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**Role of Institutional Credit for the Growth and
Development of Agriculture in Bikaner
District of Rajasthan**

(राजस्थान के बीकानेर जिले में कृषि के विकास और उन्नति में
संस्थागत ऋण की भूमिका)

Thesis

Submitted to the
Rajasthan Agricultural University, Bikaner
in Complete fulfilment of the requirements for
the degree of

Doctor of Philosophy

in the

*faculty of Agriculture
Agricultural Economics*

by

**Devendra Pratap Singh
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This is to certify that this thesis entitled, **"ROLE OF INSTITUTIONAL CREDIT FOR THE GROWTH AND DEVELOPMENT OF AGRICULTURE IN BIKANER DISTRICT OF RAJASTHAN"** submitted for the degree of **DOCTOR OF PHILOSOPHY** in the subject of Agriculture Economics of Rajasthan Agricultural University, Bikaner embodies bonafide research work carried out by **Mr. Devendra Pratap Singh** under my guidance and supervision and that no part of this thesis has been submitted for any other degree. The assistance and help received during the course of investigation have been fully acknowledged. The draft of the thesis was also approved by the advisory committee on 03.11.1998.


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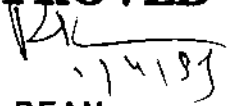
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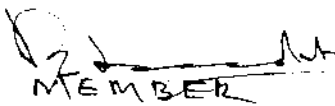
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This is to certify that this thesis entitled, “**ROLE OF INSTITUTIONAL CREDIT FOR THE GROWTH AND DEVELOPMENT OF AGRICULTURE IN BIKANER DISTRICT OF RAJASTHAN**” submitted by Mr. Devendra Pratap Singh to the Rajasthan Agricultural University, Bikaner in fulfillment of the requirements for the degree of Doctor of Philosophy in the subject of Agriculture Economics was after recommendation by the external examiner defenced by the candidate before the following members of the examination committee. The performance of the candidate in the oral examination on this thesis has been found satisfactory. We therefore, recommended that the thesis be approved.


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UDAIPUR

Dated 03 .11.1998


(Devendra Pratap Singh)

CONTENTS

CHAPTER	PAGE
INTRODUCTION	1-18
REVIEW OF LITERATURE	19-59
RESEARCH METHODOLOGY	60-71
RESULTS AND DISCUSSION	72-162
SUMMARY, CONCLUSION AND POLICY IMPLICATION	163- 174
BIBLIOGRAPHY	175-190
APPENDICES	191-193

LIST OF TABLES

S.No.	Particulars	Page
3.1	Distribution of selected household in the study area	63
4.1 (a)	Growth of Institutional Credit in District Bikaner (Absolute Amounts)	74
4.1 (b)	Compound Growth Rate (per cent) of Institutional Credit in District Bikaner	76
4.1.1 (a)	Growth of Institutional Credit in Tehsil Bikaner (Absolute Amounts)	78
4.1.1 (b)	Compound Growth Rate (per cent) of Institutional Credit in Bikaner Tehsil	81
4.1.2 (a)	Growth of Institutional Credit in Tehsil Lunkaransar (Absolute Amounts)	82
4.1.2(b)	Compound Growth Rate (Per cent) of Institutional Credit Lunkaransar Tehsil	85
4.1.3 (a)	Growth of Institutional Credit in Tehsil Kolayat (Absolute Amounts)	87
4.1.3 (b)	Compound Growth Rate (Per cent) of Institutional Credit in Kolayat Tehsil	89
4.1.4 (a)	Growth of Institutional Credit in Tehsil Nokha (Absolute Amounts)	91
4.1.4 (b).	Compound Growth Rate (Per cent) of Institutional Credit in Nokha Tehsil.	93
4.2 (a)	Nature and Extent of Institutional Credit in District Bikaner	95
4.2.1(a)	Nature and Extent of Institutional Credit of Tehsil Bikaner	98
4.2.2 (a)	Nature and Extent of Institutional Credit of Tehsil Kolayat	100
4.2.3 (a)	Nature and Extent of Institutional Credit of Tehsil Lunkaransar	103
4.2.4 (a)	Nature and Extent of Institutional Credit of Tehsil Nokha	105
4.3.1 (a)	Cost of cultivation on Canal Irrigated Small and Marginal Farms	108
4.3.1 (b)	Cost of cultivation on Canal Irrigated Medium Farms	109
4.3.1 (c)	Cost of cultivation on Canal Irrigated Large Farms	111
4.3.2 (a)	Cost of cultivation on Well/Tube well Irrigated Large Farms.	112

4.3.3 (a)	Cost of Cultivation on Unirrigated Small Farms	114
4.3.3 (b)	Cost of cultivation on Unirrigated Medium Farms	114
4.3.3 (c)	Cost of cultivation on Unirrigated Large Farms	115
4.3.4(a)	Tehsil wise area of District Bikaner in the year 1995-96	117
4.3.5 (a)	Total Loan granted by Lending Institutions in District Bikaner during 1995-96.	118
4.3.6 (a)	Requirement of the Credit by the Sample Farmers of District Bikaner	120
4.3.6 (b)	Credit Requirement of Canal Irrigated Selected Cultivators of District Bikaner	121
4.3.6 (c)	Credit Requirement of Well Irrigated Selected Cultivators of District Bikaner	122
4.3.6 (d)	Credit Requirement of Unirrigated Selected Cultivators in District Bikaner	123
4.3.7 (a)	Total Cropped Area and their Credit Requirement during 1995-96 of District Bikaner	124
4.3.7 (b)	Total Cropped Area and their Credit Requirement during 1995-96 of Tehsil Bikaner	125
4.3.7 (c)	Total cropped Area and their Credit Requirement during 1995-96 of Tehsil Lunkaransar	126
4.3.7 (d)	Total Cropped Area and their Credit Requirement during 1995-96 of Tehsil Kolayat	127
4.3.7 (e)	Total Cropped Area and their Credit Requirement during 1995-96 of Tehsil Nokha	128
4.3.8 (a)	Credit Gap in district Bikaner (1995 - 96)	129
4.3.8 (b)	Credit Gap in Tehsil Bikaner (1995-96)	131
4.3.8 (c)	Credit Gap in Tehsil Lunkaransar (1995-96)	133
4.3.8 (d)	Credit gap of Tehsil Kolayat (1995-96)	135
4.3.8 (e)	Credit Gap of Tehsil Nokha (1995-96)	137

4.4. (a)	Recovery of Advances and overdues for the year ending June 1990 to June 1997 in District Bikaner.	140
4.4 (b)	Bank wise recovery of Advances and overdues for the year ended June 1993 to June 1997 of District Bikaner.	141-142
4.5.1 (a)	Growth of Tractors	145
4.5.1 (b)	Growth of Tube well / Pump sets	146
4.5.1 (c)	Growth of Bullock / Camel carts	147
4.5.2 (a)	Use of Chemical Fertilizer	148
4.5.3 (a)	Growth of Irrigated Area Under Different Crops in Bikaner District	150
4.5.4 (a)	Correlation Coefficient Between Area and Production with Loan of Bajra, Wheat and Groundnut Crops	151
4.5.4 (b)	Rate of Change in Area and Production with respect to Loan (Linear Regression Analysis)	153
4.5.5. (a)	Live Stock Development in District Bikaner	154
4.5.5 (b)	Live stock development in Tehsil Bikaner	157
4.5.5 (c)	Live stock Development in Tehsil Lunkaransar	159
4.5.5 (d)	Live Stock Development in Tehsil Kolayat	160
4.5.5 (e)	Live Stock Development in Tehsil Nokha	162

LIST OF FIGURES

Number	T i t l e	Page
4.1	Growth of institutional credit in district Bikaner	75
4.1.1	Growth of institutional credit in tehsil Bikaner	79
4.1.2	Growth of institutional credit in tehsil Lunkarasar	83
4.1.3	Growth of institutional credit in tehsil Kolayat	88
4.1.4	Growth of institutional credit in tehsil Nokha	92
4.3.8 (a)	Credit gap in district Bikaner (1995-96)	130
4.3.8 (b)	Credit gap in tehsil Bikaner (1995-96)	132
4.3.8 (c)	Credit gap in tehsil Lunkarasar (1995-96)	134
4.3.8 (d)	Credit gap in tehsil Kolayat (1995-96)	136
4.3.8 (e)	Credit gap in tehsil Nokha (1995-96)	138

ABSTRACT

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Major Advisor : Dr. Anil Kumar**

With the dawn of freedom the economic aspirations of the farmers not only of Bikaner district but all over Rajasthan increased.

During the foreign rule agriculture was not given its due importance. The financial institutions in Rajasthan and elsewhere catered only to the needs of the vested interests and farmers were left to the mercy of the traditional money lenders. Large farmers however, did not experience much difficulty. During the premiership, of Mrs. Indira Gandhi 20 major commercial banks (14 in 1969 and 6 in 1980) were nationalized and hence many avenues became open to the rural and agricultural sector in India for obtaining loans at cheaper interest rates. This was in it-self a revolutionary step and a turning point in the history of agricultural development. Since Bikaner is agriculturally a backward district in the state of Rajasthan, it requires some special favour to bring at par with the other district of the state. For this purpose the financial institutions should pay a little more favourable role with regards to this district. This study covers the problems related to role of institutional credit on the growth and development of agriculture in Bikaner district of Rajasthan. The primary data for the study was drawn from 90 borrower and 72 non-borrower farmers from different farm size category and scientifically selected to avoid any bias. The secondary data was drawn from the State Bank of Bikaner and Jaipur, Lead Bank office and the various published sources of district statistics.

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The results indicated that crop loan, followed by farm mechanization and minor irrigation attracted utmost importance. Animal husbandry and dairying figured next. The growth of institutional credit in all these cases was significant. The long term loan was mainly granted for tractors, heavy implements, explaining 50 per cent of the total credit in this category. The tube well, pump sets and sprinklers were next important items, followed by land improvement. The medium term loan was mainly for milch animals. The short term loan was granted for crop production of bajra, groundnut and wheat in the same order. There was a wide credit gap of 86.38 per cent in the district which varied over different tehsils. The overdues during the period of study declined to some extent but it was not satisfactory. It also varied from bank to bank, indicating their relative efficiencies. The correlation of credit to area of bajra in Bikaner tehsil, area of wheat in Lunkaransar and Nokha tehsil, and area and production of groundnut in Nokha tehsil and at the district level were significant. The production of wheat at the district level was also significant. The irrigated area in respect of almost all crops in the district significantly increased from 97 to 100 per cent. There has, also, been infrastructural development in term of tractors, pump sets/tube wells, livestock and use of chemical fertilizers. However, no definite trend was observed. A definite role of credit in development of agriculture in Bikaner district has been concluded from this study. However, the ad-hoc policies of the credit institutions need to be corrected for ensuring balanced and sustainable development.

स्वतंत्रता के अरुणोदय के साथ-साथ न केवल बीकानेर अपितु सम्पूर्ण राजस्थान के कृषकों की आर्थिक आकांक्षाएं बढ़ गयीं।

विदेशी शासन में कृषि को उचित महत्व नहीं दिया गया था। राजस्थान में वित्तीय संस्थायें केवल अपने निहित स्वार्थों की आवश्यकताओं को पूर्ण करती थीं और किसानों को गांव के पारम्परिक साहूकारों की कृपा पर छोड़ दिया था। बड़े किसान अधिक कठिनाई का अनुभव नहीं करते थे। श्रीमती इन्दिरा गांधी के प्रधानमंत्रित्व काल में 20 प्रमुख व्यवसायिक बैंकों (1969 में चौदह व 1980 में छः) का राष्ट्रीयकरण किया गया और इस प्रकार ग्रामीण तथा कृषि क्षेत्र में भी कम दरों पर ऋण प्रप्ति के द्वार खुल गये। यह अपने आप में एक क्रान्तिकारी कदम तथा कृषि विकास के इतिहास में एक महत्वपूर्ण मोड़ था। चूंकि बीकानेर राजस्थान राज्य में कृषि के दृष्टिकोण से पिछड़ा हुआ जिला है इसको राज्य के अन्य जिलों के समकक्ष लाने के लिये कुछ विशेष लाभ देने की आवश्यकता है। इसके लिये वित्तीय संस्थाओं को इस जिले के सम्बन्ध में अधिक सहानुभूतिपूर्ण भूमिका निभानी चाहिये। इस कृति में राजस्थान के बीकानेर जिले की कृषि में उन्नति और विकास के सम्बन्ध में संस्थागत ऋण की भूमिका से सम्बन्धित समस्याओं का अध्ययन निहित है।

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इस अध्ययन के लिये प्राथमिक ऑकड़ों का संकलन, विभिन्न पक्षों संवर्गों के 40 ऋणी एवं 72 गैर ऋणी काश्तकारों से, किसी भी प्रकार के पूर्वाग्रह टालने के लिए वैज्ञानिक विधि से किया गया। द्वितीयक ऑकड़े स्टेट बैंक ऑफ बीकानेर एण्ड जयपुर अग्रणी बैंक कार्यालय व जिला सांख्यिकी के प्रकाशित स्रोतों से प्राप्त किये गये। परिणामों से अधिसूचित होता है कि बैंक द्वारा निर्गत ऋण में फसली ऋण, पक्षेत्र यन्त्रीकरण व सूक्ष्म सिंचाई ऋण यथाक्रम में महत्वपूर्ण रहे। पशुपालन व दुग्धोत्पादन व्यवसाय परा श्रेणी में महत्वपूर्ण रहे। समस्त वस्तुस्थितियों में संस्थागत ऋण अर्थपूर्ण रहा। लम्बी अवधि का ऋण मुख्य रूप से ट्रैक्टर व भारी मशीनों के लिये दिया गया जो कि इस वर्ग के कुल ऋण का 50 प्रतिशत था। नलकूप, जल-उत्थापक यंत्र अगले महत्वपूर्ण साधन थे। भूमि सुधार को अपेक्षाकृत कम महत्व दिया गया। मध्यम अवधि का ऋण मुख्य रूप से दुधार पशुओं के लिये दिया गया। फसली ऋण बाजरा, मूँगफली और गेहूँ के फसलोत्पादन के लिये यथावत क्रम में दिए गए। जिले में 86.38 प्रतिशत की ऋणगत रिक्तता पाई गई जो विभिन्न तहसीलों में भिन्न-भिन्न थी। ऋण के विलंबित भुगतान की अवधि अन्वेषण काल में कम हुई पर यह संतोषपूर्ण नहीं थी। ऋण वसूली की सापेक्षिक क्षमता के अनुसार विभिन्न बैंकों में भिन्नता पाई गई। ऋण का सहसंबंध बाजरा के क्षेत्रफल के लिए बीकानेर तहसील में, गेहूँ के क्षेत्रफल के लिये लूनकरणसर और नोखा तहसील में एवं उत्पादन के लिए पूरे जिले में तथा मूँगफली के क्षेत्रफल एवं उत्पादन के लिए नोखा तहसील में प्रासंगिक रहा। जिले में लगभग सभी फसलों के सिंचित क्षेत्रफल में 77-100 प्रतिशत की सार्थक वृद्धि आंकी गई। ट्रैक्टर, जल

उत्थापक यंत्र, नलकूप, पशुधन व रासायनिक उर्वरक अनुप्रयोग में दौंचागत विकास हुआ। तथापि इसमें कोई निश्चित प्रवृत्ति नहीं देखी गई।

बीकानेर जिले के इस अध्ययन से जिले के कृषि विकास में संस्थागत ऋण की स्पष्ट भूमिका इंगित होती है। तथापि संतुलित एवं सतत विकास के लिए संस्थागत स्रोतों की तदर्थ नीतियों में सुधार आवश्यक है।

INTRODUCTION

1.1 Role of Institutional Credit in Agricultural Development

Agricultural sector is a crucial segment of the Indian economy in which the banking system has been functioning as a catalyst to maintain the desired pace. During last thirty years or so the Indian agriculture has revealed a steadily increasing trend of growth. The growth has been mainly due to the technological improvements introduced in the sector through various schemes. The adoption of new technologies has increased the requirement of working capital (due to changes in cropping patterns and enhanced use of purchased inputs per unit of land) and induced investments in irrigation, machinery and land improvement etc. To meet out these financial needs of the farm sector, institutional rural credit has been constantly under review.

Credit is said to be the life blood of agriculture and, thus, the need for timely and adequate farm finance is obvious. One of the main objectives of the Bank nationalisation was to extend the credit facilities to all segments of the economy and, also, to mitigate regional imbalances in its availability.

As majority of the farmers can spare only a very low/negligible amount of their own savings, they heavily depend on credit for acquiring these crucial inputs. With such considerations the government has liberalised the institutional credit to farmers to help them increase their earning and employment potential. As a result of a number of policy

instruments, India has made great strides which are both in volume and within reach of credit to the agricultural sector, unparalleled any where in the world. There is no gain saying the fact that the expansion in volume and within reach of the formal finance to agriculture has helped the speedy adoption of modern farm-technology. The area under high yielding varieties (HYVS), with the increased consumption of chemical fertilizers pesticides, number of pumpsets and tractors in the farm sector registered a phenomenal growth over time. This has led India from an importer of food grains to a surplus producer and occasional exporter.

Improvement in productivity, which is the core of agricultural growth, in land-scarce countries like India, is influenced by a host of factors including advancement in agricultural technology. The adoption of such technology by the farmers calls for private investment in farm inputs as well as in field capital.

Public investment in agricultural research and extension, major irrigation net-works, rural electrification, rural road and markets, price support measures and a land tenure system conducive to private investment are equally important for securing growth.

The government sponsored programme are achieved through a number of policy interventions, stipulating and regulating the credit in desirable direction. Stipulations like the attainment of the priority sector credit ratio of 40 per cent, rural credit deposit ratio of 60 per cent and weaker section credit ratio of 25 per cent of the total priority sector credit, are stringently followed. The emphasis on priority sector lending and on the opening of new rural and semi urban branches, the scheme

for lead banks and district credit planning, the involvement of credit institutions in target oriented programmes for the amelioration of rural poverty (SFDA, DPAP, NREP, IRDP etc.) and the establishment of agricultural Development branches (State Bank of India) or Gram Vikas Kendras (Bank of Baroda) to focus mainly on rural credit are subsequent developments.

Over 50 per cent of NABARD's refinance for term loans has been granted for minor irrigation, land development and farm mechanisation. NABARD has also ear-marked a sizable portion of refinance for the benefit of weaker section. In addition, it has also strongly supported IRDP with about 30 per cent of its long term refinance. In this way NABARD is totally concerned with rural credit and it has all the major policies concerned with rural credit.

Various research studies and Reserve Bank of India Reports have shown that a sizable percentage of loan remains out standing. This is mainly due to non repayment of loan by the borrowers and policies adopted by the central government from time to time to subsidise/waive out the loans. The repayment behaviour of farmers is subject to farm size and depends upon a number of other factors associated with it.

The tempo of agricultural revolution can not be sustained and stepped up without making provision of credit to the farmers almost at their door-steps, at a reasonable cost and suitable terms and conditions. As such not only the availability of credit in time but its adequate supply tends to become a prerequisite for accelerating agricultural development.

1.2 Historical background of credit

(a) History of credit in India

Agriculture was not considered as an economic proposition by bankers in India till late sixties. The farmers could not get any support from the urban based banks. They were indebted to the money lenders who often exploited them like the trader, reaping the benefits of distress sales. Instances were not lacking where the village money lenders were found to have established a line of credit from the organised banking industry, by repledging the gold ornaments pledged with them by farmers. The rural economy was in shambles.

The commercial Banking in India, on western line, had started from the beginning of the 19th century. The earliest commercial Bank were known as agency houses. The agricultural finance sub-committee headed by Professor D.R. Godgil in 1944-45 recommended effective implementation of the regulation of money lending acts in different states. The progress of institutionalising agricultural credit has been quite significant, particularly during the planned period, reducing the dominance of money lenders although much still remains to be done in this direction.

The all India rural credit survey committee appointed by the Reserve Bank of India, reviewed the rural credit scene in all its ramification in 1954 analysing the deep malaise of the rural economy and the problem arising out of capital starvation. The committee made a few major recommendations for improving rural credit. On the basis of its recommendations, the imperial Bank of India was nationalised and

renamed as State Bank of India from July 1st, 1955. This bank was charged with the responsibility of expanding its rural branches network within a given time frame. Till 1968 the credit policy of government of India was to develop the co-operative system for meeting out agricultural credit requirements.

Immediately after the introduction of social control on Banks, an important decision was taken by Mrs. Indira Gandhi, the then Prime Minister of India, for nationalising the major commercial banks. On July 19, 1969, 14 major commercial Banks having a deposit of more than 50 crores of Rupees each, were nationalised.

The lead bank scheme was initiated in 1970 assigning the responsibility of developing the banking activities in the districts allotted to each of the nationalised bank. The banks were then asked to prepare District Credit Plans to fill-up the credit gaps estimated in different districts of the country. It was a major departure from conventional banking. Rounds of District plans were formulated and implemented by the nationalised banks with the co-operation of the non-nationalised banks and the support given by the state government authorities.

The planners observed that the benefits of the developmental plans have not percolated sufficiently to the needy. Then, the Government of India came out with the programme of cheap credit for agricultural development. Some noteworthy among these are the expansion of rural branches, scheme to rejuvenate the primary Agricultural Co-operative Society (PACS), Formation of Farmers Service Societies (FSS), Small Farmers Development Agency, Marginal Farmers

Development Agency and Large-sized Adivasi Multipurpose Societies (LAMPS).

It was fact that to cater to the needs of these target groups a separate credit agency was necessary. The Narasimham Committee, which went in to these aspects, recommended the establishment of regional Rural Banks in selected regions to extend credit facilities for agricultural trade, commerce, industry and other productive activities in rural areas especially, for small and marginal farmers, land-less labourers and artisans. The commercial banks in collaboration with the central and state governments were authorised to sponsor Regional Rural Banks in different parts of the country. Thus the regional rural banks started appearing on the scene, especially in those areas where the co-operative system was weak and the commercial Banks were not very active.

The transformation of ARC (Agricultural Refinance Corporation) into ARDC (Agricultural Refinance and Development Corporation) in 1975 marks the next phase. The ARDC was additionally charged with special responsibility for : (a) Meeting the credit requirements of less development regions, weaker sections of the rural society and diversified investments and (b) Paying greater attention to the development of institutions dispensing agricultural credit.

On April 15, 1980 six more commercial Banks in the private sector were nationalised. The second dose of nationalisation widened the coverage of the public sector banks. Being in the public sector, these were required to implement all the government sponsored programmes.

In the era of commercialisations of Agriculture and to boost up banking assistance to agricultural sector National Bank for Agriculture and Rural Development (NABARD) was set-up in 1982. NABARD provides assistance by way of refinance or other wise at concessional rates of interest to client banks. While refinance for term investment credit is available to all the client banks, short-term credit for production, and marketing purposes and medium term for investment and for conversion of short-term loans are confined to SCBs and RRBs. As a result of sustained government policies, the rural branches of the banks increased from a mere 1932 in 1969 to 35, 313 in 1992. Population per rural branch came down from 65,000 to 11,000. Credit outstanding to agriculture from the institutional agencies (Banks, Co-operative RRB's) amounted to Rs.38.657 crores in 1992 of which direct finance was Rs. 30, 550 crores.

