respectively. The collection percent from investment in agriculture sector is satisfactory on its aggregate collection percent.

) Loan Investment and Collection on Marketing Purpose

By observing the loan investment and collection on marketing purpose, investment and collection both are in increasing trend. Out of total investment 77.88%, 89.03%, 86.66%, 107.7% and 100.12% amount are collected from F/Y 2002/03 to 2006/07 respectively. The more than 100% collection is due to previous year amount collection. So, this is also satisfactory on aggregate collection percent of ADB/N.

J Loan Investment and Collection on Tourism and Non-Agricultural Purpose

By observing loan investment and collection on tourism and non-agricultural purpose, there is fluctuation on investment amount. The investment amount decrease by 57.05% in F/Y 2003/04 than that of F/Y 2002/03 investment. The investment amount is increased by 68.08%, 70.23% in F/Y 2003/04 and 2004/05. The collection amount has also increased/decreased on the basis of loan investment. The collection in tourism and non-agricultural sector is 68.16%, 65.17%, 65.53% and 79.59% of investment. So it is not so much satisfactory of aggregate collection percent of ADB/N.

5.3 Recommendations

1. Recommendations on Targeted and Actual Loan Investment and Collection

ADB/N has not invested as equal as its target. The target is much more than actual loan investment. Only in fiscal year 2005/06, it has invested much amount than its target. The targeted loan collection and actual loan collection is also different. It has not been able to collect as equal as its target. So to make equal to targeted loan collection and actual loan collection, ADB/N should provide different discount for the farmers who payback loan in time. ADB/N should provide technical support for farmers. If technical support is provided, farmers will be able to increase production then they will be able to pay loan. The causes of bad debts may also be cause of flexible legal action of ADB/N who not pay high amount of loan. So, if ADB/N takes tight legal action for them who takes large amount of money and do not pay although he/she is able to pay.

2. Recommendation on Development Region-Wise Loan Investment and Collection

By observing development region-wise loan investment and collection, ADB/N has invested only little money in Far-Western & Mid-Western Development Region. So if the ultimate objective of ADB/N is to make national development by developing agriculture sector, by increasing income of poor farmers, I recommend to ADB/N to increase investment in Far-Western and Mid-Western Development Regions, because the farmers of these region are much more poor, there is still the scarce of foods to people If ADB/N increases investment on these regions with technical support for farming, then there certainly increases agricultural production. Then the condition of poor farmers may raise. By observing development region-wise loan investment and collection of ADB/N there is no need to do so much differences on loan investment and collection. To make effective on loan investment and collection on different development region and for aggregate agricultural development of different development regions, ADB/N should start different development region wise competitive program between farmers of different development regions. ADB/N should handle regionally package program. In our country the climatic condition and natural resources of different development regions are different if ADB/N should invest and increase on investment on the basis of geographical and climatic potentiality. If ADB/N doesn't emphasize its loan collection, this bank may not be successfully operated and it wouldn't get capital for other new investment. So, I recommend to ADB/N from this study that it should handle different incentive programs for farmers to pay loan in time on all development regions.

3. Recommendation on Purpose-wise Loan Investment and Collection

By observing purpose wise loan investment and collection by ADB/N I get, in aggregate the investment amount is in increasing rate. But the increase in agriculture purpose is lower than that of marketing and tourism and non-agricultural purpose. In my view, there are other numerous banks operating to provide loan on non-agriculture sector. So ADB/N should focus only in investment in agriculture purpose than other purpose. From the study, I cannot get special purpose wise vision of ADB/N on investment on different purpose of agriculture such as cash crops, pet animals, fruit farming, fisher industry etc. So I recommend to ADB/N to make special long term vision for investment in different purposes of agriculture by comparing to loan collection in different purposes the loan collection percentage on tourism and non-agriculture is less than that of other purposes. So, ADB/N should focus to collect loan on this sector. This collection on other sector is satisfactory.

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Appendix – I
Targeted Loan Investment and Collection

Let X = Loan Investment Variable
Y = Loan Collection Variable

Fiscal year	X	x X(x Z	x ²	Y	y X(y Z	y ²	xy
2002 /03	127.082	-45.27	2049.46	101.666	-40.464	1637.34	1831.8
2003 /04	125.077	-47.276	2235	103.188	-38.94	1516.32	1840.93
2004 /05	145.482	26.87	722.05	117.84	-24.29	590.15	652.67
2005 /06	169.704	-2.649	7.02	138.432	-3.698	13.67	9.796
2006 /07	294.42	122.067	14900.35	249.521	107.39	11532.83	13108.78
Total	x X861		x ² X199	y X710		y ² X152	xy X174

$$N = 5$$

$$\bar{X} = \frac{\sum X}{N} = \frac{861.765}{5} = 172.353$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{710.647}{5} = 142.13$$