(b) History of Agricultural Credit in the Rajasthan State

Commercial banking in Rajasthan was solely represented by the erst while Imperial Bank of India till the initiative was taken over by the governments in the princely states of Jaipur, Bikaner and Udaipur, leading to the birth of the Bank of Jaipur, the Bank of Bikaner and the Bank of Rajasthan Ltd. The Bank of Jaipur and the Bank of Bikaner later on merged and became subsidiary to the State Bank of India under the name of State Bank of Bikaner and Jaipur and thus earned a new identify as a nationalised bank. The Bank of Rajasthan, however, continued to grow as a private sector bank.

At the time of the formation of Rajasthan in 1949, there were a handful of commercial banks operating in various erstwhile states. Gradually the number of such banks increased and presently 28 commercial and 14 Regional Rural Banks are operating in Rajasthan.

There is a marked tendency towards increase in the number of their branches. The extent of expansion of branches can be judged by the fact that the number of banking offices has risen from 369 in 1969 to 2,101 in 1993. The share of Regional Rural Banks in the total number of branches is about 34.5 percent. However, their share in rural branches is about 42 percent which justifies the basic purpose of their establishment.

Commercial Banks and Regional Rural Banks have largely contributed to the success of the Integrated Rural Development programme in as much as their share in the total credit provided under this programme has grown from 41.22 per cent to 82.10 per cent during the last decade. In addition to this, the number of families of schedule castes and scheduled tribes in proportion to total number of families benefited under this programme, has also increased from 42 to 52 per cent during the last decade. The problem of rural and specifically, agricultural credit, still remains unsolved in India despite phenomenal transformation of commercial banks in this direction and despite the revitalisation of the co-operative credit sector. Provision of agricultural credit from banks is still insignificant as compared to the position in other states. In the country, Rajasthan's position is eleventh, both in respect of direct and indirect advances from commercial banks for agriculture.

1.3 Agro economic features of the study area

(a) Description of the Rajasthan State

Rajasthan, the second largest state of India (3,42,239 sq. km.), situated in the north-western part of the Indian Union (in between $23^{\circ} 30'$ and $30^{\circ} 11'$ North latitude and $69^{\circ} 29'$ and $78^{\circ} 17'$ East longitude), is largely an arid state. The state has a maximum length of 869 km from west to east and 826 km from north to south. The western boundary of the state is part of the Indo-Pak international border, running to the extent of 1070 km. It touches four main districts of the region, namely, Barmer, Jaisalmer, Bikaner and Ganganagar. The state is girdled by Punjab and Haryana states in the north, Uttar Pradesh in the east, Madhya Pradesh in the south-east and Gujarat in the south-west. The formation of Rajasthan state in its present form started in 1948 when the states reorganization commission reconstituted the various provinces of India. The area of Rajasthan is nearly equivalent to some of the developed countries of the western world like Norway (3,24,200 sq. km), Poland (3,12,600 sq. km) and Italy (3,01,200 sq. km). The desert areas of Rajasthan are among the few tropical deserts of the world which have the highest population density.

The climate of Rajasthan state varies from arid to sub-humid. To the west of Aravali range, the climate is characterised by low rainfall with erratic distribution, extremes of diurnal and annual temperatures, low humidity and high wind velocity.

The gross irrigated area includes the double cropped or triple cropped area which is irrigated during Kharif, Rabi and summer seasons in the same field. Such areas are found more in the canal irrigated and

well irrigated regions. Gross irrigated area of the state is 5264000 hectare.

The net irrigated area is the part of land which is irrigated through other sources during any one season i.e. kharif, rabi or summer. The net irrigated area is a good indicator of agricultural production potential of the area, with the increase in additional sources of irrigation the net irrigated area is increasing every year. The net irrigated area of the state was 2803000 hectares in the year 1991-92.

Rajasthan is basically an agrarian economy. Most of its population lives in small villages and dhanies. It has a wide range of agro-climate regions from very low rainfall in western part to high rainfall in south and south eastern parts of the state.

Growing of only one rainfed crop in kharif season, that too associated with high risk, has led to dependence of village community on livestock. More harsher the climate conditions, higher was the shift towards animal component. Due to low capital investment capacity, lesser availability of agricultural credit and lack of adequate infrastructural facilities like road, power, etc. farming system was more subsistence oriented than the commercial farming.

The first ever planned effort to develop erstwhile Rajasthan's agriculture began in 1951, the year when first five year plan was launched. A number of development schemes which have been executed under the subsequent five year plans and annual plans has led to spectacular progress during last 43 years.

The development programmes which have helped the entire farming community in attaining today's high production level can be enumerated as :-

- (a) Increase in the area under irrigated farming from 11.71 lakh hectare to 53.29 lakh hectares.
- (b) Increased use of fertilizer under irrigated farming and dry farming situations from almost zero level to 4.90 lakhs metric tonnes.
- (c) Adoption of high yielding varieties of crops since 1966-67.
- (d) Increased use of fertilizers under irrigated and dry farming situations from almost zero level to 4.90 lakh metric tonnes.
- (e) Increased plant protection measures by higher use of insecticide - fungicides.
- (f) Increased use of farm machinery, especially tractors and tractor-drawn implements.
- (g) Rural electrification.
- (h) Extensive net work of rural roads.
- (i) A good net work of Krishi Upaj Mandies for marketing of agricultural produce.
- (j) T & V programme of agriculture extension and research for adoption of improved agricultural practices.

- (k) Availability of timely credit facilities from the commercial and co-operative banks as short, medium and long term loans.

Most of the farmers have switched over from traditional method of subsistence farming to commercial farming. All these developmental activities related to agriculture, coupled with co-operative response of the farming community, have helped in attaining high level of agricultural production which, in earlier times, could have been envisaged as impossible to be achieved.

At present Rajasthan has country's 11 percent of the geographical area, 5.12 percent human population, 5.5 percent cattle population, 8.3 percent of buffalo population, 12.6 percent of goat population, 22 percent of sheep population and only one percent of its water resources. Rainfall in most part of the state is not only inadequate but highly erratic. Nearly 40 percent of the land area falls under arid/desert conditions. Today it contributes 4.76 percent of food grain production, 14.82 percent of oil seeds, 8.59 percent cotton and 59.3 percent of guar seed to the country's total production of these crops. Rajasthan has the highest ratio of cultivators to agricultural workers. On national level it indicates that the percentage of landless labourers is the lowest in this state. Agricultural workers constitute only 7.3 percent of the total work force. Despite all these odds the state has a comfortable position in the production of oil seeds, pulses spices, cotton, meat, milk and other agricultural products. The state has earned the distinct position of standing first among Indian states in the production of pearl millet, mustard, mothbean, cluster bean and wool. Over the years, the state

continues to remain in the first four to five positions amongst the Indian states, in the production of coarse cereal, pulses, oil seeds, soyabean, milk and many other important agricultural products.

The total food grain production in the state has increased from 48.50 lakh metric tones in 1956-57 to 113.95 lakh metric tones during 1992-93, an increase of about 235 percent.

In this way agriculture in the state, being the primary sector and mainstay of over 80 percent of the state population, is contributing 47.08 percent of the state's total income. Besides, it provides raw material to a large number of agriculture based industries which are providing employment to a large number of rural as well as urban population.

(b) Description of Bikaner District

The name of the district 'Bikaner' was given after 'Rao Bikaji', 'Rajya Sansthapak' and the late emperor in the year 1485.

Bikaner district is situated in the north western part of Rajasthan between 27° 11' N and 29° 3' N latitude and 71° 54' E and 74° 12' E longitude with a total geographical area of 27,244 sq. kms. The western boundary is common with the International border with Pakistan. In the north it touches Sri Ganganagar and Hanumangarh districts, whereas in the west Jaisalmer, in the east Churu and Ganganagar and in the south Nagour and Jodhpur district.

As per 1991 census the population of the district is 12,09,107 out of which 6,40,851 are men and 5,13,664 are women living in 663 revenue

villages. The rural population is 5,13,664 while the urban population is 3,35,085. Out of these 1,55,767 are scheduled castes and 14,96 are schedule tribes. The number of marginal, small, semi medium, medium and large farmers is 950, 20,703, 1,10,908, 5,10,915, 49,478, respectively in Bikaner district. The per square km density of the population is 44 as against the state's average 100 per sq. km. The rural population comprises 60.28 percent of the total population.

The total population of the district includes 52.9 percent cultivators and 2.7 percent agricultural labourers with a population growth rates of 42.46 percent. The literacy rate has risen remarkably in the last thirty years. From the mere 27.11 percent in 1981, the percentage of literates has, now risen to 33.35 percent in 1991. Whereas only 18.79 percent people are literate in the rural areas.

Bikaner consists of four tehsils viz., Bikaner, Kolayat, Lunkaransar and Nokha. The annual rainfall of the district ranges from 20 to 30 cm with 14 to 20 rainy days per year. Marked variations in diurnal and seasonal ranges of temperature occur in the district exhibiting the most characteristic phenomenon of the warm-dry continental climate. The month of March marks the beginning of the summer and the temperature starts rising progressively during April, May and June. In Bikaner the maximum daily Temperature varies between 40 to 45 °C. Occasionally, it rises up to 48°C during the summer. The minimum daily temperature drops down considerably at night and remains between 20 to 28°C. The minimum temperature may fall to -2°C in the night during January, due to release of thermal radiation from the sandy soil, soon after dusk. The

district has sandy soils with huge sand dunes. Soils are blown by wind, aeolian, with a loamy fine to coarse sand texture. Calcareous texture of the soil is also available at many places of the district.

The total agricultural land of the district is 1409915 hectare. The gross cultivated and net cultivated areas are 9836000 hectares and 3155000 hectares, respectively. The land which can not be utilized for cultivation occupies 1042600 hectares. The district has 140685 hectares of irrigated land. The parts of Bikaner, Kolayat and Lunkaransar tehsil receive irrigation from Indira Gandhi Canal project covering an area of 14051 hectares. There are 961 wells in the district covering an area of 344 hectares land and the other sources cater 40 hectare of the total irrigated land. The main crops of the district are moth, bajra and guar under rainfed conditions and cotton, groundnut, wheat, mustard and gram, under irrigated conditions.

There are 5.60 lakh milch animals in the district, 0.57 lakh camel, 9.53 lakh sheep and 4.53 lakh goat. About fifty percent sheep population of the country is in this district alone. Daily 50,000 liters of milk is collected through 415 milk co-operative societies having a membership of 32,465 milk producers.

1.4 Nature of Credit requirement in Bikaner

(a) Production Credit and non farm sector Credit

In Bikaner District production credits are granted for periods ranging from 6 to 18 months and are primarily meant to meet the seasonal requirements such as seed, fertilizers, pesticides, power bills etc. for raising agricultural production. The period of repayment is linked

with the crop season, i.e., loans advanced for kharif, which usually starts from May, are required to be repaid by February end, because by this time kharif crop is sold in the market. Like wise in command area the loans are advanced for rabi crops from October and the due date of its repayment is May end.

Agriculture in dry zone of Bikaner does not provide full time employment during crop season nor it can provide work for the whole year. Farmers are required to take up allied activities which include dairy, poultry, tanning, carpentry, blacksmithy works, manufacture of leather goods, etc. for their subsistence. Loans are advanced for these purpose, also, and the period of repayment depends upon the production schedule of the project. The production loan as well as non-farm sector loan are provided at a subsidised rate of interest.

(b) Investment Credit

This credit is provided for installation of pump sets, digging of new wells, sprinkler, drip irrigation, tractor and other farm implements, land leveling, contour bunding and reclamation of land. In the district, area wise schemes are prepared such as for minor irrigation, transport, drought and milch animal, poultry etc.

1.5 Statement of problem

Due to scarcity and erratic rainfall pattern in the western part of the state, a number of farm house-holds fully depending on sources of income based on farms, suffer sever setbacks as a good year is meant to makeup the subsistence for a number of drought years to follow. With the great hope of reaping a good harvest, every farmer in this ecofragile

area puts the land under crops every year and it is a common phenomenon that large majority of farmers waste their resources and miss the fortune.

The mixed cropping practices of sowing the land with mixture of 4.5 crops on the same field with varying probabilities of survival under varied moisture availability are also taken up under the condition of high risk.

The livestock rearing, particularly of the small ruminants is the alternate occupation of such farmers which also suffers due to inadequate scientific base and imperfect market infrastructure. Agricultural sector which is prone to risk and uncertainties in the major part of the district makes it necessary to devise plans and programmes which include diversification of the sector, so that if one activity does not succeed, there can be other alternate activity which can survive and sustain the process of development.

Another issue is financing agricultural development in dry areas. These areas normally have poorly developed infrastructures. Non-viability of investment in these areas is a major handicap for the financial institutions. Institutional credit in these areas should be synchronized with lot of investment in basic infrastructure by the government.

In view of the key role of institutional credit, in development of Agriculture, it becomes relevant to examine the performance of this factor in less developed areas of western, dry regions of Rajasthan. We must also examine the role it has so far been able to make in terms of infrastructure, land development, land utilization pattern, production and

productivities of crop/livestock. The overall income and employment of farmers/labourers is yet another point of concern. The requirement for agricultural credit in this region is different from the existing requirement in normal areas where credit is mainly, required for crop/livestock productions, irrigation facilities development and partial mechanization. Under the circumstances it becomes imperative to estimate the requirement for institutional credit together with its spread in the region. Adequacy of available institutional credit and repayment performance of the existing borrowers is another aspect which needs to be tackled in order to arrive at certain meaningful policy implications.

1.6 Specific objectives of the study

Keeping above considerations in mind, the objectives for the present study has been confined to the following :

- (i) To study the growth of institutional credit to agriculture over period of time,
- (ii) To study the nature and extent of institutional credit to agriculture,
- (iii) To estimate the requirement for agricultural credit and adequacy of the institutional source to cater it,
- (iv) To estimate the extent of overdues,
- (v) To study the role of institutional credit on agricultural development, and
- (vi) To come out with policy implications for further improvement in institutional credit to agriculture.

REVIEW OF LITERATURE

The development of agricultural sector has been a matter of prime concern from the stand point of economic development, and the rural credit, therefore, has been under constant review right since independence. A lot of research work has been carried out by individuals / institutions to examine various facets of the rural / agricultural credit for the development of agricultural economy across the country. Some relevant and important studies have been reviewed and presented in chronological and alphabetic order in this chapter to develop strategies for the present investigation.

Patel and Singh (1975) in their study entitled "An appraisal of Dena Bank's Crop finance in Sabar Kantha District of Gujarat", brought out that proportion of small farmers to total sample farmers was about 35 per cent, their share in total crop loan was only 18 per cent, while, large farmers constituted about 42 per cent of the total sample farmers and secured 65 per cent of the total crop loan given to sample borrowers. It indicated that large farmers enjoyed larger share in crop loan advanced as compared to small farmers. Further, the study revealed that loan per farm increased with the increase in the size of holdings, while on per hectare basis small farmers received comparatively more crop loan because their own funds were not sufficient to meet the operational expenses and it was easy for them to obtain crop loan than the medium and long term loans.

Rao (1975) conducted a survey in three villages of Vishakapatnam district, Andhra Pradesh. The study showed that farmers who borrowed from money lenders were more in the category of small farmers, while the number of borrowing from the co-operatives was high in the category of large farmers. Thus, it was concluded that the co-operative finance was more accessible to the large farmers and the small farmers were under perpetual obligation to the money lender and were not able to get out of their clutches. He further concluded that the small farmers were not in the position to invest more on land to produce any surplus with the results that they were handicapped in building up the assets structure.

Lavania (1976) conducted a case study in Ghazipur district of U.P. and found that although 21.53 per cent of the total sample borrowers (65) were small farmers, they accounted for hardly 4 per cent of the total bank loans, whereas large farmers who were 42.54 per cent of the total number of sample borrowers accounted for a little more than 83 per cent of the total bank loan. This confirms the generally held hypothesis that the loan mostly go to haves and have nots are deprived of the benefits. The study also shows that all the institutional agencies are biased towards large farmers. This is quite obvious due to their assets oriented lending policies rather than emphasis on credit worthiness.

Acharya and Shrinivasan (1977) concluded that when mechanisation is introduced, short-term credit requirement of small and medium farms decreases and that of large farm increase. If required short term credit is made available in time, net farm income can be

increased to a level of Rs. 1,612 per acre on small farm, Rs 1,281 per acre on medium farm and Rs. 1,101 per acre on large farm.

Hate (1977) conducted a study and studied the problems faced by the organised institutional agencies (such as Co-operative Banks, Commercial Banks and Regional Rural Banks) in financing agricultural in India. The results suggested that inadequacy of finance, weakness of the co-operative credit system in many areas, sectoral and regional imbalances in flow of credit, lack of bankable assets and mounting debts are the main problems. He also suggested measures to find solutions and presented comments on the difficulties encountered in implementing such measures.

Arora, Tiwari and Sharma (1978) in their study, "Inter-and Intra-Disparities in the Flow of Co-operative Rural Credit in India", revealed that the share of marginal farmers in the total credit ranged from 4.62 per cent in Gujarat to cent per cent in Lakshdweep and that of small farmers from 11.47 per cent in Gujarat to 49.96 per cent in Manipur. In all, the marginal and small farmers accounted for only 12.45 and 18.45 per cent of the total rural advances from co-operatives in the country.

Chatterjee and Banarjee (1978) Indicated that the problem of low productivity can not be solved merely by making more credit available. The need for planning the use of credit is imperative for the productivity.

Garg *et al.* (1978) observed through a study that the credit requirement increased with an increase in the size of holding and with higher level of technology. Short term requirement were estimated as at

Rs 463.12 and Rs. 758.13 in alternatives plans. The investment gap was estimated as 457.11 and Rs 342.03 per hectare for marginal and small farmers.

Garg *et al.*(1978) in their study in block Pukhrayan, district Kanpur revealed that the amount advanced by State Bank of India increased significantly from Rs. 3 lakhs during 1973-74 to 19.06 lakhs during 1977-78 which is by more than five times. The study also revealed that the amount of credit advanced by the U.P. state co-operative Land Development Bank was nearly doubled from Rs. 5.9 lakhs to Rs 10.2 lakhs between 1968-69 and 1976-77. The percentage of recovery was very satisfactory as it ranged from 85.75 in 1969-70 to 95.15 in 1976-77. The amount of credit advanced by the District Co-operative Bank was more than double in a decade of 1967-68 to 1977-78 i.e. from Rs 6.4 lakhs to Rs. 13.3 lakhs. The recovery percentage increased from 65.14 to 82.23 during the same period.

Garg, Singh Pandey (1978) in their study, "An Appraisal of credit structure and flow in Block Pukhrayan, District Kanpur (A case study)" revealed that the main beneficiaries of the loans were the large farmers. The small and marginal farmers could not be benefited mainly because they lacked proper and adequate security of land. Secondly, it might be because the programme of advancing loans for tractors to the small and marginal farmers was neither technical feasibility nor economic viable.

Ghosh (1978) suggested that the existing credit facilities from the institutional credit societies would have to be increased by about ten times to meet the future credit requirements of rural Bengal.

RCA LIBRARY

Gill and Singh (1978) found higher credit needs for the borrowers than the non borrowers in Ferozepur district of Punjab. They were of the opinion that credit has positive impact on income of the small farmers.

Haque and Maji (1978) in their study entitled, "Structure and Flows of Agricultural Co-operative Credit in India" found that in the country as a whole the marginal and small farms with less than 2 hectare of land accounted for 21 per cent of the total cultivated area and received 32 per cent of the medium and long-term credit advanced by the Central Land Development Banks in 1974-75. The credit available per hectare, however, was low in this group. The medium farms in the 2-4 hectare size group which accounted for 18 per cent of the total cultivated area, received 32 per cent of credit and the per hectare availability was also higher in this group. The state to state variation was a noticeable feature of the credit flow to different sizes of farm. While in Kerala and Tripura the marginal and small farmers accounted for 85 per cent and about 83 per cent of the total credit respectively, in Maharashtra and Madhya Pradesh, about 54 to 59 per cent credit went to large farms.

RCA LIBRARY

Kalyanbhata and Bhattacharya (1978) suggested that development is not necessarily credit intensive. Appreciation of this fact is old enough. Still flow of institutional credit in agriculture lags far behind the requirement. The most important source of credit viz., co-operative societies suffers from wrong orientation and inefficient control. They are disproportionately biased towards the rural rich who successfully corner a substantial portion of loanable funds frequently to relend the same to

57920 PHD-112
ECO 18-1

small farmers. Equitable distribution of credit could be an effective instrument for securing social justice and accelerating agricultural growth.

Kumar and Kahlon (1978) conducted a study in Ludhiana district and found that the average amount borrowed by large farmers from institutional sources was significantly higher than that of small and medium farmers. It was Rs. 2,681, Rs. 4,584 and Rs 17,844 for small medium and large farmers, respectively. Similarly, the average amount borrowed per acre from institutional agencies was the highest for large farmers (Rs 670) followed by small (Rs 619) and medium farmers (Rs 446).

Mohanan (1978) in his study, "Loaning pattern of Service Co-operatives", conducted in the Cannanore district of Kerala revealed that during 1975-76 about 45 per cent of loans advanced had gone to less than 2 acre size class. But they constituted nearly 25 per cent of borrowers of crop loan. There was a positive shift in the amount of crop loans advanced with an increase in farm size classes. Despite moderate shift in the flow of crop loans in respect of higher farm size classes, there were reasons to believe that there was no significant difference in the flow of crop loans between farm size classes.

Natabar (1978) analysed that the all commercial banks, financing agriculture, should think seriously to reform their present organisational set up of their rural branches, so as to achieve the desired objective of financing rural community and to lift the under privileged class of the society in rural India from subsistence to surplus existence. Commercial

banks, perhaps can not show better results in the field of farm financing and will suffer from the same problem of mounting overdues like co-operatives if immediate steps are not taken for reorganisation on of the existing staffing pattern for financing agriculture. Supervised credit is the key factor for the success of rural financing in rural India.

Purushotham (1978) in a study entitled "Operational growth of PACs in Andhra Pradesh", found that the growth of advances was not encouraging though it was not negative. The linear annual growth rate was low at 3.30 per cent and the linear equation was not giving a good fit as its coefficient of correlation was low. This meant that the advances had an inconsistent growth which was not desired and fruitful. The average advances per number came down from Rs. 138.66 in 1959-60 to Rs. 100.31 in 1966-67 and increased to Rs. 128.14 in 1973-74 which was still less than that of the year 1959-60. A comparison of these figures with that of the average for the total PACS in the country was disappointing.

Reddy and Dakshinamurthy (1978) found that the case for rural development is urgent and pressing as it constitute the basis for social stability and economic growth with distributive justice. Hence it demands greater planning if the rural backwardness is to be prevented and the country-side improved. Commercial banks tends to divert funds from the rural to urban centres as the returns are higher and more secure there. Hence commercial banking is to be deliberately directed to bring about some balance in the flow of savings between the urban and rural areas.

Satpute *et al.* (1978) in their study in Maharashtra state, compared the district wise structure of advances, recoveries and dues in respect of 25 Land Development Banks. Growth of advances, recoveries and dues were estimated by fitting the linear regression function. The analysis revealed that 17 districts in respect of advances, 2 in respect of recoveries and 15 in case of dues were found to be significant. In this way the ranking of the districts were made based on the growths in the descending order. In general, it gave a picture that the advances and dues were more in the scarcity districts where as the recoveries were the lowest, which might be due to the relaxation given by the government in the years of crop failure.

Singh and Prasad (1978) have suggested that income and saving can be stepped up by supplying adequate credit in time and providing proper guidance for its utilization.

Singh, Singh and Balister (1978) found the higher gap in production credit in case of small farm compared to the large farms. They suggest that more effort should be made to meet full production credit needs, mainly, of small farms.

Sharma and Setia (1978) studied that the flow of credit to small and very small farmers was inadequate in Punjab and these farmers have allowed loans of higher values, to enable them to purchase better quality assets such as farm machinery and dairy cattle.

Suryawanshi, Patil and Kapase (1978) in their study during 1976-77 observed that institutional agencies like co-operative and commercial banks have not made much impact on small and semi-medium cultivators

in supplying rural credit in the Girna Command area of Maharashtra. They also found a slightly declining trends in the credit gap as the size of holding increase.

Bhorali (1979) in his study "A Decade of Nagaland State Co-operative Bank Ltd.", found that the amounts of outstanding loans and advances during the first five years (1967-72) of functioning was to the extent of Rs. 32.02 lakhs. Of this, short term loan constituted Rs. 29.54 lakhs and medium-term loan sum up to only Rs. 2.47 lakhs. Loan outstanding, increased from Rs. 33.36 lakhs in 1971-72 to Rs. 129.22 lakhs in 1975-76.

Singh and Dhawan (1979) in their study for Ludhiana district of Punjab found that there was considerable diversion of short term credit to consumption. All the farm sizes showed inefficiencies in using credit.

Singh and Pandey (1979) in their study "Changing Structure and Flow of Rural Credit with Special Reference to Co-operative in district Kanpur". worked out that the largest share i.e. 98.38 per cent in term loan was enjoyed by the large size farmers mainly for purchase of tractors. A very small fraction of this loan (1.16 and 0.46 per cent) was used for the purchase of irrigation structure and milch animals by the small and marginal farmers. The main beneficiaries of this were large farmers. The crop loan was mostly advanced to small and marginal farmers. It appeared that large farmers did not feel any need to obtain crop loan. Out of total advances under crop loan, the major share i.e. 75.49 per cent went to small farmers.

Talukar *et al.* (1979) conducted a study in two selected villages of Assam which revealed that out of the total loan advanced to 62 households by agricultural development branch of the State Bank of India, the highest proportion was received by small farmer (33.62) followed by marginal farmers (29.60), medium farmers (18.35) and large farmers (16.43).

Thingalaya (1979) observed in his study of the rural credit structure and flows that the regional disparity in the demand for credit has been very conspicuous, specially in the case of backward region. The economic factor alone can not fully explain the reasons for these disparities. The socio-economic factors may also be responsible also for this phenomena. The task of extension services was one of the factors contributing to regional disparities.

Bagechi and Sain (1980) observed small and marginal farmers were more punctual in repaying the loan in Nadia district of west Bengal.

Singh *et al.* (1980) found that the proportion of loan advances was more to large farmers as compared to small and medium farmers. Such trend was found almost in all the years although the share of small farmers showed an increasing trend. The commercial bank mainly financed fixed capital credit needs of the farmers. The small farmers required comparatively more of production credit while the large farmers required more of investment credit.

Porulkar (1981) in his study, "Recovery position under DIR-A Critical Analysis", found that there was acceleration in the implementation of the scheme by the bank over the years 1972 to 1979.

Amount outstanding, which increased at an average rate of Rs. 11.59 crores per annum during the 4 years period (1972-75), gathered momentum in the latter 4 years period (1976-79) to register an average growth of Rs. 31.24 crores per annum. Obviously, faster per annum increase in the amount outstanding during the latter period was to be partly attributed to the lateral extension of the scheme to cover the entire country in early 1977, as also the upward revision of ceilings on amount of loan to be advanced to individual borrowers. The accelerated growth of amount outstanding during the latter period could also be accounted to the poor recovery of loans advanced earlier i.e. mounting overdues pushing up the balance outstanding figures, as alleged by the government.

Roy and Bhalerao (1981) found that the commercial banks by providing adequate and timely credit, can create a favourable impact on agricultural development even in a backward region. The staff working in this rural network will have to be rural oriented and adequately trained and be provided with necessary vehicles to increase their mobility in order to establish and maintain close contact with rural clientele.

Sijapati (1981) in a country paper of Nepal presented in Asian Productivity organisation, Japan reported the causes for defaults as dependence of farmers on weather, lack of veterinary service, risk associated with the production and marketing and a type of tendency among some influential farmers of not paying the loan because bank can not take drastic action against them.

Anonymous (1982) in an evaluation study of Small Farmers Development projects of Nepal conducted by Nepal Rastriya Bank found that keeping in view the sympathetic and liberal attitude of institutional credit agencies (ADB/N, Sajha) in providing timely credit and other facilities, the project group members could not maintain financial discipline to a desirable extent. It also stated that the problem of repayment of loan in time is due to lack of production surplus with majority of small farmers.

Jaipur Nagaur Aanchalik Gramin Bank published (1982) in a report depicted the achievement for a seven year period (1975-82) and pointed out that total amount advanced by the Bank in the year 1975 was only on the order of Rs. 1.21 lakhs which increased to Rs. 473.92 lakhs in the year 1982. It was however, further reported that total amount of outstanding in the year 1975 was Rs. 1.12 lakhs and the same increased to Rs. 1546.37 lakhs in the year 1982.

Swami and Swami (1982) mentioned the reasons for non repayment of loans as high cost of cultivation, low price, low yield, high rent, crop failure, nondisposal of produce, small marketable surplus and non receipt of demand notice. However, they opined that inadequacy of income arising out of crop failure, higher cost of cultivation and small marketable surplus were the main reasons for non repayment of loans.

Sambasiva Rao and Acharjula (1982) found that the per acre borrowing of small and marginal farmers was higher than that of large farmers but they observed that even after nationalization and boosting of government in extending formal credit to agricultural sector, still, the non

institutional agencies, specifically agricultural money-lenders are dominant in providing credit. The study showed that in the unorganised market the interest rate ranges from zero to 60 per cent. About the utilization of funds they observed that about 58 per cent of the institutional funds and 80 per cent of the non institutional funds are utilized for farm productive expenditure.

Shrivastava and Subrahmanian (1982) in a study entitled "RRB Operation - An Evaluation" worked out the growth of disbursement and outstanding of RRBs. In 1975, RRBs sanctioned advances amounting to Rs 10 lakhs, Rs 1.71 lakhs per RRB and Rs. 60,000 per branch of RRB. A year later the total advances increased by 7.47 times. The advances recorded a rise of 166 per cent in 1977, 231 per cent in 1978 and 162 per cent in 1979. The total advances in 1979 amounted to Rs. 17,306 lakhs. The advances per RRB stood at Rs 303.61 lakhs and per branch Rs. 8.70 lakhs. The study also revealed that the bulk of loan has gone to small and marginal farmers and agricultural labourers. The amount outstanding stood at Rs 11.60 crores in 1977. A year later, the amount outstanding increased to Rs. 40.04 crores. By 1979, the amount outstanding was Rs. 106.50 crores.

Singh *et al.* (1982) in their study in Karnal district of Haryana during the year 1975-76 to 1978-79 enlisted various causes for non repayment as lower crop yield or some time total failure of crops due to adverse climatic conditions, diversion of crop loans towards consumption requirements, failure to loan credit with marketing, lack of supervision of

credit utilization and lack of knowledge of the farmers to use recommended package of practices.

Das (1983) in his study found that there is no significant relationship between farm size and farm loans per cropped hectare. Large farmers receive less amount of loan per cropped hectare from the institutional sources as they are more solvent.

Deorukhakar and Borude (1983) in their study entitled, "Progress of Ratangiri District Central Co-operative Bank (M.S.) with Special Emphasis on Crop Loan", found that the individual membership increased at 5.11 per cent per annum and the institutional membership increased at 20.21 per cent per annum from 1958-59 to 1980-81. The annual rates of growth of loan to agriculture and non agriculture sectors were 292.53 per cent and 457.58 per cent, respectively. This showed that the progress made in advancing loans to non-agricultural purposes was nearly 14 times that of agricultural purposes. The number of branches increased by 44.24 per cent per annum.

Jain and Choudhary (1983) in their study of Katangi block of Balaghat district of Madhya Pradesh for the year 1981-82 revealed that the medium farmers obtained the maximum loans followed by the large size and small farmers. The position of the marginal farmers was last in loan disbursement provided by loaning agencies to the selected respondents.

Kural Kar (1983) in his study based on a sample survey of 27 villages in Aurangabad district, Maharashtra which deals with the problem of regional imbalances in the agricultural sector, attempted to

quantity the flow of investible funds obtained by cultivators and their utilization. Reasons for misuse of such funds were analysed.. Suggestions were offered for re-organising the co-operative credit system, and the need for special lending policies for backward regions were emphasized.

Sambasira and Srinivasan (1983) found that there exists an inverse relationship between per acre borrowing and farm size. It may be an indication of the higher demand for credit by farmers with relatively lower size of holdings caused by deficiency of own funds for farm investment.

Subramanian *et al.* (1983) in their study in Athoor Block Madurai district, Tamil Nadu revealed that the proportion of over dues to the total loan outstanding in certain states like Assam, Bihar, Meghalaya, Manipur, Nagaland, Punjab, Tripura and Delhi was more than 60 per cent. The overdues position in Andhra Pradesh, Haryana, Himanchal Pradesh, Jammu and Kashmir, Karnataka, Rajasthan, Tamil Nadu and West Bengal was less than the national average (45 per cent). In all the other states it was more than the national average but below 60 per cent. In many of the states a major portion of the overdues remained unpaid for more than three years. The proportion of overdues which were pending for more than three years in Assam was 60.5 per cent, in Madhya Pradesh 36.84 per cent, in Manipur 30.81 per cent, in Meghalaya 48.02 per cent, in Bihar 22.52 per cent and in Gujarat 29.60 per cent. In other states it was below 20 per cent. For India as a whole the overdues backlog for more than three years was 20.97 per cent.

Chouhan *et al.* (1984) in their study in Agra district of U.P. for the period 1972-73 to 1981-82 revealed that the recovery position was better in case of small farmers (72.76 per cent) as compared to large farmers (68.2 per cent). The year wise analysis of the data revealed that recovery position of small farmers was better than the large farmers in most of the years. This indicated that repayment consciousness was more on the part of small farmers as compared to the large ones.

Goel (1984) in her study of Rajasthan revealed that the overdue position at every tier of the co-operative credit structure, both short-term and long-term, has considerably worsened during the last six years (1975-76 to 1980-81). In absolute terms the quantum of overdues increased three to four fold at each tier besides maintaining a higher trend-line in term of its percentage to the demand / outstanding. The author also presented in her study, the growth rates of loan advanced over the previous year, which were 15.19, 21.19 and 18.74 in the year 1978-79, 1979-80 and 1980-81, respectively. The growth rate of overdues over the previous years were 14.11, 13.97 and 3.98 in the year 1978-79, 1979-80 and 1980-81, respectively. The study also pointed out that the over all overdues of Central Co-operative Banks upto end-June 1981 was Rs. 1964 lakhs for the state of Rajasthan, out of which the amount of overdues for Jaipur district was Rs. 94.8 lakh (4.8 per cent). The Ajmer district was having the highest amount of overdues Rs. 160.2 lakh (8.2 per cent) in the whole state of Rajasthan.

Pandey *et al.* (1984) in their study in Kurukshetra district of Haryana revealed that during 1973-74 to 1981-82 the total amount of advances, demand and recovery of the Kurukshetra Central Co-operative Bank increased at the rate of Rs. 22.18, Rs. 22.83 and Rs. 19.43 million per year. The magnitude of overdues considerably increased during the drought years. The trend analysis revealed that the gap between the total demand and amount recovered was increasing. The trend analysis in to total advances, demand, recovery and overdues on the loan issued by the Primary Land Development Banks in Kurukshetra district indicated an increase at the rate of Rs. 3.35, Rs. 3.32, Rs. 2.64 and 0.68 million, respectively, per year during 1973-74 to 1981-82. In case of the Primary Land Development Banks also, the gap between total demand and amount recovered had been increasing substantially.

Anonymous (1985) in a study conducted by Agricultural Project Service Center, Kathmandu, Nepal about "On going evaluation of Intensive Banking Programme, Nepal" observed that overall repayment was estimated to 75 per cent with no significant difference between large and small borrowers. It was also stated that rural banks were found to be ahead in repayment performance compared to urban branches.

Balishter and Singh (1985) in their study, "A study of the financing of Agriculture by Institutional Financing Agencies", conducted in Bichpuri Block of Agra district (U.P.) found that over all borrowing per farm was about Rs. 1,793. It showed positive correlation with the farm size and increased from about Rs. 622 on marginal farms to Rs. 6,235 on large farms. It was Rs. 1,563 on small and Rs. 2,805 on medium farms.

The study also revealed that the average availability of credit per hectare of cultivated area was about Rs. 980. It was higher on small (Rs. 1,070) and marginal (Rs. 1,020) farms as compared to medium (Rs. 941) and large (Rs. 916) farms. In terms of availability of credit per hectare the marginal and small farmers were in a better position to take full advantage of modern farm technology. There was apparently a case for the extension of operation of commercial banks to cover this class of farmers on a large scale in the country.

Bisalion and Nagaraj (1985) conducted a study which showed that age of the respondent and farm business income were negatively related to overdues, whereas the size of holdings, family size and non farm expenditure are positively related.

Chandra and Sindhu (1985) found through their study that the higher value of ratio of dependent in the family, capital expenditure and total borrowing placed the borrowers into defaulters group and vice-versa, whereas higher level of education contributed towards non default. Similarly, the defaulters with larger size of operational holding, higher capital expenditure and lower level of education, higher ratio of dependents in the family high consumption expenditure and net cash income were more prone to willful default and reverse was true for non willful defaulters.

Mishra *et al.* (1985) found that the sample farmers obtained the loans mainly for creation of irrigation facilities and out of the total loan received about 95 per cent of the loan was as term loan like sinking new well, purchase of pumpset and tractor, leaving the balance as crop loan

i.e. for purchase of seed and fertilizer. The largest amount of borrowing was new well and electric pumpset, followed by tractors purchase of seed and fertilizer.

Pandey, Suhag and Manocha (1985) in their study, "Structure and flows of Agricultural Co-operative Credit in India", revealed that at national level about 24 per cent of the large farmers could account for about 39 per cent of the total loans disbursed during 1976-77 to 1978-79. On the contrary, about 55 per cent of the borrowers belonging to small and marginal farmers' categories could receive only about 34 per cent of the total loans disbursed. However, about 22 per cent of the medium farmers could receive about 27 per cent of the total amount disbursed to them. This clearly reflected the imbalances or problems of credit management in the co-operatives which if not rectified, would lead to the imbalanced growth of rural economy. In Rajkot regions the growth rates were 63.63 and 39.11 per cent. For all the three regions the growth were highly significant at one per cent level. Thus, it was found that all the three regions were trying to repay back their loans or alternatively the LDBs were successful in realising quite a substantial part of the loan advanced. But at the same time the LDB seems to be facing the problem of recovery in these regions since the outstanding were also significant.

Sindhu and Singh (1985) analysed the extent to which the default rate is associated with different farm characteristics, specifically the extent of default in loan repayment on different farm sizes, and factors associated with default rate. The study was conducted in Doraha block of Samarala tehsil of Ludhiana districts of Punjab, using a sample of 165

farmers, comprising 112 non defaulters and 53 defaulters. The extent of relative loan default was found to be higher in case of large farmers than for other categories of borrowers, on average, defaulters in almost all categories of farmers had taken more loans than non-defaulters from all financial institutions except commercial banks. In case of commercial banks, the non-defaulters had borrowed more than defaulters. Economic and social characteristics such as house-hold and farm assets consumption, expenditure and repayment capacity which effected loan repayment were found to be favourable to defaulters.

The Planning Commission (1985) regreatfully admitted, willful default and overdues are mounting in a number of states including some co-operatively progressive states like Maharashtra and Gujarat. By writing off agricultural loans and providing subsidies out of the state exchequer some of the states have set a bad example to the entire country. If this trend is not reversed and if bank are reduced to institutions providing grants rather than recycling scare resources to get the maximum benefits for the country as a whole, the banking system will be unable to provide more credit to meet the growing needs of the farmers.

Gadgil (1986) in a research study found that changes in the flow and stock of production credit from all credit institutions taken together in nominal and real terms over the period 1973-74 to 1982-83 were quite revealing. As against the 15 per cent annual growth in nominal terms, the growth in real terms worked out to only 4 per cent at the all India level. Statewise, the real growth had been the highest in Orissa (13 per cent

for flow and 10 per cent for stock) among the 14 states showing positive growth. Three states namely, Himanchal Pradesh, Assam and Gujarat had registered a negative growth in real terms varying from 6 per cent to 7 per cent in flow and from 3 per cent to 5 per cent in the stock. The flow and stock of investment credit in nominal and real terms revealed the same story while such credit flow in the country increased nominally from Rs. 420 crores in 1973-74 to Rs. 1740 crores during 1982-83 or at a compound rate of 17 per cent and the stock from Rs. 1442 crores to Rs. 7512 crores (20 per cent). The real growth rate worked out to only 8 per cent for flow and 11 per cent for stock. The real growth rate was the highest in Assam, Haryana, Rajasthan, Orissa, West Bengal and Kerala (18 per cent to 30 per cent) and the lowest in Gujarat, Tamil Nadu and Maharashtra (1 per cent to 6 per cent).

Gulati and Singh (1986) in their study in Hissar district of Haryana analysed the pattern of loans provided under the Integrated Rural Development Programme (IRDP). The study revealed that under IRDP, the major emphasis in terms of advancement of loans was given to the marginal farmers and Agricultural labours. The number of beneficiaries under these categories, accounted for more than 80 per cent of total beneficiaries, and more than 85 per cent of total loan advanced. As regards purpose wise distribution of loans, it was observed that as many as 46 per cent of beneficiaries received loan for purchase of buffaloes, accounting for 47.94 per cent of the total amount of the loan advanced. Next in importance was loan advanced for the purchase of sheep and bullocks. It was observed that in case of small farmers, loans were mainly advanced for purchase of buffaloes, bullocks and bullocks with

cart where as for marginal farmers, loans were mainly advanced for buffaloes, sheep and purchase of bullocks. In case of agricultural labours the loan were mainly advanced for the purchase of sheep and buffaloes, whereas for non agricultural labourers the loan was mainly advanced for establishing 'Kirana Shops'. It was found that loan advanced for all purposes were not sufficient to meet actual requirement.

Gupta *et al.* (1986) in their study in Hoshangabad, Madhya Pradesh revealed that the amount of loan was not sufficient to meet the requirement, the procedure of financing was quite long and too complicated and the rate of interest was high. These were the major difficulties faced by most of the respondent borrowers in repayment of the loans.

Pandey *et al* (1986) in their study in Kurukshetra District (Haryana) revealed that the financing from the institutional sources was biased in favour of relatively larger farmers. The amount of loans given for dairy, poultry, piggery etc. meant for the downtrodden was almost negligible in the total loans disbursed. While the total amount of loan due for repayment exceeded the repaying capacity on the small and medium farms it was reverse to the large farms. The default, thus, in the case of large farmers was mostly wilful.

Radha Krishnam (1986) opined that concessional finance may lead to misutilization and sub-optimum utilization of credit, particularly by large farmers.

Rao T. Hanumantha (1986) prepared a case study on sugarcane cultivators of different size group in a single village in Andhra Pradesh to

final out the sources of their finance. The study revealed that the commission agents and co-operatives were the two most important sources of credit for all farmers. The commission agents were the main source of credit for small and large farmers. This only underlines the need to carry out necessary changes in agricultural credit policy and procedures so as to enable all the small farmers obtain adequate investment and production credit. Apart from simplification of loan procedures, it is important to ensure linkage between farm extension and credit between supply of farm inputs and tractor services, on the one side and credit on the other, and between land development bank and credit particularly in the case of small farmers.

Singh and Singh (1986) attempted to work out quantitative criteria to predict the repayment performance of prospective borrowers. The data was collected for 100 dairy loanees of a RRB in Bihar. The majority of borrowers were found to be defaulters of whom more than half were wilful defaulters. The discriminant function indicated that the borrowers with higher number of milch animals, higher income from other than crop and dairy enterprise, lower percentage of total expenditure to total income, higher per cent of earning adults to total number of adult in the family, lower per capita expenditure of food and lower educational status were mostly wilful defaulters.

Singh *et al.* (1986) observed in district Ballia of U.P. that the loan facilities had a significant impact on investment in cash inputs and level of income in crop and milk enterprise. It facilitated the farmers to make an additional investment in post borrowing situation mainly to purchase

milch cattle and irrigation structure. It also helped to purchase the inputs like fertilizers, pesticides etc.

Singh (1986) in his study in Palamau district in Bihar found that out of 132 house holds financed under IRDP during 1983-84 by Bishrampur and Patan branches of Regional Rural Bank, of the total house hold, 41 were covered under goat rearing scheme, 36 under dairying, 18 under the supply of bullocks and 26 were covered under minor irrigation. The study also revealed that financial assistance per house hold was Rs. 1927 including a subsidy of Rs. 797. The finance per house hold was Rs. 944 for goat rearing, Rs. 2387 for dairying, Rs. 1463 for purchase of bullocks and Rs. 3228 for rhates/pumpsets. It was Rs. 1293 for tailoring and Rs. 2334 for the purchase of loud speakers. The assistance per house hold was lower under most of the schemes resulting in investment units of smaller in any cases, poor quality of assets supplied and coverage of all beneficiaries under one investment only.

Goud (1987) in a study of Domakonda Taluk for the period 1980-81 to 1984-85 analysed the consolidated statement of three PACS and showed that forward classes took 50 per cent of total credit from co-operatives. While weaker sections (BCs, SCs and STs) had share of 50 per cent of total credit. Hence social justice to the weaker sections was not fulfilled, even according to the co-operative finance act of 1964 which laid down that weaker sections be allotted 75 per cent of the credit. Thus, there was a difference of 25 per cent between the statutory limit and actual credit allocation to the weaker sections.

Patel *et al.* (1987) in their study analysed that on an average, about 70 per cent of the total credit was used for productive purposes and 30 per cent for non productive purposes. Among productive purposes, crop loan was most dominant which accounted for the highest percentage of the total credit for all the cases except small farmers. The study also revealed that the small and marginal farmers have less percentage of defaulters as compared to the large farmers.

Ramana (1987) in his study in Andhra Pradesh revealed that the demand, in Rupees thousand, was 781, 1127, 1774 and Rupees 2270 and collection in Rupees thousand was 721, 820, 1355 and 1817 and the balance in Rupees thousand was 60, 287, 443 and 453 in the years 1978-79, 1979-80, 1980-81 and 1981-82, respectively. The recovery percentage was 92.41 in the first year followed by a steep fall during the subsequent years. However, the recovery performance during 1981-82 registered an improvement. The overall recovery performance for the four year period worked out to 80 per cent.

Rao *et al.* (1987) in their study revealed that the reasons for high overdues include wilful defaults, natural calamities, inadequate appraisal of investments, insufficient supervision, over implementation, follow-up and collection efforts and in some instances, active discouragement of collection efforts by state governments and local groups for political reasons. Large proportion of defaulters were wilful and had a growing feeling that the bank loans are as per with government subsidies and therefore, need not be repaid.

Satya Sai *et al.* (1987) in their study in West Godavari district (A.P.) revealed that the main causes of non repayment of loans being late sale of the product (51.47 per cent), crop failure (11.76 per cent), the income from crop sales invested in the following seasons immediately (16.18 per cent), coincidence of due date of two or more loans (5.88 per cent), education, litigation, and social obligation (8.33 per cent) and no body ask to repay (5.88 per cent).