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{17443.97}{\sqrt{19913.88} \sqrt{15290.3}} = \frac{17443.97}{17449.61} = 0.99$$

$$r^2 = 0.98$$

$$t^* = \frac{r}{\sqrt{\frac{1 - r^2}{n - 2}}} = \frac{0.99}{\sqrt{\frac{1 - (0.99)^2}{5 - 2}}} = \frac{0.99}{\sqrt{0.081445}} = 12.155$$

Appendix – II
Actual Loan Investment and Collection

Let X = Actual Loan Investment Variable
Y = Actual Loan Collection Variable

Fiscal year	X	$x \sum (x^2)$	x^2	Y	$y \sum (y^2)$	y^2	xy
2002/03	101.13	-82.812	6857.83	81.673	-87.017	7571.96	7206.052
2003/04	101.49	-82.472	6801.63	90.774	-77.916	6070.9	6425.89
2004/05	118.17	-65.792	4328.59	103.31	-65.38	4274.54	4301.48
2005/06	306.14	122.178	14927.46	286.122	117.43	13790.27	14347.36
2006/07	292.86	108.898	11858.8	281.56	112.87	12739.64	12291.32
Total	$\sum X = 911$		$\sum x^2 = 447$	$\sum Y = 843$		$\sum y^2 = 444$	$\sum xy = 44572.1$

$$N = 5$$

$$\bar{X} = \frac{\sum X}{N} = \frac{911}{5} = 182.2$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{843}{5} = 168.6$$

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{44572.1}{\sqrt{44774.28} \sqrt{44447.31}} = \frac{44572.1}{2116.25 \times 210.825} = 0.99$$

$$r^2 = 0.99^2 = 0.98$$

$$t^* = \frac{r}{\sqrt{\frac{1 - r^2}{n - 2}}} = \frac{0.99}{\sqrt{\frac{1 - (0.98)^2}{5 - 2}}} = \frac{0.99}{\sqrt{0.08465}} = 12.12$$

Appendix – III

Test Analysis of Variance of Development Region Wise Actual Loan Investment

- X_1 = Investment in Eastern Development region
 X_2 = Investment in Central Development region
 X_3 = Investment in Western Development region
 X_4 = Investment in Mid – Western Development region
 X_5 = Investment in Far – Western Development region

F/Y	X_1	X_2	X_3	X_4	X_5	$(X_1 \ Z \bar{X}_1)^2$	$(X_2 \ Z \bar{X}_2)^2$
2002/03	237.23	318.9	307.58	91.15	56.67	12855.48	236497.42
2003/04	233.98	312.48	313.24	100.35	54.81	13603.02	242782.85
2004/05	278.93	381.68	345.02	107.44	68.64	5138.31	179377.67
2005/06	499.92	1564.57	601.39	205.16	190.34	22292.88	576627.61
2006/07	503.0	1448.42	633.22	209.05	104.86	23222.10	413719.1
Total	x_1 1753.06	x_2 X 4026.05	x_3 X 2230.45	x_4 X 713.15	x_5 X 475.32	$(X_1 \ Z \bar{X}_1)^2$ = 77111.79	$(X_2 \ Z \bar{X}_2)^2$ = 1649004.65

$N = 5$

$$\bar{X}_1 \ X \ \frac{X_1}{N} \ X \ \frac{1753.06}{5} \ X \ 350.612$$

$$\bar{X}_2 \ X \ \frac{X_2}{N} \ X \ \frac{4026.05}{5} \ X \ 805.21$$

$$\bar{X}_3 \ X \ \frac{X_3}{N} \ X \ \frac{2230.45}{5} \ X \ 446.09$$

$$\bar{X}_4 \ X \ \frac{X_4}{N} \ X \ \frac{713.15}{5} \ X \ 142.63$$

$$\bar{X}_5 \ X \ \frac{X_5}{N} \ X \ \frac{475.32}{5} \ X \ 95.064$$

$$\begin{aligned} \text{Grand Mean } \bar{\bar{X}} \ X \ \frac{\bar{X}_1 \ \Gamma \ \bar{X}_2 \ \Gamma \ \bar{X}_3 \ \Gamma \ \bar{X}_4 \ \Gamma \ \bar{X}_5}{N} \\ X \ \frac{350.612 \ \Gamma \ 805.21 \ \Gamma \ 446.09 \ \Gamma \ 142.63 \ \Gamma \ 95.064}{5} \\ = 367.92 \end{aligned}$$