Beohar and Khare (1988) in their study in Jabalpur district (Madhya Pradesh) revealed that a large proportion of loans advanced for the purchase of bullocks and for land improvement, remained overdue as compared to other purposes. The farmers who adopted a large number of package of production practices, irrespective of the purpose of credit, had higher repaying capacity per farm as compared to others.

Bhosale and Dahgat (1988) in their study in Maharashtra found that at the over all level, short-term and medium term loan constituted 54 per cent and 46 per cent respectively. The per farm borrowing of short term as well as medium term loans increased with the increase in the size of holding during all the three years of the study. The proportion of repayment of principal amount was 40 per cent of short-term and 31 per cent of the medium term loans. The repayment percentage showed an increasing trend from the year 1981-82 to 1983-84 in both the types of loans. The study also revealed that the important reasons for non-repayment reported by the farmers were their low income, non remunerative prices for agricultural produce and crop failure due to natural calamities. The study revealed that the amount of overdues was

related with the net income from crop production, amount borrowed, amount used for productive purposes and expenditure on family consumption in all three size group of holdings.

Ganwar and Aggarwal (1988) in their study in Kurukshetra district, Haryana revealed that the main causes of default in recovery of loans were, excessive political interference in the day-to-day functioning of credit institutions, problems relating to sub-standard supply of farm inputs, cases of wilful default, farmers being caught in credit trap as their repaying capacity fell short of loan amount due, fictitious loans were common in subsidised items like, milch animals, poultry piggery etc. advancing loan without proper scrutiny of the technical feasibility and financial viability of the schemes and inadequate marketing facilities and lack of adequate income to repay the tractor loans by most of the farmers.

Gupta (1988) found recovery performance of term loan was comparatively better than that of crop loan in 1978-79. He further observed that the recovery of overdues was associated with the holding percentage of irrigated area, cropping intensity and per capita income in Jabalpur district of Madhya Pradesh.

Neena *et al.* (1988) in their study revealed that on the whole, the distribution of agricultural credit was not based on the parameters of agricultural growth because it was found that states in the low growth rate zone of total advances were not in the same zone of total cropped area, gross and net irrigated area. In most of the cases there were states which are agriculturally more advanced and the farmers might be

financing their farm needs from their savings. The distribution of all kinds of agricultural credit advanced by the commercial banks had tended to be more egalitarian.

Pandey and Guglani (1988) in their study in Ranchi district (Bihar) revealed that in advancement of agricultural loans by the various financial institutions, a positive trend was noted for both the tribal and non-tribal farmers. Linear growth rate of agricultural loans was found to be 23.56 and 22.92 per cent in the case of tribal and non tribal farmers, respectively. The result showed that the outstanding of agricultural loans advanced by the financing institutions were mounting high, year after year in the case of non tribal farmers. The study also pointed out that an increasing trend was observed in institutional lending to tribal farmers since the inception of multiagency approach in rural credit.

Ramasamy and Maskel (1988) in their study found that 80 per cent of the small farmers and 68 per cent of the agricultural households expressed concern over the untimeliness in the delivery of loans. The other problems being insufficient time for repayment, lack of technical guidance, inflexibility in structure of installment of repayment. The study also revealed that misutilization of loans was highest (37.61 per cent) among agricultural labour house holds and the small farmers (20 per cent). Another interesting finding was that the farmers used less quantum of credit for crops with high income risks. The size of farm, consumption expenditure, family size and non-farm assets exerted negative influence on repayment.

Ram and Devi (1988) in their study found that 81 per cent of borrowers reported that irregular and insufficient supply of irrigation more often than not, as it is situated at the tail-end of the canal, had forced them to fall in the defaulting category. It was altogether a different story in other area of study as 76 per cent of the borrowers even after making a net income more than the total annual repayment of loan, did not pay even a single loan instalment which was a clear case of wilful default. The study, also, pointed out that in another village which received finance for milch cattle from the same bank and the beneficiaries being small farmers, the repayment performance was cent per cent. The reason for this were repayment consciousness among the borrowers, prompt repayment tradition for several years in the village and a strong village leadership.

Singh, Balishter and Jain (1988) in their study in Agra district of U.P. found that the farmers, particularly the large ones do not repay the bank loans inspite of having repaying capacity in excess of loan repayment.

Singh (1988) in his study of Bhojpur Rohtas Gramin Bank relating to the period 1977-83 revealed that the bank had exclusively financed the neglected and weaker sections of society and showed the image of small man's Bank. Purpose wise loan analysis showed that dairy, sheep and goat, poultry and piggery schemes constituted the major activities of the landless labourers and scheduled caste and scheduled tribes while crop loan scheme was relevant for small and marginal farmers. Linear growth trend, equation was fitted for economic analysis of loan. It showed

a more positive trend in sheep and goat scheme followed by piggery, poultry, dairy and crop loans scheme. The recovery of loan in allied activities was around 52 per cent which was higher than crop loan scheme.

Verma and Chopra (1988) revealed that the demand for bank credit is positively related with the adoption of new technology and the cost of production in agricultural sector of the economy.

Balishter *et al.* (1989) in their study in Agra district (U.P.) revealed that out of total defaulting farmers numbering 144, the large and medium farmers together accounted about 31 per cent of total defaulters and about 55 per cent of total amount of overdues. While the marginal and small farmers together accounted about 69 per cent of total defaulters and about 45 per cent of total amount of overdues. Thus better class of farmers were responsible for a large portion of overdues which was matter of serious concern to banks.

Bhosle and Dangat (1989) in their study in Kolhapur district (Maharashtra) revealed the important reasons of non repayment as reported by the farmers. Such reasons were their low incomes, non-remunerative prices for agricultural produce and crop failure due to natural calamities.

Khushro (1989) in a review of the agricultural credit system in India reported that field survey involving interviews of default found that 22.26 per cent of the respondents attributed their defaults to natural calamities and adverse weather conditions 17.1 per cent respondents to low income generation, 3.9 per cent respondents to unforeseen

developments, 2.3 per cent respondents to diversion of loans and 1.0 per cent of respondents to defective loan policy procedures while 54 per cent respondents did not indicate any specific reasons for their defaults, some of which could be cases of wilful defaults. The study also revealed that the overall position in respect of recovery of loans continued to be unsatisfactory in all types of credit agencies although it varied among the different agencies and different regions/states.

Patel (1989) in his study in Surendra Nagar district of Gujarat for the period 1977-1982 found that out of 90 borrowers, 83.3 per cent were found to be defaulters for crop loans and 16.67 per cent were unable to repay dairying loan installments. The study further revealed that out of sample borrowers of 90 farmers 24.44 per cent were completely defaulters.

Gupta (1990) in their study revealed that the overall defaults percentage of recovery to demand was 54 per cent of commercial banks, 60 per cent of PLDB's, 57 per Central Co-operative Banks. 57 per cent of PACS and 48 per cent of RRB's as on 1984-85. The recovery percentage of Commercial Banks was 51 per cent by the end of 1989 and thereafter this percentage had gone down. This was all because of the loan waiving policy under 'Agriculture and Rural Debt Relief Scheme 1990' adopted by the central government.

Bairwa (1990) in his study about recovery performance of agricultural loans, revealed that the percentage of recovery to demand was higher for the purpose of dairy farming loans followed by pumpset and bullock and camel cart purposes. In respect of crop loans and

deepening of wells, the percentage of recovery to demand was nil. The percentage of recovery to demand was found to be highest in respect of categories viz., landless agricultural labourers and marginal farmers followed by medium and small size groups of farmers. Interestingly, the amount of recovery in respect of large farmers was found to be nil, which resulted in to cent-percent overdues.

Balishter *et al.* (1990) in their study in Etah district (U.P.) for the year 1983-84 enlisted various reasons for non repayment for IRDP loans. Low increase in income due to poor quality of assets was the most important reason for non repayment of loans reported by as much as 30 per cent of the total defaulters. Diversion of loans for unproductive purposes was the second important reason as cited by 18 per cent of defaulters. Slackness on the part of bank to insist on timely repayment of loan installment due was another reason for default as reported by about 11 per cent of defaulting families. About 8 per cent defaulters could not repay the loan because of high family expenditure. About 11 per cent defaulters reported that they could not repay their loans borrowed for milch animals as there was no increase in income due to lack of supporting facilities like feed, fodder, veterinary and also lack of guidance about scientific management of milch cattles. About 5 per cent defaulters reported that their buffaloes died within few weeks and there was no additional income. About 2 per cent defaulters reported that they could not repay the bank loans as they gave priority to repayment of private loans not only due to higher interest rate on private loans but also due to pressure from the creditors.

Mishra *et al.* (1990) studied the rôle of co-operative credit for capital investment in Varansi district and concluded that the co-operative had played an important role in increasing production and productivity of different crops and level of income and employment of farmers in general. In Varansi district U.P., they had played a significant role providing credit to the farmers. A sample of 150 farmers from chiraigaon block in the district was selected randomly from two categories of farming class, viz., borrower and non-borrower, and they were further grouped into four size group of holding, i.e. marginal, small medium and large. During the investigation period it was observed that there were 13 agricultural co-operative credit societies, 210 co-operative societies and 24 district co-operative banks working in the district Co-operative Land Development Bank was also functioning in the district for providing credit to farmers. It was observed that the small, medium and large farmers have taken crop loans as well as loans for farm machinery and irrigational structure during the reference period, while the marginal farmers have borrowed for live stock and installation of tubewell/pumpset for irrigational water so that they can increase their income through multiple cropping and milk production. The marginal farmers took loans for these purposes mainly due to the provision of 33.3 per cent subsidy to them.

Patel and Acharya (1990) adopted normative whole farm approach for increasing income through new technology and credit with special reference to Banaskantha district of Gujarat. The time reference of the study was 1988-89. In all, a sample of 90 farmers distributed among two different agro climate zones were selected for the study. Linear

programming technique was used for developing optimal farm plan at improved technology with existing capital and with relaxed capital so as to present these in the form of whole farm package. The result obtained by the optimisation in the semi arid zone under limited supply of capital funds showed that the area under bajra, jowar and mung in kharif should be increased while in the rabi season the area under mustard and in the summer season the area under groundnut should be increased. In the arid zone the area under cotton, castor and irrigated mustard under both the limited and relaxed capital should be increased there is scope of increased income through adoption of improved crop technology at existing capital so as to earn about 23 to 83 per cent higher income than what was earned earlier.

Bajracharya *et al.* (1991) in an impact evaluation of Small Farmers Development Project of Nepal revealed that the purpose wise borrowing during the survey year (1988-89) was highest for livestock borrowing (Rs 871) followed by (Rs. 791.10) for consumption purpose, borrowing for production purpose ranked third showing an average amount of Rs. 717.10 per farm family. Average borrowing for cottage industries and irrigation was Rs. 251.30 and Rs. 165.90, respectively. The study also revealed that the repayment on the basis of purpose wise figures indicated that repayment on irrigation, agro-industries and livestock ranges between 99-120 per cent while that of special crops, cash crops and land development was below 80 per cent. Repayment from bio-gas loan was just 17 per cent. They also found that out of total repayment 69.16 per cent (Rs. 303.60 thousand) was out of previous years loan

instalments falling due, during the survey year and the rest 30.39 per cent (Rs. 132.53 thousand) was out of the current year.

Lal (1991) in his study in Nagaur Jaipur district (Rajasthan) opined that with the increased in the amount of credit, farmers fail to repay the major portion of loan taken.

Prasad *et al.* (1991) studied the technical efficiency of subsidised credit under IRDP using the concept of frontier production function. The results revealed that credit contributed very little to improving the family income, besides the level of credit use efficiency was low. The level of output efficiency in relation to the maximum realisable potential averaged 35 per cent and 49 per cent, which contributed to the high level of default in the repayment of the IRDP loans.

Prasad (1991) in a study about overdues of IRDP loans in Sambhar block of Jaipur (Raj.) concluded that the percentage of defaulters to total number of borrowers and overdues to demand were higher in case of landless labourers and small farmer size group of non-SC, ST category. However, it was reverse in the case of marginal farmers. He also concluded that under agricultural and allied activities in respect of landless labourer and marginal farm size group, the percentage of overdues to demand was highest for sheep/goat unit advances and lowest for camel/bullock cart advanced. In case of small farmer size group, it was highest for diesel engine (cent-percent) and lowest for milch animal advances.

Karki (1992) in a study about repayment capacity of farmers in small Farmers Development Project, Budhanilakantha, Kathmandu, Nepal

revealed that out of 90 respondents 29 respondents (32.2 per cent) had repaid their loan fully; 49 respondents (54.4 per cent) had partly repaid; and 12 respondents (13.3 per cent) did not repay at all. Interestingly, all the loan amount borrowed from the informal sources was paid fully by the respondents. The study also revealed that major reasons given by farmers for non-repayment of loans were widely varied. Farmers cited more than one reasons in most cases. Out of 90 respondents 14 farmers (15.5 per cent) attributed non-repayment to low production and consumption needs at home. Five respondents cited that they spent money on the marriage of daughter and son, two cited unpleasant event of death at home three said they paid back old debt and no residue left to pay back by two respondents. One respondents each gave reasons as theft, purchase of land, gambling and no reason (simply did not like to pay). It was concluded that of the 90 respondents 70 per cent had positive repayment capacity over their loan obligation whereas 30 per cent were with negative repayment capacity.

Swami Nathan (1993) in their study in Madurai district Tamil Nadu concluded some interesting insight into the nature of change in rural credit markets in the context of an expansion in rural banking. At a general level, access to cheap credit from banks and other financial institutions had become easier for house holds from less wealthy section of Gokilapuram village over the eight-year period, 1977-85. This was supported by profit estimates of the relation between borrower characteristics and access to bank loan. The availability of cheap loans from banks was known widely among the village population. In other words, poorer house-holds gained access to formal credit primarily via

programmes such as IRDP that did not ensure them further access to bank credit in the future.

Atibudi and Singh (1994) have studied the credit utilization by the farmers in two block of Orissa and found that the flow of credit to the small and marginal holdings was less than proportionate.

Balishter and Kumar (1994) studied 75 farmers of Bichpuri village in Agra district of U.P. and found that the per hectare use of credit was higher in case of marginal farmers compared to the small and large farmers. Commercial bank topped in providing credit to the farmers followed by PACS and Land Development banks (LDBs). The diversion of credit to unproductive purposes was as high as 46 per cent. It was the highest for the small and marginal farmers. Naturally they had a higher share in the overdues estimated at 45 per cent of demand.

Dadhich (1994) had found that though the distribution of land is highly skewed, the distribution of credit was some what fair. The supply of credit had increased the disparity of income and wealth between borrowers, especially in the case of small farmers due to negative real interest rate and higher leverage. He argued that a policy to curtail concessional credit to the priority sector would reduce the availability of funds to the weaker sections and it would in turn worsen the distribution of income and wealth in the sector.

Gupta (1994) found considerably higher adoption of new technology among the beneficiaries compared to the non beneficiaries of institutional credit in a block in Raipur district of Madhya Pradesh. The

income level of the farmers was much higher than the latter in the Chhattisgarh region.

Jain *et al.* (1994) assessed the effect of Madhya Pradesh Farmers' Debt Relief Scheme and Madhya Pradesh Agricultural Production Incentive Scheme, 1990 in Patan Block of Jabalpur district. The relief was mainly for crop loans. All the borrowers of co-operatives irrespective of the size of holding were eligible for the benefit of the scheme. The repayment of fresh loans did not show any improvement due to loan waiver. The scheme succeeded in the redemption of old improvement due to loan waiver. The scheme succeeded in the redemption of old debts but recovery of fresh loans was a major problem faced by the co-operatives.

Kunt *et al.* (1994) analyse the data of four bank branches in Navsari talika in Gujarat regarding loan, repayment and delay in repayment. They found that allocation of credit increased significantly over the period but the rate of recovery lagged behind the rate of credit allocation. They found that the percentage of borrowers who delayed that repayment continued to increase after the introduction of Agricultural and Rural Debt Relief Scheme, 1990. Their sample farmers interestingly were not in favour of such scheme.

Sharma *et al.* (1994) analysed the Rural labour Enquiry Reports for 1964-65 and 1987-88. They found that the non-institutional debt amounted to 65 per cent even in 1987-88. Rajasthan ranked first in both the periods in terms of total debt. Debt due to borrowings for productive purposes was the highest for Haryana. They found that the disparity in the

use of credit among the states has decreased due to the increased role of institutional sources.

Singh (1994) in this paper tried to find out the viability of the long-term credit for different sizes of farms in Punjab. The repayment capacity of the small as well as medium farmers was negative in all the zones at the existing level of credit use and they could repay by covering risk only at the recommended level. Only the large farmer have the risk bearing ability to repay the loan, under all situations.

Singh *et al.* (1994) explored the functioning of the financial institutions in Azamgarh district of Uttar Pradesh. They found that the cause of overdues was the weak financial base of the farmers in the area. Political leadership was responsible for wilful default. They opined continuation of direct lending for another 10 to 15 years.

Srivastava (1994) found that the institutional credit supplied by the RRB in Sitamarhi district and LAMPS in Dumka district of Bihar was not rationally utilised. He suggested the need for changing loaning priorities in favour of crop production by RRBs and cattle and crop loans by LAMPS.

Tripathi *et al.* (1994) in their paper have found that the impact of credit on the returns from the crops were highly significant. The marginal value of productivity of crop loan was the highest, in high hill zone. They concluded that there was scope for increasing production with higher use of credit.

Brahmbhatt and Dave (1995) conducted a study in Kamau and Nadbai tehsils in Bharatpur district of Rajasthan, to investigate the impact of delay in loan recovery on the credit cycle of cooperatives; the comparative loan recovery performance of banks and cooperatives; loan procedures and attempts at loan recovery; and the banking practices responsible for delays. The financial institutions included in the study were the Bharatpur District Central Cooperative Bank Ltd, Bank of Rajasthan Ltd, Alwar Bharatpur Anchalik Gramin Bank and the Bharatpur District Cooperative Land Development Bank Ltd. The reference year for the study was 1993-94. The sample included 150 defaulter cultivator households. The major constraints in the recovery performance of the formal credit institutions were identified as : improper identification of borrowers, wrong formulation of schemes, lack of supervision over end use of credit, lack of adequate approach with borrowers, and lack of prompt and necessary actions against defaulters.

NABARD (1995) presented an ex-post evaluation study of two poultry (layer) development schemes implemented by the Bank of Baroda in Ajmer district of Rajasthan State, during the period 1989-92. The study covered 30 poultry units, consisting of 11 small units, 10 medium units and 9 large units. The bank's targets were satisfactorily achieved under the first scheme, but progress under the second scheme suffered due to the steep rise in the price of poultry sector. Repayment performance of the sample beneficiaries was poor.

NABARD (1995) in an evaluative study examined the implementation of the Integrated Rural Development Programme (IRDP)

in Alwar district, Rajasthan. It analysed the divergence between scheme expectations and actual performance, and the number of families who were assisted in crossing the poverty line. A sample of 147 families was selected for the study. The reference year was 1991-92. The repayment performance of beneficiaries under the IRDP was not particularly good.

The review of the studies presented clearly indicates importance of credit in the development of agriculture and the problem associated with its management in different parts of the country. However, no such effort has so far been made to study the credit needs in harsh agroclimatic conditions embedded part of Western Rajasthan, the performance and problems of institutional credit, credit gap, and the overall role in the infrastructural development. Thus, the present study has been contemplated to enquire into all the above aspects of institutional credit to agriculture in Bikaner district of the Western Rajasthan.

METHODOLOGY

This chapter describes the detail of methodology adopted in the study. The chapter has been divided in to three sections. The first section describes the selection of study area and the lead bank. The second section deals with the collection of data while the third section gives the details of analytical frame work used for achieving different objectives of the study.

3.1 Selection of District

The Bikaner district of Rajasthan is one of the agriculturally backward district which requires extra care of the financial institutions for bringing it at par with other areas. Therefore the present study have been confined to Bikaner district for the benefits of administrators, planners and the financial institutions.

This district was chosen purposively in view of the following facts.

1. The high potential of credit utilisation in view of agro-climatic situation.
2. Higher credit needs for the agriculturally backward farmers for crop loan, land improvement, soil conservation programme and to purchase small and heavy implements, tractor, tube well , pump sets etc., and
3. The enormous potential of live stock development in the area.

3.2 Selection of Institutional source / Bank

State Bank of Bikaner and Jaipur as being the lead bank among the nationalized and schedule commercial banks was selected to collect secondary data. Two rural branches of lead bank (SBBJ) were selected from each tehsil viz., Bikaner and Nokha to collect secondary data at tehsil level.

3.3 Sampling Design

A two stage sampling techniques was adopted for selecting respondents to collect primary data. There was no sampling at tehsil level. Two tehsil which represent the average agro-ecological conditions of the district were purposely selected for the present investigations. Three villages having maximum loaning activity from the each tehsil were selected as first stage Unit. Further, 15 per cent borrowers and 15 per cent non borrower farmers were randomly chosen from the selected villages as second stage units to have detailed primary data.

3.3.1 Selection of tehsil :

Out of the four tehsil in the district, two tehsils viz., Nokha and Bikaner which represent the average agro-ecological conditions were selected purposely for the detailed study.

3.3.2 Selection of villages

A list of all villages falling in the selected tehsils was obtained from tehsil headquarters. The branches of SBBJ at Bikaner and Nokha tehsils were contacted to know the dominance of loaning activities in the

listed villages. The villages, Khichiya, Jagdevwala and Khara in Bikaner tehsil, and Maiyasar, Himatsar and Charkara in Nokha tehsils, where the loaning activity was maximum, were selected for the study. Non-borrower farmers were, also, selected from the same villages to homogenate the study.

3.3.3 Selection of farmers

A list of all borrower and non borrower farmers in the selected villages was prepared with the help of the concerned branch of the bank and categorised in small, medium and large on the basis of farm size classification accepted by the planning commission. Then a sample of 15 per cent farmers in each size group from the list of both borrower and non borrower farmers were randomly selected for detailed primary data collection. Hence 90 borrower and 72 non borrower farmers from the selected villages Jagdevwala, Khichiya and Khara from Bikaner Tehsil, and Maiyasar, Himatsar and Charkara from Nokha tehsil got selected for detailed study.

The table 3.1 gives the details of selected households in the study area.

3.4 Collection of Data

Primary and secondary data were collected for the purpose of studies :

(a) Primary data : The primary data were collected from the selected farmers by interviewing them through personal approach with the help of well designed and pre-tested schedule for the year 1995-96.

Table 3.1 Distribution of selected household in the study area

Village	Holding Size											
	Small				Medium				Large			
	Borrower		Non borrower		Borrower		Non borrower		Borrower		Non borrower	
	T	S	T	S	T	S	T	S	T	S	T	S
Bikaner tehsil												
(i) Jagdevwala	27	4	21	3	24	4	24	4	35	5	23	3
(ii) Khichiya	35	5	17	3	37	6	19	3	42	6	29	4
(iii) Khara	29	4	25	4	27	4	29	4	32	5	33	5
Nokha tehsil												
(i) Maiyasar	33	5	17	3	37	6	29	4	35	5	38	6
(ii) Himatsar	37	6	28	4	24	4	33	5	32	5	36	5
(iii) Charkara	34	5	26	4	31	5	36	5	38	6	23	3
TOTAL		29		21		29		25		32		26

(b) Secondary data : For collection of secondary data, lead Bank of the District and other nationalized/schedule commercial bank were contacted to gather meaningful time series data for more than 10 years (from 1986 to 1996) on expansion of institutional credit to agriculture, growth of institutional finance, repayment position and overdue problem etc. Two rural branches of lead banks (SBBJ) were selected from each tehsil viz., Bikaner and Nokha, to collect secondary data at tehsil level. In order to collect time series information on cropping pattern, productivities, irrigation and other infrastructural development during the last 20 years (from 1977 to 1996) the district statistical bulletins published by the Directorate of Economics and Statistics (GOR), Govt. other Publications, Books, Journals and news papers were consulted.

3.5 Analysis of Data

The primary data were mainly subjected to tabular analysis with computation of average and percentages as and where required. The requirement for credit were worked out under the following set of assumptions, developed on the basis of available literature and the field experience gathered during initial survey of the study area :

- (i) Large farmers require credit only for cash expenditure in medium and long term farm development activities. Their short term crop loan requirement are generally restricted to fifty per cent of the total cash requirement.
- (ii) Medium farmers require credit mainly for medium term loan for animal husbandry and dairy development. Their short term crop loan requirement are generally restricted to 75 per cent of the total cash requirement.
- (iii) Small and marginal farmers need only crop loan and their requirement is extended to not only cash needs but also imputed value of family labour and other kind expenditures. Hence their short term crop loan requirement are considered as 100 per cent of the total cash requirement

The time series secondary data was used for computation of compound growth rates.

3.5.1 Estimation of credit requirement

The following model was used for estimation of the short term credit requirement of the farmers.

$$STCR = \sum_{i=1}^n N (C_{ia} P_{ia})$$

Where, N = fixed factor (0.5 to 1) depending upon farm category.

C_{ia} = Acreage under i th crop.

P_{ia} = Cost of cultivation per hectare of i th crop.

The medium and long term credit requirement were considered as such to arrive at total credit requirement.

3.5.2 Role of institutional credit

To study the role of institutional credit on agricultural development following indicators of development were used :

1. Irrigation development in the study area
2. Mechanization as indicated by the growth in numbers of tractor, tube well, pump sets etc.
3. Modern Input as proxied by fertilizer use.
4. Live stock development reflected by milch and drought cattle.

In order to fulfil the VI objective, primary data collected to gather information on administrative bottlenecks and field level problem were used.

3.5.3 Computation of compound growth rate

The compound growth rates were computed by the least square method of fitting the exponential function $Y=AB^X$. By taking logarithms of both sides of the equations the equation takes the form :

$$\log Y = \log A + X \log B$$

When $\log A = a$ and $\log B = b$, the equation

$$\text{becomes } \log Y = a + bx$$

Where x = Time element (independent variable)

y = The dependent variable (agricultural loans advanced) /
(Irrigated area under different crops)

a = Intercept

b = Regression Coefficient

The standard error of the compound growth rates were worked out by using the following formula :

$$S.E.(b) = \frac{100 B / \log 10^e \sqrt{[\sum (\log y)^2 - (\sum \log y)^2 / N] - [\sum X^2 - (\sum X)^2 / N] \log B)^2}}{(N-2) [(\sum X^2) - (\sum X)^2 / N]}$$

Where, $\log 10^e = 0.4343$

N = Number of observations

't' test was used to test the significance of compound growth rates.

$$t = \frac{b}{S.E. (b)}$$

Where, b = Compound growth rate

$S.E (b)$ = Standard error of compound growth rate.

3.5.4 Estimation of correlation coefficient

To study the degree of relationship between the credit advances

2. Value of hired bullock labour
3. Value of owned bullock labour
4. Value of owned and hired machine labour
5. Value of seed farm produced and purchased
6. Value of manure and fertilizer owned and purchased
7. Depreciation of implements and farm building
8. Irrigation charges
9. Land Revenue, cess and other taxes
10. Interest paid (on crop loan) interest on working capital
11. Miscellaneous expenses

$\text{Cost } A_2 = \text{Cost } A_1 + \text{Rent paid for leased in land.}$

$\text{Cost } B_1 = \text{Cost } A_1 + \text{Interest on the value of owned capital assets excluding land.}$

$\text{Cost } B_2 = \text{Cost } B_1 + \text{Rental value owned land (net of the land revenue)} + \text{Rent paid for leased in land.}$

$\text{Cost } C_1 = \text{Cost } B_1 + \text{Imputed value of family labour}$

$\text{Cost } C_2 = \text{Cost } B_2 + \text{Imputed value of family labour}$

(B) Cost Element :

Fixed cost : The cost is related to fixed resources and are overhead cost.

They are the same at all level of the production, the result from the

cost that have already been sunk. Rent, tax, depreciation, Interest, wages of permanent labour and family labour constitute fixed cost. The fixed cost have little relation ~~in~~ making decision on the level of production or family operation.

Variable cost : The cost are related to variable resources and change with the output. The variable cost are nil if there is no production on the farm. They change with the quantity of production increases variable cost increase quite rapidly. But with further rise in the production variable cost do not increase proportionately with the production. Later on as diminishing return set in, variable cost start rising more rapidly than the production. The variable cost are very important in making decision if we should produce how much to produce if farming is to be carried on the variable cost must be less than selling price. Casual human labour, bullock labour, seed, manure, fertilizer, expenditure on irrigation and plant protection, constitute variable cost.

$$\text{Average fixed cost : } \frac{\text{Total fixed cost}}{\text{Out put}}$$

$$\text{Average variable cost : } \frac{\text{Total variable cost}}{\text{Out put}}$$

Total cost : The fixed cost and variable cost make total cost of producing each unit of crop and live stock product. They increase like variable cost and determine if production would be profitable.

3.7 Limitations of study

Though all possible efforts were made to fulfil objectives of the study, yet a few limitations did remain in the study, which are summarized below :

(a) Limitations of primary data

1. Since most of the cultivators were illiterate and were lacking any farm record, thus it was difficult to collect accurate and precise information. It needed too much cross questioning before arriving at correct information.
2. A few cultivators did not reveal the correct information due to the fear of imposing taxes in the beginning of the enquiry. However, when they developed the confidence, they freely discussed the matter and parted with the information.
3. The farmers were mostly indifferent and least interested in providing the information. Primarily it was due to over business of some of the farmers in their routine work and, secondly some of the farmers considered it wastage of time, as they were not getting any return either in the shape of money or status.
4. A few of the farmers tried to give excessive figures in respect of their expenditure on inputs and low figures in respect of the yield. It was difficult to assess the validity and genuinity of the information. However, on the basis of the personal experience and discussions and consultations with the V.L.Ws and other

neighbours, the information were normalised. In spite of the above limitations, the farmers which were progressive and educated, helped in providing the accurate informations. Most of the farmers were co-operative and realised the importance of study, thus helped in providing the accurate information.

(b) Limitation of secondary data

Secondary data were mainly collected from the records of lead bank of the district and other nationalized/schedule commercial banks for studying the expansions of institutional credit to agricultural, growth of institutional finance, repayment position and overdue problem etc. Data/Information regarding repayment position and overdue problems were not available prior to the year 1990 for the district, therefore the repayment performance of the farmers were studied only for eight years. For studying the cropping pattern, productivities, irrigation and other infrastructural development the district statistical bulletins Government Publications etc. Were consulted. Thus the result obtained are valid to the extent of the correctness of data.

RESULTS AND DISCUSSION

Keeping in view the objectives of the present study the finding of the study have been presented in the following five sections of the chapter to present a systematic discussion and the consequential findings in respect of the role of lending institutions in the development of agriculture.

- I. Growth of Institutional Credit to agriculture.
- II. Nature and Extent of Institutional Credit to agriculture.
- III. Requirement for agricultural credit and adequacy of institutional source to cater it.
- IV. Demand, recovery and overdues of agricultural credit.
- V. Role of institutional credit in agricultural development.

The credit for agriculture and allied activities in Bikaner district has been granted for a number of purpose and for varying periods. The crop loan constitute major item of short term credit, livestock account for medium term loan, and tractors, heavy implements, tube wells, land improvements etc. explain the long term credit disbursement. A detailed account for last 10 years, i.e. from 1986-96, has been provided in this section, first to give a comprehensive picture of the district and then to present a tehsil-wise view.

4.1 Growth of Institutional Credit in Bikaner

The growth of institutional credit from 1986 to 1996 in Bikaner district as a whole and in its tehsils was examined to see the relative importance attached to different agricultural activities by the institutional sources. The growth has been presented in absolute amounts as well as the per cent growth rates.

Table 4.1(a) gives the growth of all type of agricultural credit in absolute amounts in the Bikaner district as a whole.

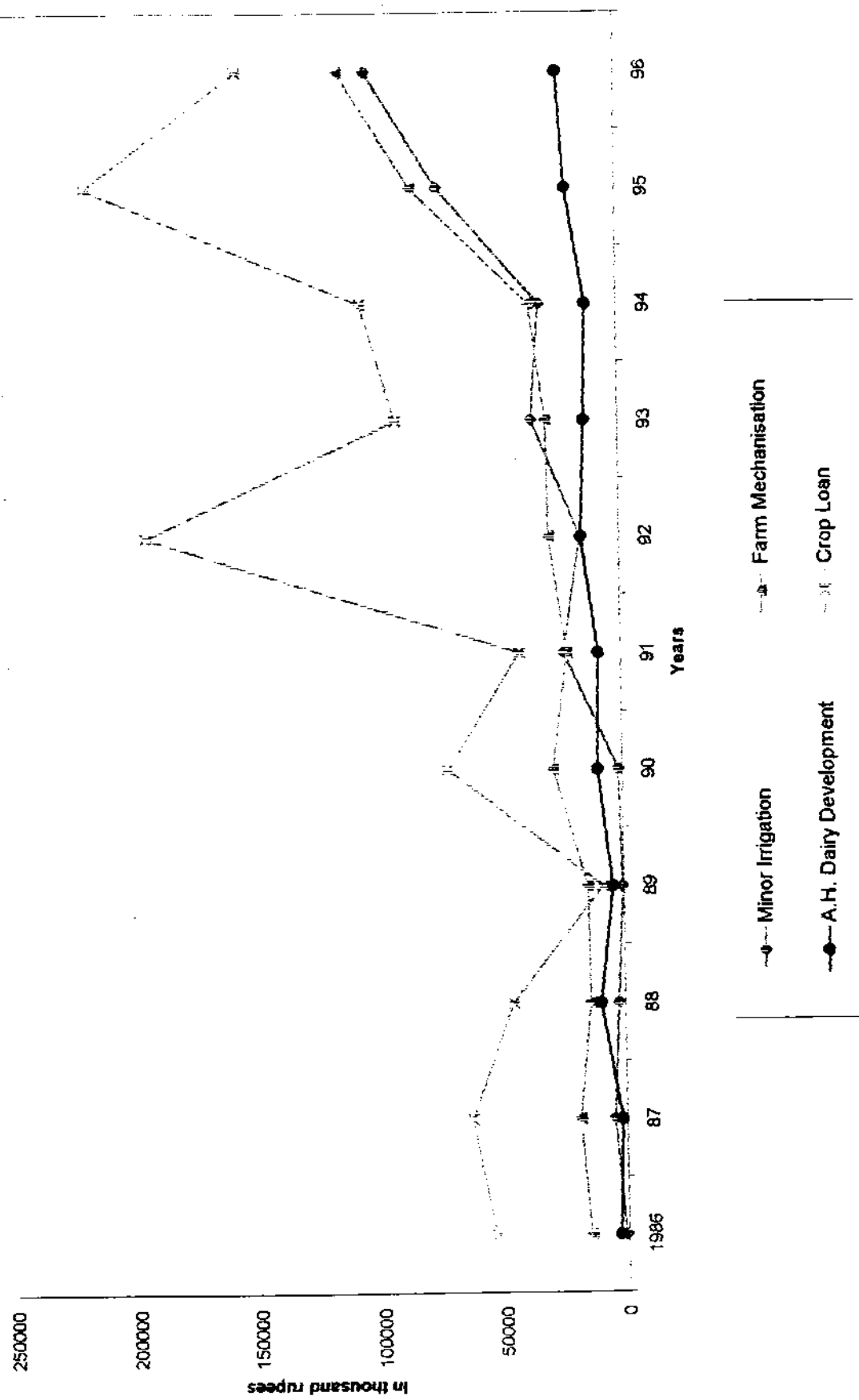
The table reveals that the crop loan, followed by farm mechanization and minor irrigation has been most important. Animal husbandry and dairy development has gradually picked up to occupy the fourth place. The amount of crop loan rose from 54,221 thousand rupees to 154045 thousand rupees during the period of examination. During the same period, credit for farm mechanization increased from 15270 thousand to 1,13,175 thousand rupees and minor irrigation from 1,118 thousand to 1,01,892 thousand rupees. The credit to animal husbandry and dairy development, which was 3,311 thousand rupees in 1986, gradually increased to 23,636 thousand rupees in 1996. Loan was also given for land development, which showed very erratic pattern. Credit for crop plants and horticulture has appeared from 1992. Loan was also granted for poultry but it was very inconsistent. Other agricultural activities, which was not separately specified by the credit institutions, also, explained about 2 per cent of the total loan sanctioned in Bikaner district.

Table 4.1 (a) Growth of Institutional Credit in District Bikaner (Absolute Amounts)

(in '000 Rs.)

Particulars	86	87	88	89	90	91	92	93	94	95	96
Minor Irrigation	1118	4835	2705	620	1676	23302	16182	35405	31879	73247	101892
Land Development	4585	10980	10577	3278	5965	3300	1540	860	845	530	1345
Farm Mechanisation	15270	18904	14289	14604	28140	22057	28800	29426	35990	84090	113175
Plant and Horticulture							1176	2918	2520	3724	1115
Agri. and Others	11149	12844	2925	3974	3730	2942	4377	4242	5259	7000	8315
A.H. Dairy Development	3311	2009	9912	4559	10112	9398	15785	14005	12844	20611	23636
A.H. Poultry			24		114		20	102	55	170	
A.H.S.G.P.	4047	4596	0	996	1165	4655	1125	1157	1384	2013	2569
Crop Loan	54221	63216	45693	8574	71408	41354	193315	91069	104942	216768	154045
Grand Total	186284	229933	169545	72590	242944	187414	508458	323013	359882	743234	710292

Figure 4.1 Growth of Institutional Credit in District Bikaner



The compound growth rates for all the agricultural activities were separately worked out and present in the table 4.1 (b) in per cent form. Except for other (miscellaneous) agricultural activities and the AHSGP (animal husbandry, sheep, goat & poultry), the growth rates in all other cases were highly significant at one per cent level of significance. The compound growth rate was highest for minor irrigation (59.98 per cent), followed by farm machinery (19.97 per cent), Animal husbandry and dairy development (18.23 per cent) and crop loan (18.13 per cent). The compound growth rate for the land development was, also very high (29.15 per cent) but it was negative. The compound growth rate of total credit was 21.09 per cent, which was highly significant.

Table 4.1 (b) Compound Growth Rate (per cent) of Institutional Credit in District Bikaner

Particular	GR (r)	R ²
Minor Irrigation	59.98** (1136)	0.90
Land Development	-29.15** (15589)	0.95
Farm Machinery	19.97** (11074)	0.89
Agriculture and Others	-1.48 (5328)	0.014
A.H. Dairy Development	18.23** (4420)	0.96
A.H. SGP	-1.69 (1931)	0.03
Crop Loan	18.13** (29094)	0.77
Grand Total	21.09** (79809)	0.73

** Significant at 1 per cent level of significance

* Significant at 5 per cent level of significance

The compound growth rates estimated for Bikaner district suggest right direction for the growth of credit. Since, irrigation is the most crucial agricultural input for agriculture, its growth percentage is highest, followed by farm machinery. Emphasis on animal husbandry and dairy development is rightly reflected by the growth percentage of 18.23 which is equal to the crop loan of 18.13 per cent.

The growth of institutional credit was further probed to tehsil level to see whether any of the tehsils has imbalances in growth pattern. The results more or less indicated the same trend as for the district level and discussed earlier. However, the same have been presented in the following sub-sections to confirm the generalizations drawn.

4.1.1 Growth of Institutional Credit in Tehsil Bikaner

This sub section discusses the growth of institutional credit in Bikaner tehsil of the district. The growth of all type of agricultural credit in absolute amount has been given in the table 4.1.1 (a).

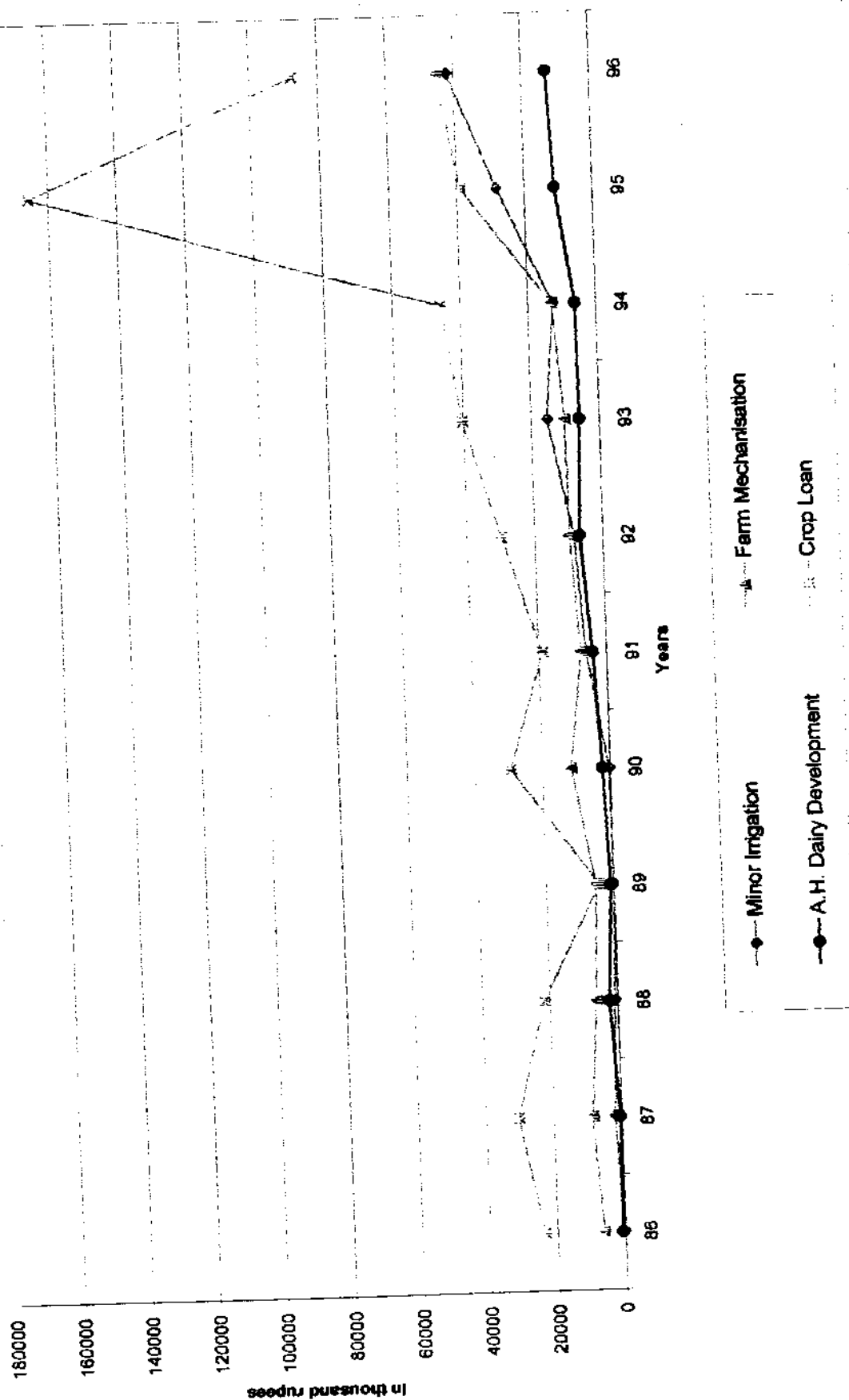
The table under reference followed the district trend and showed that the crop loan followed by farm mechanization and minor irrigation has been most important. Animal husbandry and dairy development has gradually picked up to occupy the fourth place. The amount of crop loan rose from 23624 thousand rupees to 87710 thousand rupees during the period of study. During the same period, credit for farm mechanization increased from 6275 thousand to 45510 thousand rupees and minor irrigation from 327 thousand rupees to 42305 thousand rupees. The credit to animal husbandry and dairy development which was 804

Table 4.1.1 (a) Growth of Institutional Credit in Tehsil Bikaner (Absolute Amounts)

(in '000 Rs.)

Particulars	86	87	88	89	90	91	92	93	94	95	96
Minor Irrigation	327	2005	935	225	490	6084	8503	15341	12858	28389	42305
Land Development	1255	3751	3813	750	1632	1304	976	545	370	250	770
Farm Mechanisation	6275	8474	6405	5314	11567	7573	9889	10225	13080	39005	45510
Plant and Horticulture							372	1013	1165	2680	200
Agril. and Others	5080	5209	1545	1694	1130	839	1248	1336	2013	2356	2634
A.H. Dairy Development	804	523	2578	1129	2455	4094	6878	6019	6325	11275	12990
A.H. Poultry			10				20	22	0	170	
A.H.S.G.P.	1834	2060	0	408	470	1266	306	279	287	286	775
Crop Loan	23624	30360	21800	4395	29434	18914	29859	40488	45942	166045	87710
Grand Total	47248	60720	107968	8790	58868	67658	59718	150538	210254	501087	175420

Figure 4.1.1 Growth of Institutional Credit in Tehsil Bikaner



thousand rupees in 1986, gradually increased to 12990 thousand rupees in 1996. Loan was also given to land development and AHSGP, which showed very irregular pattern. Credit for plant and horticulture has appeared from 1992. Loan was also, granted for poultry but it was very inconsistent. other agricultural activities, which were not separately specified by the credit institutions, also explained about 2 per cent of the total loan sanctioned in the Bikaner tehsil.

The compound growth rates for all the agricultural activities were separately worked out and presented in the table 4.1.1(b) in per cent form. Except for other (miscellaneous) agricultural activities and AHSGP, the growth rates in all other cases were highly significant at one per cent level of significance. The growth rate of AHSGP was significant at 5 per cent level of significance. The compound growth rate was highest for minor irrigation (62.97 per cent) followed by Animal husbandry and dairy development (31.57 per cent), crop loan (22.12 per cent) and farm machinery (18.78 per cent). The compound growth rate for the land development was, also very high (23.02 per cent) and growth rate for AHSGP was (11.89 per cent) but both were negative. The compound growth rate of total credit was 23.90 per cent, which was highly significant.

It is quite evident from the table that the compound growth rates estimated for Bikaner Tehsil suggest that since, irrigation is the most crucial agricultural input for agriculture, its growth percentage is highest, followed by Animal husbandry and dairy development. Emphasis on crop

loan is again, reflected by the growth percentage of 22.12 per cent and to the farm machinery of 18.78 per cent.

Table 4.1.1 (b) Compound Growth Rate (per cent) of Institutional Credit
in Bikaner Tehsil

Particular	GR (r)	R ²
Minor Irrigation	62.97** (371)	0.89
Land Development	-23.02** (4123)	0.96
Farm Machinery	18.78** (4568)	0.84
Agriculture and Others	-5.26 (2310)	0.11
A.H. Dairy Development	31.57** (935)	0.98
A.H. SGP	-11.89* (1004)	0.42
Crop Loan	22.12** (11927)	0.72
Grand Total	23.90** (33270)	0.70

** Significant at 1 per cent level of significance

* Significant at 5 per cent level of significance

4.1.2 Growth of Institutional Credit in Tehsil Lunkaransar

The growth of institutional credit during the period under study has been presented in this sub section.