Sum of square between sample (development regions)

$$\begin{aligned} = nX_1 (\bar{x}_1 \ Z \bar{x})^2 + nX_2 (\bar{x}_2 \ Z \bar{x})^2 + nX_3 (\bar{x}_3 \ Z \bar{x})^2 + nX_4 (\bar{x}_4 \ Z \bar{x})^2 \\ + nX_5 (\bar{x}_5 \ Z \bar{x})^2 \\ = 5(350.612-367.92)^2 + 5(805.21-367.92)^2 + 5(446.09-367.92)^2 + 5(142.63-367.92)^2 + 5(95.064-367.92)^2 \\ = 1497.83+956112.72+30552.74+253778+372251.9+1614193.274 \end{aligned}$$

Sum of squares within samples

$$\begin{aligned} = (X_1 \ Z \bar{X}_1)^2 \ \Gamma \ (X_2 \ Z \bar{X}_2)^2 \ \Gamma \ (X_3 \ Z \bar{X}_3)^2 \ \Gamma \ (X_4 \ Z \bar{X}_4)^2 \ \Gamma \ (X_5 \ Z \bar{X}_5)^2 \\ = 77111.79+1649004.65+118312.8+14003.75+12966.19 \\ = 1871399.16 \end{aligned}$$

One way Anova table

Source of variation	Sum of squares	Degree of freedom	Mean sum of squares	F-ratio
Between samples	1614193.274	5-1 = 4	$\frac{1614193.274}{4} \times 403548.32$	$\frac{403548.32}{93569.959} =$
Within samples	1871399.18	25-5 = 20	$\frac{11871399.18}{20} \times 93569.959$	4.31
Total		24		

The tabulated value of F at 5% level of significant for 4 and 20 degree of freedom is 2.87

Appendix –IV

Test Analysis of Variance of Development Region Wise Actual Loan Investment

X₁ = Collection in Eastern Development region

X₂ = Collection in Central Development region

X₃ = Collection in Western Development region

X₄ = Collection in Mid – Western Development region

X₅ = Collection in Far – Western Development region

F/Y	X ₁	X ₂	X ₃	X ₄	X ₅	(X ₁ Z X ₁) ²	(X ₂ Z X ₂) ²
2002/03	191.06	248.72	250.85	77.15	48.95	17289.62	240296.04
2003/04	206.33	279.68	278.88	91.17	51.71	13507.1	210901.38
2004/05	247.48	323.64	308.56	96.51	56.89	5635.5	172457.48
2005/06	479.56	1448.67	559.82	191.69	181.49	24652.14	503745.1
2006/07	488.32	1393.87	621.7	198.76	112.94	27479.69	428959.5
Total	x ₁ 1612.75	x ₂ X 3694.58	x ₃ X 2019.81	x ₄ X 655.28	x ₅ X 451.98	(x ₁ Z x ₁) ² = 88564	(x ₂ Z x ₂) ² = 1556359.5

N = 5

$$\bar{X}_1 = \frac{X_1}{N} = \frac{1612.75}{5} = 322.55$$

$$\bar{X}_2 = \frac{X_2}{N} = \frac{3694.58}{5} = 738.921$$

$$\bar{X}_3 = \frac{X_3}{N} = \frac{2019.81}{5} = 403.962$$

$$\bar{X}_4 = \frac{X_4}{N} = \frac{655.28}{5} = 131.056$$

$$\bar{X}_5 = \frac{X_5}{N} = \frac{451.98}{5} = 90.396$$

$$\text{Grand Mean } \bar{X} = \frac{\bar{X}_1 \Gamma \bar{X}_2 \Gamma \bar{X}_3 \Gamma \bar{X}_4 \Gamma \bar{X}_5}{5}$$

$$= \frac{322.5 \Gamma 738.92 \Gamma 403.962 \Gamma 131.056 \Gamma 90.396}{5}$$

$$= 337.37$$

Sum of square between sample (development regions)

$$= nX_1(\bar{x}_1 - \bar{Zx})^2 + nX_2(\bar{x}_2 - \bar{Zx})^2 + nX_3(\bar{x}_3 - \bar{Zx})^2 + nX_4(\bar{x}_4 - \bar{Zx})^2$$

$$+ nX_5(\bar{x}_5 - \bar{Zx})^2$$

$$= 5(322.5-337.37)^2 + 5(738.92-337.37)^2 + 5(403.962-337.37)^2 + 5(131.056-337.37)^2 + 5(90.396-337.37)^2$$

$$= 1105.58 + 806212 + 22172.47 + 212827.33 + 304980.78$$

$$= 1347298.16$$

Sum of squares within samples

$$= (x_1 - \bar{Zx}_1)^2 \Gamma (x_2 - \bar{Zx}_2)^2 \Gamma (x_3 - \bar{Zx}_3)^2 \Gamma (x_4 - \bar{Zx}_4)^2 \Gamma (x_5 - \bar{Zx}_5)^2$$

$$= 88564 + 1556359.5 + 119891.88 + 13950.5 + 12133.38$$

= 1790899.27

One way Anova table

Source of variation	Sum of squares	Degree of freedom	Mean sum of squares	F-ratio
Between samples	1347298.16	5-1 = 4	$\frac{1347298.16}{4}$ X336824.54	$\frac{336824.54}{89544.96} = 3.76$
Within samples	1790899.27	25-5 = 20	$\frac{1790899.27}{20}$ X89544.96	
Total		24		