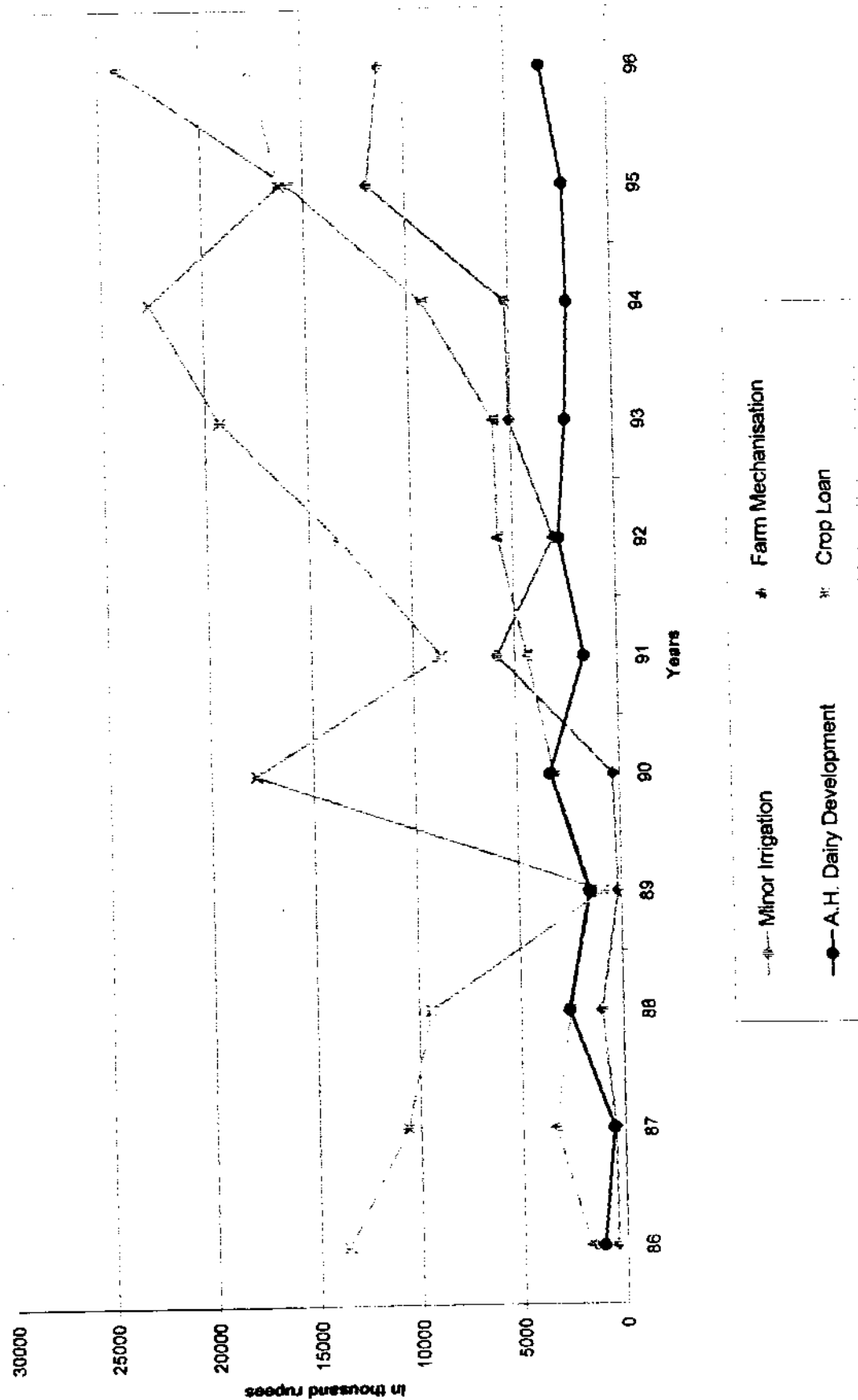
The growth of all type of agricultural credit in absolute amount has been presented in the table 4.1.2 (a).

Table 4.1.2 (a) Growth of Institutional Credit in Tehsil Lunkaransar (Absolute Amounts)

(in '000 Rs.)

Particulars	86	87	88	89	90	91	92	93	94	95	96
Minor Irrigation	460	450	1060	159	345	5888	3043	5092	5176	11870	11196
Land Development	997	3151	3035	598	1297	796	295	165	120	80	200
Farm Mechanisation	1740	3386	2560	1481	3208	4405	5751	5870	9245	15725	24085
Plant and Horticulture							394	975	615	290	200
Agril. and Others	1654	2902	260	320	975	965	1435	1288	1290	1255	1700
A. H. Dairy Development	1113	533	2633	1570	3401	1653	2777	2355	2179	2280	3296
A. H. Poultry			4		114						
A. H. S.G.P.	543	823	0	88	280	1609	389	364	525	726	639
Crop Loan	13580	10616	9404	875	17825	8568	13527	19290	22657	16205	17520
Grand Total	27160	21232	48392	1750	35650	37400	27054	70798	97852	96862	35040

Figure 4.1.2 Growth of Institutional Credit in Tehsil Lunkarasar



It is evident from the table that again the crop loan, followed by farm mechanization and minor irrigation has figured to be most important. Animal husbandry and dairy development has gradually picked up to occupy the fourth place. The amount of crop loan increased from 13580 thousand rupees to in 1986 to 17520 thousand rupees in 1996. During the same period, credit for farm mechanization rose from 1740 thousand to 24085 thousand rupees; and minor irrigation 460 thousand rupees 11196 thousand rupees. The credit to animal husbandry and dairy development, which was 1113 thousand rupees in 1986, slowly increased to 3296 thousand rupees in 1996. Loan was also sanctioned to land development and AHSGP which showed very uncertain pattern. Credit for plant and horticulture has appeared from 1992. Loan was also granted for poultry but it was very inconsistent. Other agricultural activities, which were not separately specified by the lending institutions, also, explained about 2 per cent of the total loan granted in the Lunkaransar tehsil.

The compound growth rates for all the agricultural activities were separately worked out and present in the table 4.1.2 (b) in per cent form. The compound growth rates for other (miscellaneous) agricultural activities and the AHSGP were not significant. The growth rates of Animal husbandry and Dairy development was significant at 5 per cent level of significance. In all other cases the compound growth rates were highly significant at one per cent level of significance. The compound growth rate was highest for minor irrigation (47.88 per cent) followed by farm machinery (27.05 per cent), crop loan (12.22 per cent) and Animal Husbandry and Dairy Development (5.85 per cent).

**Table 4.1.2(b) Compound Growth Rate (Per cent) of Institutional Credit in
Lunkaransar Tehsil**

Particular	GR (r)	R²
Minor Irrigation	47.88** (325)	0.90
Land Development	-34.47** (4863)	0.96
Farm Machinery	27.05** (1442)	0.92
Agriculture and Others	3.68 (921)	0.08
A.H. Dairy Development	5.85* (1632)	0.51
A.H. SGP	9.94 (288)	0.20
Crop Loan	12.22** (7100)	0.75
Grand Total	17.43** (18577)	0.78

** Significant at 1 per cent level of significance

* Significant at 5 per cent level of significance

The growth rate for the land development was also very high (34.47 per cent) but it was negative. The compound growth rate of total credit was 17.43 per cent, which was highly significant. The table clearly reveals that the compound growth rates estimated for Lunkaransar Tehsil, suggest right direction for the growth of credit. Since, irrigation is the most crucial agricultural input for agriculture, its growth percentage is highest, followed by farm machinery. Importance on crop loan is clearly indicated by the growth percentage of 12.22 per cent followed by animal husbandry and dairy development of 5.85 per cent.

4.1.3 Growth of Institutional Credit in Tehsil Kolayat

The growth of institutional credit in Tehsil Kolayat during the year 1986-96 has been presented in absolute amounts as well as the per cent growth rates and discussed in this sub section.

The growth of all type of agricultural credit in absolute amount has been given in the table 4.1.3 (a).

The table clearly reveals that in this case, also, the crop loan, followed by farm mechanization and minor irrigation has been most important. Animal husbandry and dairy development has slowly picked up to occupy the fourth place. The amount of crop loan rose from 8194 thousand to 28890 thousand rupees during the period of investigation. During the same period, credit for farm mechanization increased from 4535 thousand to 19555 thousand rupees and minor irrigation 101 thousand to 13686 thousand rupees. The credit to animal husbandry and dairy development, which was 564 thousand rupees in 1986, gradually increased to 2325 thousand rupees in 1996. Loan was granted for land development and AHS GP, which showed very absurd pattern. Loan for plant and horticulture has appeared from 1992. Loan was also granted for poultry but it was negligible. Other agricultural activities, which were not separately specified by the credit institutions, also, explained about 3 per cent of the total loan sanctioned in the Kolayat tehsil.

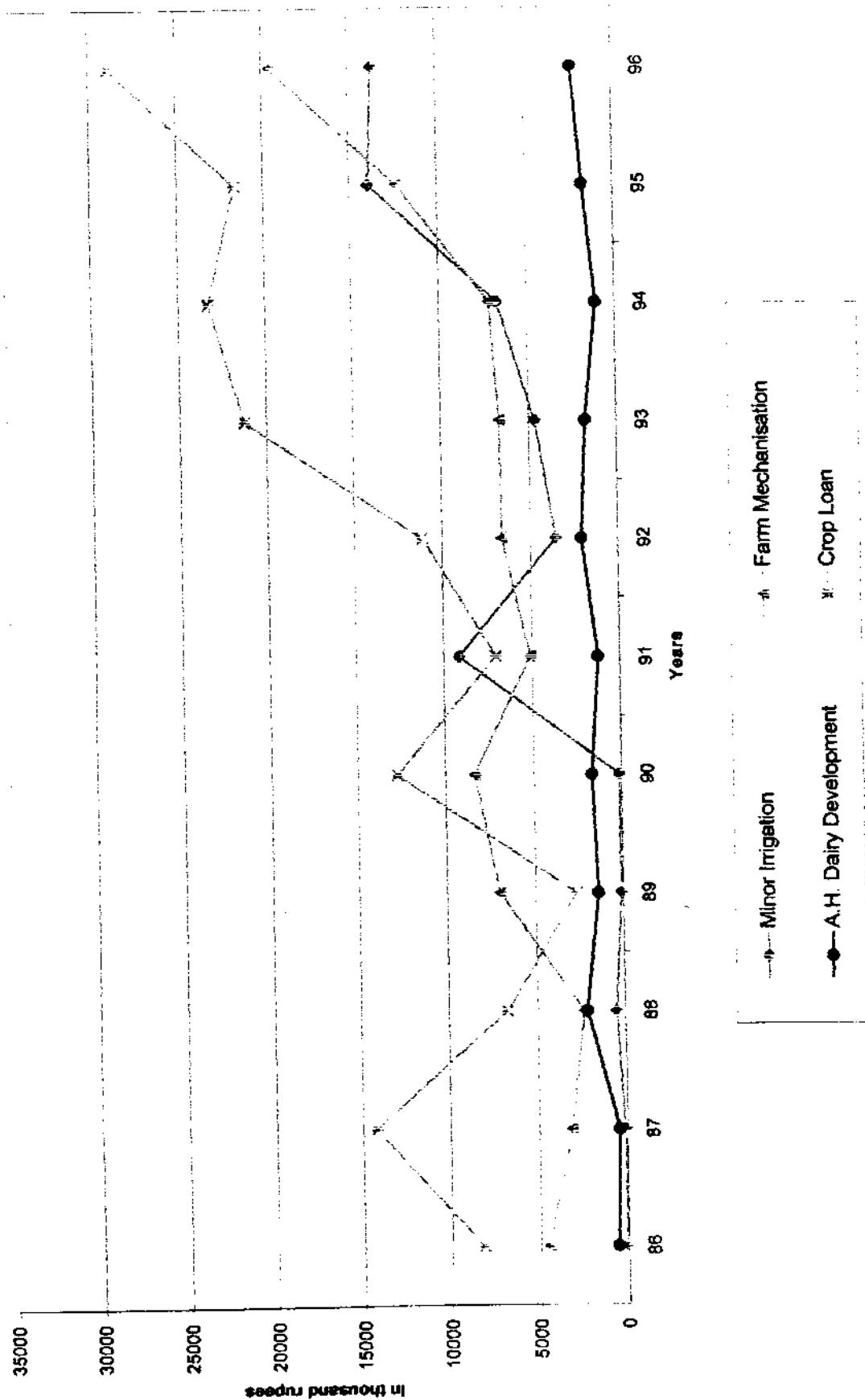
The compound growth rates for all the agricultural activities were separately worked out and present in the table 4.1.3 (b) in per cent form. Except for other (miscellaneous) agricultural activities, AHS GP and the Animal husbandry and dairy development, the growth rates in all other

Table 4.1.3 (a) .Growth of Institutional Credit in Tehsil Kolayat (Absolute Amounts)

(in '000 Rs.)

Particulars	86	87	88	89	90	91	92	93	94	95	96
Minor Irrigation	101	107	500	125	150	9148	3545	4683	6720	13938	13686
Land Development	1637	1884	1815	1784	2130	1199.5	269	150	355	200	375
Farm Mechanisation	4535	3134	2369	6998	8350	5084	6637	6895	7155	12355	19555
Plant and Horticulture							263	870	540	654	715
Agril. and Others	3210	2432	710	894	1220	718	1069	1047	772	1904	2131
A. H. Dairy Development	564	446	2201	1442	1720	1253	2101	1809	1101	1776	2325
A.H. Poultry			10				0	0	15	0	
A. H. S.G.P.	150	762	0	242	305	1212	293	347	321	340	700
Crop Loan	8194	14202	6669	2681	12774	7036	11104	21288	23280	21651	28890
Grand Total	16388	28404	44792	5362	25548	30910	22208	73921	96129	105731	57780

Figure 4.1.3 Growth of Institutional Credit in Tehsil Kolayat



cases were highly significant, at one per cent level of significance. The growth rate of Animal husbandry and dairy development was significant at 5 per cent level of significance. The compound growth rate was highest for minor irrigation (72.43 per cent) followed by crop loan (16.64 per cent), farm machinery (13.96 per cent) and animal husbandry and dairy development (4.01 per cent). The compound growth rate for the land development was, also very high (26.28 per cent), but it was negative. The compound growth rate of total credit was 19.33 per cent, which was highly significant.

Table 4.1.3 (b) Compound Growth Rate (Per cent) of Institutional Credit
in Kolayat Tehsil

Particular	GR (r)	R ²
Minor Irrigation	72.43** (132)	0.85
Land Development	-26.28** (3.658)	0.84
Farm Machinery	13.96** (3327)	0.84
Agriculture and Others	-2.16 (1321)	0.04
A.H. Dairy Development	4.01* (1270)	0.43
A.H. SGP	4.76 (307)	0.09
Crop Loan	16.64** (5624)	0.79
Grand Total	19.33** (16288)	0.72

** Significant at 1 per cent level of significance

* Significant at 5 per cent level of significance

The table clearly shows that the compound growth rates estimated for Kolayat Tehsil, suggest clear direction for the growth of credit. Since irrigation is the most crucial agricultural input for agriculture, its growth percentage is highest followed by crop loan. Emphasis on farm machinery is rightly reflected by the growth percentage of 13.96 per cent followed by animal husbandry and dairy development.

4.1.4 Growth of Institutional Credit in Tehsil Nokha

The growth of institutional credit from 1986 to 1996 in tehsil Nokha has been presented in absolute amounts as well as the per cent growth rates in this sub section.

The growth of all type of agricultural credit in absolute amount has been presented in the table 4.1.4 (a).

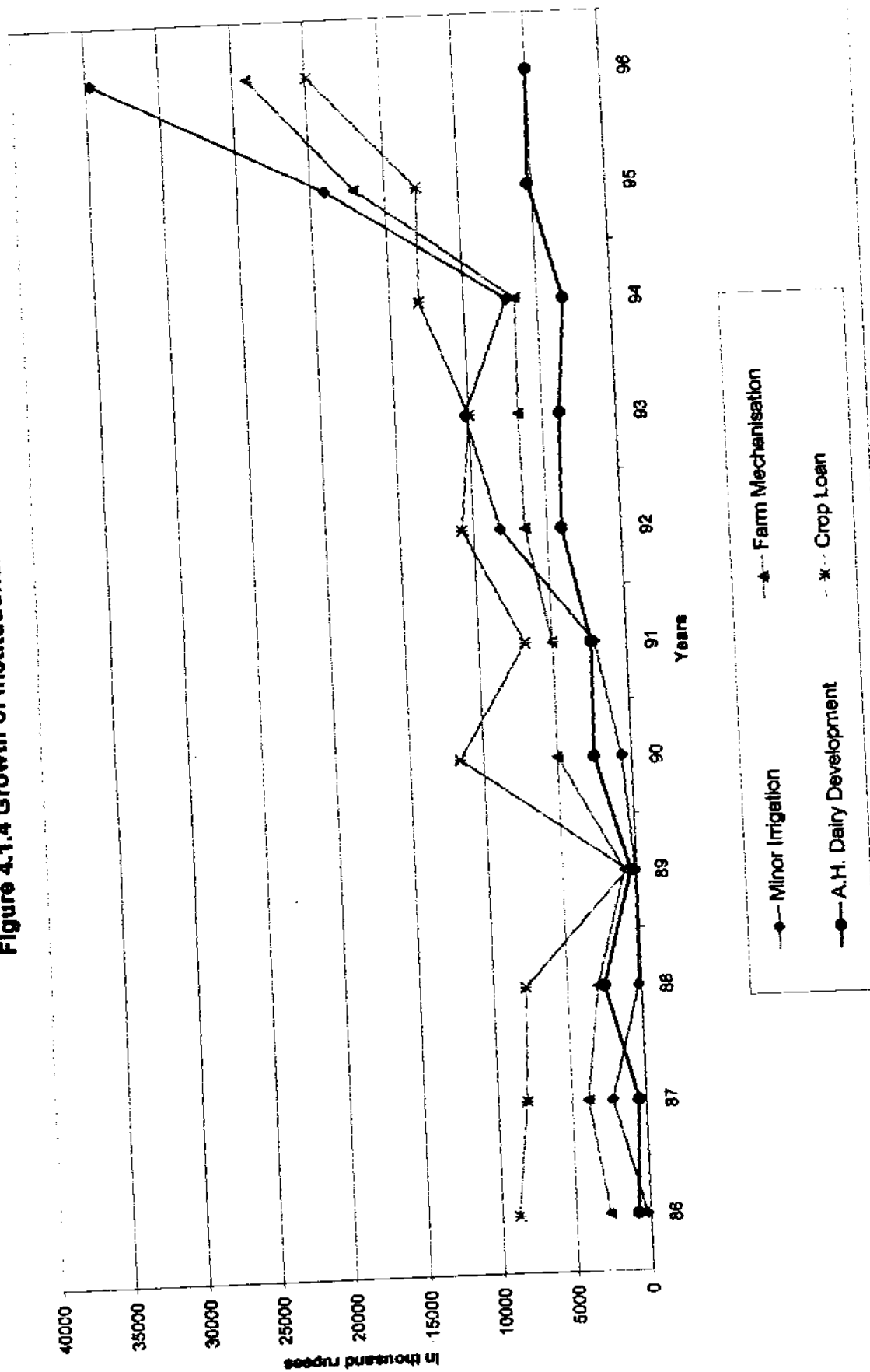
The purpose wise analysis indicates that the crop loan followed by farm mechanization and minor irrigation has been most important. Animal husbandry and dairy development has picked up to occupy the fourth place. The amount of crop loan rose from 8823 thousand rupees in 1986 to 19925 thousand rupees in 1996. During the same period, credit for farm mechanization increased from 2720 thousand rupees to 24025 thousand rupees, and minor irrigation 230 thousand rupees to 34705 thousand rupees. The credit to animal husbandry and dairy development, which was 830 thousand rupees in 1986, gradually increased to 5025 thousand rupees in 1996. Loan was also granted for land Development, and AHSGP which showed very erratic pattern. Credit for plant and horticulture has appeared from 1992. Loan was also given for poultry but it was negligible. Other agricultural activities which were not separately

Table 4.1.4 (a) Growth of Institutional Credit in Tehsil Nokha (Absolute Amounts)

(in '000 Rs.)

Particulars	86	87	88	89	90	91	92	93	94	95	96
Minor Irrigation	230	2273	210	111	691	2182	8201	10289	7124	19050	34705
Land Development	696	2194	2114	148	908						
Farm Mechanisation	2720	3910	2955	811	5015	4995	6523	6636	6510	17005	24025
Plant and Horticulture							147	60	200	100	
Agril. and Others	1205	2301	210	1066	395	420	625	571	1184	1485	1850
A.H. Dairy Development	830	507	2500	418	2536	2398	4029	3822	3239	5280	5025
A.H. Poultry			0				0	80	40	0	
A.H.S.G.P.	1520	951	0	258	110	568	137	167	251	661	455
Crop Loan	8823	8038	7820	623	11615	6836	10792	10003	13063	12867	19925
Grand Total	17646	16076	33722	1246	23230	24476	21584	42678	64262	74796	39850

Figure 4.1.4 Growth of Institutional Credit in Tehsil Nokha



crop loan (10.95 per cent). The compound growth rate for the land development was also very high (69.56 per cent) but it was negative. The compound growth rate of total credit was 17.92 per cent, which was highly significant.

It is quite evident from the table that the compound growth rates estimated for Nokha Tehsil, suggest clear direction for the growth of credit. Since, irrigation is the most crucial agricultural input for agriculture, its growth percentage is highest, followed by farm machinery. Emphasis on animal husbandry and dairy development is rightly reflected by the growth percentage of 20.04 followed by crop loan of 10.95 per cent.

4.2 Nature and Extent of Institutional Credit in Bikaner

The nature and extent of credit granted from 1986 to 1996 in Bikaner district has been given year-wise and purpose wise in the table 4.2 (a).

It is evident from the table that the total credit granted by the institutional sources from 1986 to 1996 in Bikaner district rose from 93701 thousand rupees in 1986 to 404977 thousand rupees in 1996. There was no clear cut visible trend from year to year, though the total credit increased by over four times during this decade. From year to year, the amount of credit showed wide fluctuations.

The share of long term credit varied over the period of analysis from as low as 17.82 per cent in 1992 to as high as 53.44 per cent in 1996. It was mainly granted for tractors and heavy implements, which

Table 4.2 (a) Nature and Extent of Institutional Credit In District Bikaner

Particulars	(in '000 Rs.)										
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Long Term Loan											
Tube well, Pumpssets, sprinkler sets	1118 (1.19)	4835 (4.12)	2705 (3.14)	620 (1.69)	1676 (1.37)	23302 (21.78)	16182 (6.20)	35405 (20.10)	31879 (16.51)	73247 (18.12)	101892 (25.16)
Land imp. and soil conservation progrm.	4585 (4.89)	10980 (9.35)	10577 (12.28)	3278 (8.96)	5965 (4.88)	3300 (3.08)	1540 (0.59)	860 (0.49)	845 (0.44)	530 (0.13)	1345 (0.33)
Tractor, Heavy implement set.	15270 (16.30)	18904 (16.10)	14289 (16.60)	14604 (39.90)	28140 (23.03)	22057 (20.61)	28800 (11.03)	29426 (16.70)	35990 (18.63)	84090 (20.80)	113175 (27.95)
Total	20973 (22.38)	34719 (29.58)	27571 (32.02)	18502 (50.55)	35781 (29.28)	48659 (45.47)	46522 (17.82)	55691 (37.29)	68714 (35.58)	157867 (39.05)	216412 (53.44)
Medium Term Loan											
Drought Animal	11149 (11.90)	12844 (10.94)	2925 (3.40)	3974 (10.86)	3730 (3.05)	2942 (2.75)	4377 (1.68)	4242 (2.41)	5259 (2.72)	7000 (1.73)	8315 (2.05)
Milch Animal	3311 (3.53)	2009 (1.71)	9912 (11.51)	4559 (12.45)	10112 (8.28)	9398 (8.78)	15785 (8.05)	14005 (7.95)	12844 (6.65)	20611 (5.10)	23639 (5.84)
Sheep and Goats etc.	4047 (4.32)	4596 (3.92)	-	996 (2.72)	1165 (0.95)	4655 (4.35)	1125 (0.437)	1157 (0.68)	1384 (0.72)	2013 (0.50)	2569 (0.63)
Total	18507 (19.75)	19449 (16.57)	12837 (14.91)	9529 (26.03)	15007 (12.28)	16995 (15.88)	21287 (8.15)	19404 (11.01)	19487 (10.09)	29624 (7.33)	34520 (8.52)
Short Term Loan											
Wheat	5593 (5.97)	6529 (5.56)	6610 (7.68)	1048 (2.86)	7375 (6.04)	4899 (4.58)	7753 (2.97)	11846 (6.72)	13175 (6.82)	135875 (33.61)	15755 (3.89)
Mustard and other oil seed	-	-	-	-	-	3594 (3.36)	5675 (2.17)	3625 (2.06)	4315 (2.23)	10705 (2.65)	100 (0.02)
Groundnut	8097 (8.64)	9454 (8.05)	8359 (9.71)	1723 (4.71)	10678 (8.74)	5905 (5.52)	9480 (3.63)	13098 (7.44)	12698 (6.57)	29170 (7.22)	2865 (0.71)
Bajra	10872 (11.60)	12674 (10.80)	29972 (34.81)	1484 (4.05)	14316 (11.72)	9047 (8.45)	142265 (54.48)	21438 (12.17)	18763 (9.71)	18145 (4.49)	132225 (32.85)
Cotton	-	-	-	-	-	1773 (1.66)	2833 (1.08)	1000 (0.57)	1350 (0.70)	1040 (0.26)	450 (0.11)
Others	29659 (31.65)	34559 (29.44)	752 (0.87)	4319 (11.80)	39039 (31.95)	16136 (15.08)	25309 (9.69)	40062 (22.74)	54641 (28.29)	21833 (5.40)	2650 (0.65)
Crop Loan Total	54221 (53.07)	63216 (53.85)	45693 (53.07)	8574 (23.42)	71408 (58.44)	413354 (38.65)	193315 (74.03)	91069 (51.70)	104942 (54.33)	216768 (53.62)	154045 (38.04)
Grand Total	93701 (100)	117384 (100)	86101 (100)	36605 (100)	122196 (100)	107008 (100)	261124 (100)	176164 (100)	193143 (100)	404259 (100)	40497 (100)

account over 50 per cent of the total long term credit granted every year. Tube well and sprinkler sets were the second most important component of long term credit. Initially land improvement and soil conservation measures, also explained good proportion of long term credit granted however, it has lost importance in recent years.

The grant of medium term credit was mainly for animal husbandry consisting of draught and milch animals, and sheep and goats. The percentage of medium term loan in the total credit varied from 26.03 in 1989 to 7.33 in 1995. It has virtually, shown a downward trend over the years. Draught and milch animals were, consistently, the major medium term loan component, accounting two thirds of the medium term loan granted in Bikaner district.

Crop loan in Bikaner district from 1986 to 1996 was granted for growing wheat, mustard, groundnut, bajra, cotton and other miscellaneous crops. The share of crop loan in total credit was 50 to 60 per cent in most of the years except 1989 when it went down to 23.42 per cent and 1992 when it rose up to 74.03 per cent. The 1996 figure was, also low explaining on 38.04 per cent of the total credit advanced in Bikaner district. The most important among crops, from the stand point of credit, was bajra followed by groundnut and wheat.

The year to year fluctuations in different type of credit granted and the total loan speaks of the adhoc policy of the lending institutions, because for last 10 years, the monsoon has been favourable and as such the performance of institutional credit should have seen good and consistent.

The nature and extent of institutional in Bikaner district has been further examined tehsil-wise to get a more realistic picture and presented in the following sub sections.

4.2.1 Nature and Extent of Institutional Credit in Bikaner tehsil

In the process of painting a tehsil-wise picture, the nature and extent of institutional credit in this tehsil has been discussed in this sub section.

It is evident from the table 4.2.1 (a) that the total credit granted by institutional sources from 1986 to 1996 in Bikaner tehsil rose from 39199 thousand rupees to in 1986 to 192694 thousand rupees in 1996. In this case also no clear cut trend from the year 1986 to 1990 was visible. However, from the year 1991 to 1995 there was increase in the total loan sanctioned. The total credit increased by over four times during this decade. From year to year the amount of credit showed wide fluctuations.

The long term credit followed the district trend. The share of long term credit varied over the period of analysis, from as low as 20.04 per cent in 1986 to as high as 45.96 per cent in 1996. It was mainly granted for tractors and heavy implements, which accounted over 65 per cent of the total long term credit granted every year. Tube well and sprinkler sets were the second most important component of long term credit. Initially land improvement and soil conservation measures also explained good proportion of long term credit granted, however, it has lost importance in recent years.

Table 4.2.1 (a) Nature and Extent of Institutional Credit of Tehsil Bikaner

(in '000 Rs.)

Particulars	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Long Term Loan											
Tube well, Pumpsets, sprinkler sets etc.	327 (0.83)	2005 (3.83)	935 (2.54)	225 (1.62)	490 (1.04)	6084 (15.18)	8503 (14.75)	15341 (20.67)	12859 (15.90)	28389 (11.47)	42305 (21.95)
Land imp. and soil conservation prog.	1255 (3.20)	3751 (7.16)	3613 (9.80)	750 (5.39)	1632 (3.46)	1304 (3.25)	976 (1.69)	545 (0.73)	370 (0.46)	250 (0.10)	770 (0.40)
Tractor, Heavy implement set.	6275 (16.01)	8474 (16.18)	6405 (17.37)	5314 (38.19)	11567 (24.520)	7573 (18.90)	9889 (17.15)	10225 (13.77)	13080 (16.17)	39005 (15.75)	45510 (23.62)
Total	7857 (20.04)	14230 (27.17)	10953 (29.70)	6289 (45.20)	13689 (29.02)	14861 (37.33)	19368 (33.59)	26111 (35.17)	26309 (32.53)	67644 (27.32)	85585 (45.97)
Medium Term Loan											
Drought Animal	5050 (12.96)	5209 (9.94)	1545 (4.19)	1694 (12.17)	1130 (2.40)	839 (2.09)	1248 (2.16)	1336 (1.80)	2013 (2.49)	2356 (0.85)	2634 (1.37)
Milch Animal	804 (2.05)	523 (1.00)	2578 (6.99)	1129 (8.11)	2455 (5.20)	4094 (10.22)	6878 (11.93)	6019 (8.11)	6325 (7.82)	11275 (4.55)	12990 (6.74)
Sheep and Goats etc.	1834 (4.68)	2060 (3.93)	0	408 (2.93)	470 (1.00)	1266 (3.16)	306 (0.53)	279 (0.38)	287 (0.35)	286 (0.12)	775 (0.40)
Total	7718 (19.69)	7792 (14.88)	4123 (11.18)	3231 (23.22)	4055 (8.60)	6199 (15.47)	8432 (14.62)	7634 (10.28)	8625 (10.66)	13917 (5.62)	16399 (8.51)
Short Term Loan											
Wheat	3520 (8.98)	4082 (7.79)	4460 (12.09)	688 (4.94)	4612 (9.78)	3378 (8.43)	5333 (9.25)	8150 (10.98)	9750 (12.06)	131500 (53.11)	7895 (4.10)
Mustard and other oil seed	0	0	0	0	0	3602 (8.99)	5688 (9.86)	3270 (4.41)	3656 (4.52)	920 (0.37)	300 (0.16)
Groundnut	4304 (10.98)	5113 (9.76)	3735 (10.13)	862 (6.19)	5776 (12.24)	3811 (9.51)	6016 (10.43)	8313 (11.20)	9006 (11.14)	20420 (8.25)	30 (0.02)
Bajra	2208 (5.63)	5486 (10.47)	12973 (35.18)	199 (1.43)	1334 (2.83)	3570 (8.91)	5636 (9.77)	8471 (11.41)	5630 (6.96)	10070 (4.07)	78905 (40.95)
Cotton	0	0	0	0	0	1241 (3.10)	1960 (3.40)	700 (0.94)	1100 (1.36)	800 (0.32)	50 (0.03)
Others	13592 (34.67)	15679 (29.93)	632 (1.71)	2646 (19.02)	17712 (37.54)	3312 (8.26)	5226 (9.06)	11584 (15.60)	16875 (20.87)	2510 (1.01)	530 (0.28)
Crop Loan Total	23624 (60.27)	30360 (57.96)	21800 (69.12)	4395 (31.58)	29434 (62.39)	18914 (47.20)	29859 (51.79)	40488 (54.54)	45942 (56.81)	166045 (67.06)	87710 (45.52)
Grand Total	39199 (100)	52382 (100)	36876 (100)	13915 (100)	47178 (100)	40074 (100)	57659 (100)	74233 (100)	80876 (100)	247606 (100)	192694 (100)

The grant of medium term credit was mainly for animal husbandry consisting of draught and milch animals, and sheep and goats. The percentage of medium term loan in the total credit varied from 23.22 per cent in 1989 to 5.62 per cent in 1995. It has virtually, shown a down trend over the years. Draught and milch animals were consistently, the major medium term loan component, accounting over 80 per cent of the total medium term credit granted in tehsil Bikaner.

Crop loan in Bikaner tehsil from 1986 to 1996 was granted for growing wheat, mustard, groundnut, bajra, cotton and other miscellaneous crops, the share of crop loan in total credit was 50 to 60 per cent in most of the years except 1989 when it went down to 31.58 per cent, and in 1995 when it rose up to 67.06 per cent. The 1996 figure was also low explaining on 45.52 per cent of the total credit advanced in Bikaner tehsil. The most important among crops, from the stand point of credit, was wheat followed by groundnut.

4.2.2 Nature and Extent of Institutional Credit in Kolayat tehsil

The nature and extent of credit granted from 1986 to 1996 in tehsil Kolayat has been given year-wise and purpose-wise in the table 4.2.2(a)

This tehsil revealed almost the district trend. The total credit granted by the institutional sources from 1986 to 1996 in Kolayat tehsil rose from 18391 thousand rupees to in 1986 to 67662 thousand rupees in 1996. Again there was no clear cut visible trend from year to year, though the total credit increased by over three times during this decade. From year to year, the amount of credit showed wide fluctuations.

Table 4.2.2 (a) Nature and Extent of Institutional Credit of Tehsil Kolayat (in '000 Rs.)

Particulars	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Long Term Loan											
Tube well, Pump sets, sprinkler sets etc.	101 (0.55)	107 (0.47)	500 (3.51)	125 (0.88)	150 (0.55)	9148 (35.86)	3545 (14.17)	4683 (13)	6720 (16.93)	13938 (26.7)	13686 (20.23)
Land imp. and soil conservation progrm.	1637 (8.90)	1884 (8.20)	1815 (12.72)	1784 (12.59)	2130 (7.99)	1199 (4.68)	269 (1.08)	150 (0.42)	355 (0.89)	200 (0.30)	375 (0.55)
Tractor, Heavy implement set.	4535 (24.66)	3134 (13.65)	2369 (16.61)	6998 (49.40)	8350 (31.33)	5084 (19.82)	6637 (26.53)	6695 (18.59)	7255 (18.02)	12355 (23.8)	19555 (28.90)
Total	6273 (34.11)	5125 (22.31)	4684 (32.84)	8907 (62.88)	10630 (39.89)	15431 (60.16)	10451 (41.77)	11528 (32.01)	14230 (35.84)	26493 (50.80)	33616 (49.68)
Medium Term Loan											
Drought Animal	3210 (17.45)	2432 (10.59)	710 (4.98)	894 (6.31)	1220 (4.58)	718 (2.80)	1069 (4.27)	1047 (2.91)	772 (1.94)	1904 (3.65)	2131 (3.15)
Milch Animal	564 (3.07)	446 (1.94)	2201 (15.43)	1442 (10.18)	1720 (6.45)	1253 (4.88)	2101 (8.40)	1809 (5.02)	1101 (2.77)	1776 (3.40)	2325 (3.44)
Sheep and Goats etc.	150 (0.82)	762 (3.32)	0	242 (1.71)	305 (1.14)	1212 (4.73)	293 (1.17)	347 (0.96)	321 (0.81)	340 (0.66)	700 (1.03)
Total	3924 (21.34)	3640 (15.85)	2911 (20.41)	2578 (18.20)	3245 (12.18)	3183 (12.41)	3463 (13.84)	3203 (8.89)	2194 (5.53)	4020 (7.71)	5156 (7.62)
Short Term Loan											
Wheat	1000 (5.44)	1253 (5.46)	300 (2.10)	290 (2.05)	1648 (6.18)	595 (2.32)	939 (3.75)	1435 (3.98)	1325 (3.34)	850 (1.63)	2665 (3.94)
Mustard and other oil seed	0	0	0	0	0	55 (0.21)	86 (0.34)	55 (0.15)	110 (0.28)	8000 (15.31)	0
Groundnut	1540 (8.37)	1711 (7.45)	450 (3.15)	415 (2.93)	1931 (7.25)	881 (3.43)	1390 (5.56)	1920 (5.33)	1798 (4.53)	6380 (12.23)	1435 (2.19)
Bajra	1653 (8.99)	2503 (10.90)	5919 (41.50)	806 (5.69)	3750 (14.07)	1753 (6.83)	2767 (11.06)	4158 (11.54)	4977 (12.54)	1848 (3.51)	23720 (35.06)
Cotton	0	0	0	0	0	0	0	0	0	0	0
Others	4001 (21.76)	8735 (38.03)	0	1170 (8.26)	5445 (20.43)	3752 (14.63)	5922 (23.67)	13720 (38.09)	15070 (37.96)	4573 (8.77)	1020 (1.51)
Crop Loan Total	8194 (44.55)	14202 (61.84)	6669 (46.75)	2681 (18.93)	12774 (47.93)	7036 (27.43)	11104 (44.38)	21288 (59.10)	23280 (58.63)	21651 (41.51)	28890 (42.70)
Grand Total	18391 (100)	22967 (100)	14264 (100)	14166 (100)	26649 (100)	25650 (100)	25018 (100)	36019 (100)	39704 (100)	52164 (100)	67662 (100)

Long term loan in Kolayat tehsil also, was granted for tube well, pump sets, sprinkler set, land improvement and soil conservation programme and tractor, heavy implements and machinery. The share of long term credit varied over the period of analysis, from as low as 22.31 per cent in 1987 to as high as 62.88 per cent in 1989. It was mainly granted for tractors and heavy implements, which account for over 55 per cent of the total long term credit granted every year. Tube well and sprinkler sets were the second most important component of long term credit from the year 1991 to 1996. After initial significance of land improvement and soil conservation measures, in explaining good proportion of long term credit granted, other items of long term credit assumed importance.

Animal husbandry consisting of draught and milch animals and sheep and goats was the main item of medium term loan. The percentage of medium term loan in the total credit varied from 21.34 per cent in 1986 to 5.53 per cent in 1994. It has virtually, shown a down trend over the years. Draught and milch animals were, consistently, the major medium term loan component, accounting two thirds of the medium term loan granted in Kolayat tehsil.

The crop loan was granted for growing wheat, mustard, groundnut, bajra, cotton and other miscellaneous crops. The share of crop loan in total credit was 45 to 50 per cent in most of the year except in 1989 when it went down 18.93 per cent and 1987 when it rose up to 61.84 per cent. The year 1991 was also low explaining on 27.43 per cent of the total credit advanced in Kolayat tehsil. The most important among crops,

from the stand point of credit, was bajra followed by groundnut and wheat.

4.2.3 Nature and Extent of Institutional Credit in Lunkaransar tehsil

The nature and extent of credit granted in Lunkaransar tehsil during the period under study has been given year-wise and purpose-wise in the table 4.2.3 (a).

The table clearly explains that the total credit granted by the institutional sources from 1986 to 1996 in Lunkaransar tehsil rose from 20087 thousand rupees in 1986 to 58636 thousand rupees in 1996. There was no clear cut visible trend from year to year, though the total credit increased by over three times during this decade. From year to year the amount of credit, again, showed wide fluctuations.

The share of long term credit varied over the period of analysis, from as low as 15.92 per cent in 1986 to as high as 60.51 per cent in 1996. In this case, also, it was mainly granted for tractors and heavy implements, which account for over 60 per cent of the total long term credit granted every year. Tube well and sprinkler sets were the second most important component of long term credit from the year 1991 to 1996. The situation of land improvement and soil conservation was the same after explaining good proportion of long term credit granted, it lost importance in recent years.

The medium term loan mainly was again for animal husbandry consisting of draught and milch animals and sheep and goats. The percentage of medium term loan in the total credit varied from 38.85 per

Table 4.2.3 (a) Nature and Extent of Institutional Credit of Tehsil Lunkaransar

Table 4.2.3 (a) Nature and Extent of Institutional Credit of Tehsil Lunkaransar											
Particulars	(in '000 Rs.)										
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Long Term Loan											
Tube well, Pump sets, sprinkler sets etc.	460 (2.29)	450 (2.06)	1060 (5.59)	159 (3.12)	345 (1.26)	5888 (24.65)	3043 (11.18)	5092 (14.79)	5176 (12.57)	11870 (24.66)	11196 (19.09)
Land imp. and soil conservation prog.	997 (4.96)	3151 (14.41)	3035 (16.01)	598 (11.75)	1297 (4.76)	796 (3.33)	295 (1.08)	165 (0.48)	120 (0.29)	80 (0.17)	200 (0.34)
Tractor, Heavy implement set.	1740 (8.66)	3386 (15.49)	2560 (13.51)	1481 (29.09)	3208 (11.74)	4405 (18.44)	5751 (21.13)	5870 (17.05)	9245 (22.44)	15725 (32.66)	24085 (41.08)
Total	3197 (15.92)	6987 (31.96)	6635 (35.12)	2238 (43.96)	4850 (17.75)	11089 (46.43)	9089 (33.39)	11127 (32.32)	14541 (35.30)	27675 (57.49)	35481 (60.51)
Medium Term Loan											
Drought Animal	1654 (8.23)	2902 (13.27)	260 (1.37)	320 (6.29)	975 (3.57)	965 (4.04)	1435 (5.27)	1288 (3.74)	1290 (3.13)	1255 (2.61)	1700 (2.90)
Milch Animal	1113 (5.54)	533 (2.44)	2633 (13.89)	1570 (30.84)	3401 (12.44)	1653 (6.92)	2777 (10.20)	2355 (6.84)	2179 (5.29)	2280 (4.74)	3296 (5.62)
Sheep and Goats etc.	543 (2.70)	823 (3.76)	0	88 (1.73)	280 (1.02)	1609 (6.74)	389 (1.43)	364 (1.06)	525 (1.27)	726 (1.51)	639 (1.09)
Total	3310 (16.48)	4258 (19.48)	2893 (15.26)	1978 (38.85)	4655 (17.04)	4227 (17.70)	4601 (16.90)	4007 (11.64)	3994 (9.70)	4261 (8.85)	5635 (9.61)
Short Term Loan											
Wheat	1073 (5.34)	1194 (5.46)	1780 (9.29)	70 (1.37)	1415 (5.18)	926 (3.88)	1463 (5.38)	2235 (6.49)	2100 (5.10)	3350 (6.96)	3845 (6.56)
Mustard and other oil seed	0	0	0	0	0	490 (2.05)	775 (2.85)	495 (1.44)	885 (1.66)	2230 (4.63)	0
Groundnut	2253 (11.22)	2630 (12.03)	4174 (22.02)	179 (8.76)	2911 (10.65)	1213 (5.08)	1910 (7.02)	2639 (7.67)	1744 (4.23)	2080 (4.32)	975 (1.66)
Bajra	2758 (13.73)	1467 (8.71)	3470 (18.31)	149 (3.52)	3632 (13.29)	922 (3.86)	1456 (5.35)	2187 (6.35)	2078 (5.04)	5625 (11.68)	12200 (20.81)
Cotton	0	0	0	0	0	532 (2.23)	840 (3.09)	300 (0.87)	250 (0.61)	240 (0.50)	400 (0.68)
Others	7496 (37.32)	5325 (24.36)	0	180 (3.54)	9867 (36.10)	4485 (18.78)	7083 (26.02)	11434 (33.22)	15800 (38.36)	2680 (5.57)	100 (0.17)
Crop Loan Total	13580 (67.61)	10618 (48.56)	9404 (49.62)	975 (17.19)	17825 (65.22)	8568 (35.87)	13527 (49.70)	19290 (56.04)	22857 (55.00)	16205 (33.66)	17520 (29.88)
Grand Total	20087 (100)	21861 (100)	18952 (100)	5091 (100)	27331 (100)	23884 (100)	27217 (100)	34424 (100)	— (100)	48192 (100)	58636 (100)

cent to in 1989 to 8.85 per cent in 1995. It has virtually, shown a down trend over the years. Draught and milch animals were, consistently, the major medium term loan component, again, accounting two thirds of the medium term loan granted in Lunkaransar tehsil.

Crop loan was sanctioned for growing wheat, mustard, groundnut, bajra, cotton and other miscellaneous crops. The share of crop loan in total credit was 50 to 55 per cent on most of the years except 1989 when it went down to 17.19 per cent and in 1986 when it rose up to 67.61 per cent. The 1996 figure was also low explaining on 29.88 per cent of the total credit advanced in Lunkaransar tehsil. The most important among crops, from the stand point of credit was groundnut followed by bajra and wheat.

4.2.4 Nature and Extent of Institutional Credit in Nokha tehsil

The nature and extent of credit granted from 1986 to 1996 in tehsil Nokha has been given year-wise and purpose-wise in the table 4.2.4(a).

It is quite evident from the table that the total credit granted by the institutional sources from 1986 to 1996 in Nokha tehsil rose from 16024 thousand rupees to in 1986 to 85985 thousand rupees in 1996. There was no clear cut visible trend from year to year, the amount of credit showed wide fluctuations.

Long term loan in Nokha tehsil was granted for tube well, pump sets, sprinkler sets, land improvement and soil conservation programme, tractors, heavy implements and machinery. The share of long term credit varied over the period of analysis from as low as 22.75 per cent in 1986

Table 4.2.4 (a) Nature and Extent of Institutional Credit of Tehsil Nokha

(in 000 Rs.)