The tabulated vaule of F at 5% level of significant for 4 and 20 degree of freedom is 2.87

Appendix – V

Actual Loan Investment and Collection of Agriculture Purpose

Let X = Loan Investment Variable

Y = Loan Collection Variable

Fiscal year	X	x X(X Z	x ²	y	y X(Y Z	y ²	xy
2002/03	112.15	-276.56	76486.54	181.97	-207.1	42888.75	57275.58
2003/04	351.37	-37.342	1394.42	326.62	-62.45	3900	2332
2004/05	387.41	-1.305	1.7	362.14	-26.93	725.22	35.14
2005/06	562.93	174.218	30351.9	595.31	206.24	42534.94	35930.72
2006/07	529.7	140.99	19877.62	479.29	90.22	8139.65	12720.12
Total	$\sum X$ 1943.56		$\sum x^2$ 128112.2	$\sum y$ 1945.33		$\sum y^2$ 98188.56	$\sum xy$ 108293.56

$$N = 5$$

$$\bar{X} = \frac{\sum X}{N} = \frac{1943.56}{5} = 388.712$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{1945.33}{5} = 389.07$$

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{108293.56}{\sqrt{128112.2} \sqrt{98188.56}} = 0.96$$

$$r^2 = 0.92$$

$$t^* = \frac{r}{\sqrt{\frac{1-r^2}{n-2}}} = \frac{0.96}{\sqrt{\frac{1-(0.92)}{5-2}}} = 5.94$$

Appendix – VI

Actual Loan Investment and Collection of Marketing Purpose

Let X = Loan Investment Variable

Y = Loan Collection Variable

Fiscal year	X	x X(X	x ²	y	y X(Y	y ²	xy
2002/03	303.53	-310.48	96400.31	236.4	-351.42	123496	109108.9
2003/04	496.52	-117.49	13804.84	442.05	-145.77	21248.9	17126.52
2004/05	560.53	-53.48	2860.54	485.75	-102.07	10418.28	5458.70
2005/06	830.55	216.54	46887.84	894.71	306.89	94181.47	66453.96
2006/07	878.94	264.93	70187.9	880.21	292.39	85491.91	77462.88
Total	x X3070.07		x ² X230141.43	Y X2939.12		y ² X334836.56	xy X275610.96

$$N = 5$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{2939.12}{5} = 587.82$$

$$\bar{X} = \frac{\sum X}{N} = \frac{3070.07}{5} = 614.014$$

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{275610.96}{\sqrt{230141.43} \sqrt{334836.56}} = 0.99$$

$$r^2 = 0.98$$

$$t^* = \frac{r}{\sqrt{\frac{1-r^2}{n-2}}} = \frac{0.99}{\sqrt{\frac{1-0.98}{5-2}}} = 12.12$$

Appendix – VII

Actual Loan Investment and Collection on Tourism and non agricultural sector

Let X = Loan Investment

Y = Loan Collection

Fiscal year	X	x X(X Z)	x ²	y	y X(Y Z)	y ²	xy
2002/03	24.89	2.38	5.68	16.9	0.166	0.028	0.395
2003/04	10.69	-11.82	139.62	6.97	-9.83	96.71	116.19
2004/05	17.97	-4.536	20.58	11.78	-5.06	25.604	22.95
2005/06	30.59	8.084	65.35	24.35	7.55	56.94	61.034
2006/07	28.39	5.44	29.59	23.95	7.15	51.06	38.9
Total	x X112		x ² X260	84.02		y ² X230	xy X239.4

$$N = 5$$

$$\bar{X} = \frac{X}{N} = \frac{112.53}{5} = 22.506$$

$$\bar{Y} = \frac{Y}{N} = \frac{84.03}{5} = 16.804$$

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{239.405}{\sqrt{260.82} \sqrt{230.35}} = 0.97$$

$$r^2 = 0.95$$

$$t^* = \frac{r}{\sqrt{\frac{1-r^2}{n-2}}} = \frac{0.97}{\sqrt{\frac{1-0.95}{5-2}}} = 7.513$$