Particulars	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Long Term Loan											
Tube well, Pump sets, sprinkler sets etc.	230 (1.43)	2273 (11.27)	210 (1.33)	111 (3.23)	691 (3.25)	2182 (12.54)	82.01 (27.06)	10289 (32.68)	7124 (22.71)	19050 (33.81)	34705 (40.36)
Land imp. and soil conservation progrm.	696 (4.34)	2194 (10.87)	2114 (13.37)	146 (4.25)	906 (4.26)	0	0	0	0	0	0
Tractor, Heavy implement sel.	2720 (16.97)	3910 (19.38)	2955 (18.89)	811 (23.62)	5015 (23.58)	4995 (28.71)	6523 (21.52)	6636 (21.07)	6510 (20.75)	17005 (30.18)	24025 (27.94)
Total	3646 (22.75)	8377 (41.52)	5279 (33.40)	1068 (31.11)	6612 (31.09)	7177 (41.25)	14724 (48.58)	16925 (53.75)	13634 (43.46)	36055 (63.99)	58730 (68.30)
Medium Term Loan											
Drought Animal	1205 (7.52)	2301 (11.41)	210 (1.33)	1066 (31.05)	395 (1.86)	420 (2.41)	625 (2.06)	571 (1.81)	1184 (3.77)	1485 (2.63)	1850 (2.15)
Milch Animal	830 (5.18)	507 (2.51)	2500 (15.81)	418 (12.18)	2536 (11.92)	2398 (13.78)	4029 (13.29)	3822 (12.13)	3239 (10.32)	5280 (9.37)	5025 (5.84)
Sheep and Goats etc.	1520 (9.48)	951 (4.71)	0	258 (7.51)	110 (0.52)	568 (3.28)	137 (0.45)	167 (0.53)	251 (0.80)	661 (1.77)	455 (0.53)
Total	3555 (22.18)	3759 (18.63)	2710 (17.14)	1742 (50.74)	3041 (14.30)	3386 (19.46)	4791 (15.81)	4560 (14.49)	4674 (14.90)	7426 (13.18)	7330 (8.52)
Short Term Loan											
Wheat	0	0	90 (0.57)	0	0	0	18 (0.59)	26 (0.082)	0	175 (0.311)	1350 (1.57)
Mustard and other oil seed	0	0	0	0	0	0	0	0	0	75 (0.13)	100 (0.12)
Groundnut	0	0	0	0	0	0	164 (0.54)	226 (0.72)	150 (0.48)	290 (0.51)	375 (0.44)
Bajra	4253 (26.54)	3218 (15.95)	7610 (48.14)	300 (8.74)	5600 (26.33)	2802 (16.10)	4406 (14.54)	6622 (21.03)	6078 (19.37)	602 (1.07)	17400 (20.24)
Cotton	0	0	0	0	0	0	0	0	0	0	0
Others	4570 (28.52)	4820 (23.89)	120 (0.76)	323 (9.41)	6015 (28.28)	4034 (23.18)	6204 (20.47)	3129 (9.94)	6835 (21.79)	11725 (20.81)	700 (0.81)
Crop Loan Total	8823 (55.06)	8038 (39.84)	7820 (48.46)	623 (18.15)	11615 (54.61)	6836 (39.29)	10792 (35.61)	10003 (31.77)	13063 (41.64)	12867 (22.83)	19925 (23.17)
Grand Total	16024 (100)	20174 (100)	15809 (100)	3433 (100)	21268 (100)	17399 (100)	30307 (100)	31488 (100)	31371 (100)	56348 (100)	85985 (100)

to as high as 68.30 per cent in 1996. In this case, also, tractors and heavy implements, accounting for about 50 per cent of the total long term credit granted every year remained dominating component. Tube well, pump sets and sprinkler sets were the second most important component of long term credit from the year 1991 to 1996. Land improvement and soil conservation programme also explained good proportion of long term credit granted during initial years of examination, however, it has totally lost importance in recent years because no credit was sanctioned for the purpose.

The grant of medium term loan was mainly for animal husbandry consisting of draught and milch animal, and sheep and goats. The percentage of medium term loan in the total credit varied from 50.75 per cent in 1989 to 8.52 per cent in 1996. It has virtually shown a down trend over the year. Draught and milch animals were, consistently, the major medium term loan component, accounting 75 per cent of the medium term loan granted in Nokha tehsil.

Crop loan in Nokha tehsil from 1986 to 1996 was granted for bajra and other miscellaneous crops. Initially from 1986 to 1991 there was no account for wheat, mustard and groundnut crops, after that in year 1992 there was minor sanctioning of short term loan for the same crops. The share of crop loan in the total credit was 40 to 50 per cent in most of the years except 1989 wheat it went down to 18.15 per cent. The 1995 and 1996 figure was also low explaining on 22.83 and 23.17 per cent of the total credit advanced in Nokha tehsil. The most important among crops,

from the stand point of credit, was bajra followed by other miscellaneous crop.

4.3 Estimation of Requirement for agricultural credit and adequacy of institutional sources

The district of Bikaner has three different situations of crop raising from the stand point of irrigation facilities. Some of its area falling in Bikaner, Kolayat and Loonkaransar tehsils is either canal irrigated, or rainfed. However, Nokha tehsil has many places where well irrigation is also available. The cost of cultivation of different crops as well as the actual credit requirement in these three situations is different. Hence, the cost of cultivation, on different size group of farms considered in various irrigation situations, has been estimated and used as basis for the estimation of credit requirements by various size group of farms in different tehsils of Bikaner and ultimately to arrive at aggregate credit requirement in Bikaner district. This aggregate requirement has been compared with credit availability through institutional sources. Initially the cost of cultivation at non-borrower farms was separately tried but since there was no significant difference between cost of cultivation on borrower and non borrower farms, an average picture was considered to work out the cost of cultivation of different crops in different situations.

4.3.1 (a) Cost of cultivation of Canal irrigated Small and Marginal Farms

The area under various crops and the cost incurred by the small and marginal farms in canal irrigated area of Bikaner district has been presented and discussed in this sub-section.

The table 4.3.1 (a) illustrates the total area under different crops on small and marginal irrigated farms and the actual cost of raising them by the sample farms to finally arrive at the estimation of credit requirement by this group of farms.

Table 4.3.1 (a) Cost of cultivation on Canal Irrigated Small and Marginal Farms

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Groundnut	0.007275	10300	75
2.	Guar	0.004025	4296	17
3.	Cotton	0.001	6879	7
4.	Wheat	0.005425	8385	45
5.	Mustard	0.0025	4081	10
	Total	0.020		154

The table indicates that groundnut occupies the maximum area of 0.007275 thousand hectare followed by wheat (0.005425 thousand ha) and guar (0.004025 thousand ha), mustard (0.0025 thousand ha) and cotton (0.001 thousand ha). Total cost wise Groundnut was first (75 thousand rupees) followed by wheat (45 thousand rupees), Guar (17 thousand rupees), mustard (10 thousand rupees) and Cotton (7 thousand rupees). The total cost for cultivating 0.020 thousand hectares land on

small and marginal canal irrigated farms was estimated as 154 thousand rupees

4.3.1(b) Cost of Cultivation of Canal Irrigated Medium Farms

The area under different crops and the cost incurred by the medium farmers in canal irrigated area in district Bikaner has been expressed and discussed in this sub-section.

The table 4.3.1 (b) gives the total area under different crops on medium irrigated farms and the actual cost of raising them by the sample farms to finally arrive at the estimation of loan requirement by this group of farms.

Table 4.3.1 (b) Cost of cultivation on Canal Irrigated Medium Farms

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Groundnut	0.014275	11406	163
2.	Guar	0.005	4556	23
3.	Cotton	0.003	7522	23
4.	Wheat	0.007287	8613	63
5.	Mustard	0.007175	4389	31
6	Gram	0.003	4065	12
	Total	0.040		315

The table clearly reveals that groundnut was cultivated on 0.014275 thousand hectares followed by wheat (0.007287 thousand ha) followed by wheat (0.007287 thousand ha), mustard (0.007175 thousand ha) and guar (0.005 thousand ha) The area under cotton and gram crops was 0.003 thousand hectares. Total cost wise groundnut was first (163 thousand rupees), followed by wheat (63 thousand rupees), mustard (31 thousand rupees), guar (23 thousand rupees) and cotton (23 thousand rupees).

The total cost for cultivating 0.040 thousand hectares land on medium canal irrigated farms was estimated as 315 thousand rupees.

4.3.1 (c) Cost of Cultivation of Canal Irrigated Large Farm

The area under different crops and the cost incurred by the large farmers in canal irrigated area in Bikaner district has been presented and discussed in this sub-section.

The table 4.3.1 (c) gives the total area under different crops on large irrigated farms and the actual cost of raising them by the sample farms to finally arrive at the estimation of credit requirements by this group of farms.

It is evident from the table that guar occupies the maximum area of 0.0265 thousand hectares followed by wheat (0.01527 thousand ha) groundnut (0.01177 thousand ha), mustard (0.015 thousand ha), gram (0.005275 thousand ha) and cotton (0.005 thousand ha). Total cost-wise wheat was first (169 thousand rupees) followed by groundnut (158 thousand rupees), guar (142 thousand rupees), mustard (66 thousand

rupees), cotton (42 thousand rupees) and gram (28 thousand rupees). The total cost for cultivating 0.079 thousand hectares land on large canal irrigated farms was estimated as 605 thousand rupees.

Table 4.3.1 (c) Cost of cultivation on Canal Irrigated Large Farms

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Groundnut	0.01177	13390	158
2.	Guar	0.0265	5351	142
3.	Cotton	0.005	8393	42
4.	Wheat	0.01527	11046	169
5.	Mustard	0.015	4391	66
6	Gram	0.005275	5391	28
	Total	0.079		605

4.3.2 Cost of Cultivation of Well/Tube Well Irrigated Large Farms

The well irrigated cases in the sample drawn were available only in large farm category. Consequently, cost of cultivation for different crops, in the situation, has been estimated only for large size growing of holdings.

The area under different crops and the cost incurred by the large farmers in well/tub well irrigated area in Bikaner district has been

explained and discussed in this sub-section. The table 4.3.2 (a) clearly indicates the total area under different crops on large, well/tube well irrigated farms and the actual cost of raising them by the sample farms with a purpose to arrive at the estimation of credit requirement by this group of farms.

Table 4.3.2 (a) Cost of cultivation on Well/Tube well Irrigated Large Farms.

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Groundnut	0.016	12914	207
2.	Guar	0.010	3450	34
3.	Cotton	0.002	7608	15
4.	Wheat	0.009	7415	67
5.	Mustard	0.006	3099	19
6	Jeera	0.002	2689	5
7	Methi	0.001	2802	3
	Total	0.046		350

The table shows that groundnut occupies the maximum area of 0.016 thousand hectares followed by guar (0.010 thousand ha), wheat (0.009 thousand ha), mustard (0.006 thousand ha), cotton and jeera

(0.002 thousand ha) and methi (0.001 thousand hectares). In respect of total cost, groundnut (207 thousand rupees) was followed by wheat (67 thousand rupees), guar (34 thousand rupees), mustard (19 thousand rupees), cotton (15 thousand rupees), jeera (5 thousand rupees) and methi (3 thousand rupees). The total cost for cultivating 0.046 thousand hectares land on large well/tube well irrigated farms was estimated as 350 thousand rupees.

4.3.3 (i) Cost of Cultivation on Unirrigated Small Farms

Under unirrigated / rainfed conditions, farmers in the Bikaner district, also, go for mixed crops, in addition to solo crops to minimise the risk of loss in case of crop failure. Small farmers go only mixed crops.

The area under mixed crops and the cost incurred by the small and marginal farms in un irrigated area in district Bikaner has been presented and discussed in this sub section.

The table 4.3.3 (a) gives that total area under mixed crops in small and marginal un irrigated farms and the actual cost of raising them by the sample farms to finally arrive at the estimation of loan requirement by this group of farms.

The table clearly reveals that coverage under bajra + moth + til cultivation as 0.016395 thousand hectares and their total cost as 54 thousand rupees.

Table 4.3.3 (a) Cost of Cultivation on Unirrigated Small Farms

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Bajra+Moth+Til	0.016395	3310	54
	Total	0.016395	3310	54

4.3.3 (ii) Cost of cultivation on Unirrigated Medium Farms

The area under crops and the cost incurred by the unirrigated medium farmers in district Bikaner has been expressed and discussed in this sub-section.

The table 4.3.3 (b) provides that the total area under mixed crops and guar, on medium unirrigated farms and the actual cost of raising them by the sample farms to finally arrive at the estimation of loan requirement by this group of farms.

Table 4.3.3 (b) Cost of cultivation on Unirrigated Medium Farms

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Bajra+Moth+Til	0.030145	3249	98
2.	Guar	0.00475	1959	9
	Total	0.035		107

The table clearly indicates that coverage of bajra + moth + til cultivation on 0.030145 thousand hectares followed by guar on 0.00475 thousand hectares. Total cost wise bajra + moth + til was first 98 thousand rupees followed by Guar of 9 thousand rupees.

The total cost for cultivating 0.035 thousand hectares land on medium unirrigated farms was estimated as 107 thousand rupees.

4.3.3 (iii) Cost of Cultivation on Unirrigated Large Farms

The area under different crops and the cost incurred by the large farmers in unirrigated area of district Bikaner has been presented and discussed in this sub-section.

The table 4.3.3 (c) shows the total area under different crops on large unirrigated farms and the actual cost of raising them by the sample farms to finally arrive at the estimation of loan requirement by this group of farms.

Table 4.3.3 (c) Cost of cultivation on Unirrigated Large Farms

S. No.	Name of the Crops	Total Area ('000 ha)	Cost of cultivation of the Crops (per hectare)	Total cost ('000 Rs.)
1	Bajra+Moth+Til	0.0805375	3268	263
2.	Guar	0.03850	2142	83
3	Moth	0.00225	2635	6
	Total	0.121		352

The table clearly indicates that bajra + moth + til occupies the maximum area of 0.0805375 thousand hectares followed by guar 0.03850 thousand hectares and moth 0.00225 thousand hectares. Total cost wise bajra + moth + til was first (263 thousand rupees) followed by guar (83 thousand rupees) and moth (6 thousand rupees).

The total cost for cultivating 0.121 thousand hectares land on large unirrigated farms was estimated as 352 thousand rupees.

4.3.4 Distribution of Total Cropped Area in Bikaner

The distribution of total cropped area in different tehsil of Bikaner and on aggregated basis, in terms of irrigated and unirrigated area is given in this sub-section.

The table 4.3.4 (a) reveals that out of 743 thousand hectares total cropped area in Bikaner district 160 thousand hectares is irrigated and remaining 583 thousand is unirrigated. On per cent basis irrigated and unirrigated area are 21.53 and 78.47, respectively. The table further reveals that total cropped area in tehsil Bikaner is 204 thousand hectares out of which 86 thousand hectare is irrigated and remaining 118 thousand hectare is unirrigated. On per cent basis irrigated and unirrigated area is 11.57 and 15.88, respectively. Further it is observed that total cropped area in Lunkaransar tehsil is 127 thousand hectares, out of which 39 thousand hectares area is irrigated and remaining 88 thousand is unirrigated. On per cent basis, irrigated and unirrigated area are 5.25 and 11.84 per cent, respectively. In Nokha tehsil only 3 thousand hectares is irrigated, remaining 273 thousand is unirrigated out

of total of 276 hectares total cropped area. On per cent basis only 0.40 per cent area is irrigated remaining 36.74 per cent is unirrigated.

The table further indicates that total cropped area under Kolayat tehsil is 136 thousand hectares out of which 32 thousand hectare is irrigated and 104 thousand hectare is unirrigated. On per cent basis irrigated and unirrigated area are 4.31 and 14, respectively.

Table 4.3.4(a) Tehsil wise area of District Bikaner in the year 1995-96
(Area in '000 ha)

Particulars	Bikaner	Lunkaransar	Nokha	Kolayat	Total of District Bikaner
Total Irrigated Area	86 (11.57)	39 (5.25)	3 (0.40)	32 (4.31)	160 (21.53)
Total Unirrigated Area	118 (15.88)	88 (11.84)	273 (36.74)	104 (14.0)	583 (78.47)
Total Cropped Area	204 (27.46)	127 (17.09)	276 (37.15)	136 (18.30)	743 (100)

(Figures in parentheses indicate per cent of the total cropped area)

4.3.5 Disbursement of Institutional Credit in Bikaner

The disbursement of credit by the institutional sources during 1995-96 has been obtained and presented in this sub section to compare with the requirement of credit by the farmers in Bikaner district. The disbursement figures have been presented tehsil wise and in terms of short and term loan.

The table 4.3.5 (a) shows that a total of 404434 thousand rupees credit was granted during 1995-96 in Bikaner district. Out of this,

2,16,943 thousand rupees (53.64 per cent) were disbursed as short term loan and 1,87,497 thousand rupees (46.36 per cent) were disbursed as term loan.

Table 4.3.5 (a) Total Loan granted by Lending Institutions in District Bikaner during 1995-96.

(Amount in '000 Rs)

Particulars	Bikaner	Lunkaransar	Nokha	Kolayat	District Bikaner
Short Term Loan	166220 (41.10)	16205 (4.00)	12862 (3.18)	21651 (5.35)	216943 (53.64)
Term Loan	81561 (20.17)	31936 (7.90)	43481 (10.75)	30513 (7.54)	187497 (46.36)
Total	247781 (61.27)	48141 (11.90)	56348 (13.93)	52164 (12.90)	404434 (100)

(Figures in parentheses indicate per cent of the total in Bikaner)

At tehsil level, the table reveals that a total of 247781 thousand loan was granted during 1995-96 in tehsil Bikaner. Out of which 166220 thousand rupees were disbursed as short term loan and 81561 thousand rupees were disbursed as term loan on per cent basis short term loan and term loan were granted 41.10 and 20.17, respectively.

It is also quite evident from the table that in tehsil Lunkaransar total of 48141 thousand rupees loan was granted during 1995-96. Out of this, 16205 thousand rupees (4 per cent) were disbursed as short term loan and remaining 31936 thousand rupees (7.90 per cent) were disbursed as term loan.

The total loan granted in tehsil Nokha was 56348 thousand rupees during 1995-96. Out of which 12862 thousand rupees (3.18 per cent) were disbursed as short term loan and remaining 43481 thousand rupees (10.75 per cent) were disbursed as term loan.

The table further reveals that a total of 52164 thousand rupees loan was granted during 1995-96 in tehsil Kolayat. Out of this 21651 thousand rupees were disbursed as short term loan and 30513 thousand rupees were disbursed as term loan on per cent basis short term loan and term loan were disbursed 5.35 and 7.54 respectively.

4.3.6 Requirement of Credit by the Sample Farmers

Requirement of credits by the sample farmers. The total requirement of credit by the sample farmers belonging to unirrigated / irrigated/well irrigated region of Bikaner district was estimated on basis of cost of cultivation of different crops grown by them at their levels and the other requirements exhibited by them. The total credit requirement of the ~~sample~~ farmers in Bikaner district has been presented in the table 4.3.6 (a)

It is quite evident from the table that a total of 1423 thousand rupees was required by the ~~irrigated~~ farms of Bikaner district, during the year 1995-96. This credit was required for a total cultivated area of 0.185 thousand hectares. Out of the total credit required, 867 thousand rupees (60.92 per cent) was short term and 556 thousand rupees (39.07 per cent) was term loan. Size group wise small and marginal farmers required credit only for short term which was 154 thousand rupees (100 per cent) for a cultivated area of 0.020 thousand hectares. Medium size

farm required both short term and term loan which was 236 thousand rupees (75 per cent) and 79 thousand rupees (25 per cent), respectively. It was 477 thousand rupees (50 per cent) each for short and term loan on the large size farms explaining 0.125 thousand hectares area.

irrigated
**Table 4.3.6 (a) Requirement of the Credit by the Sample Farmers
of District Bikaner**

Size Group	Area (^{'000} ha)	STCR (^{'000} Rs)	TCR (^{'000} Rs)	Total (^{'000} Rs)
Small and Marginal	0.020	154 (100)	--	154 (100)
Medium	0.040	236 (75)	79 (25)	315 (100)
Large	0.125	477 (50)	477 (50)	954 (100)
Total	0.185	867 (60.92)	556 (39.07)	1423 (100)

(Figures in parentheses indicate per cent of the total in Bikaner)

The distribution of credit requirement on canal irrigated, well irrigated and unirrigated region sample farmers has been presented in the following sub sections.

**4.3.6 (i) Requirement of credit by the canal irrigated sample
farmers of district Bikaner**

The requirement of credit by the canal irrigated sample farmers has been presented in the table 4.3.6 (b).

The table clearly indicates that a total of 1073 thousand rupees was required by the canal irrigated sample farms of Bikaner district, during the year 1995-96. This loan was required for a total cultivated area of 0.139 thousand hectares. Out of the total credit required, 692 thousand rupees (64.49 per cent) was short term and 381 thousand rupees (35.51 per cent) was term loan. Size group wise small and marginal farmers required credit only for short term loan which was 154 thousand rupees (100 per cent) for a cultivated area of 0.020 thousand hectares. Medium size farm required both short term and term loan which was 236 thousand rupees (75 per cent) and 79 thousand rupees (25 per cent), respectively for a cultivated area of 0.040 thousand hectares. 302 thousand rupees (50 per cent) were granted each for the large size of 0.079 thousand hectares farms.

Table 4.3.6 (b) Credit Requirement of Canal Irrigated Selected Cultivators of District Bikaner

Size Group	Area (^{'000}ha)	STCR (^{'000} Rs.)	TCR (^{'000} Rs.)	Total (^{'000} Rs.)
Small and Marginal	0.020	154 (100)	--	154 (100)
Medium	0.040	236 (75)	79 (25)	315 (100)
Large	0.079	302 (50)	302 (50)	604 (100)
Total	0.139	692 (64.49)	381 (35.51)	1073 (100)

**4.3.6 (ii) Requirement of credit by the well / tubewell irrigated
sample farmers of district Bikaner**

The requirement of credit by the well irrigated sample farmers has been estimated in the table 4.3.6 (c).

The table clearly reveals that a total of 350 thousand rupees were required by the well/tube well irrigated large size sample farms of Bikaner district during the year 1995-96. This loan was required for a total cultivated area of 0.046 thousand hectares, Large size farm required 175 thousand rupees (50 per cent) each for short term and term loan, respectively.

**Table 4.3.6 (c) Credit Requirement of Well Irrigated Selected
Cultivators of District Bikaner**

Size Group	Area (‘000 ha)	STCR (‘000 Rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Small and Marginal	--	--	--	--
Medium	--	--	--	--
Large	0.046	175 (50)	175 (50)	350 (100)
Total	0.046	175 (50)	175 (50)	350 (100)

**4.3.6 (iii) Requirement of Credit by the Unirrigated (rainfed)
Sample Farmers of District Bikaner**

Credit requirement by the rainfed sample farmers has been worked out and presented in the table 4.3.6 (d).

Table 4.3.6 (d) Credit Requirement of Unirrigated Selected Cultivators in District Bikaner

Size Group	Area (‘000 ha)	STCR (‘000 Rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Small and Marginal	0.016	54 (100)	--	54 (100)
Medium	0.035	80 (75)	27 (25)	107 (100)
Large	0.121	176 (50)	176 (50)	352 (100)
Total	0.172	310 (60.43)	203 (39.57)	543 (100)

(Figures in parentheses indicate per cent of the total)

It is evident from the table that a total of 513 thousand rupees were required by the unirrigated sample of Bikaner district during the year 1995-96. This loan was required for a total cultivated area of 0.172 thousand hectares. Out of the total credit required, 310 thousand rupees (60.43 per cent) was short term and 203 thousand rupees (39.57 per cent) was term loan. Size group wise small and marginal farmers required credit only for short term loan which was 54 thousand rupees (100 per cent) for a cultivated area of 0.16 thousand hectares. Medium size farm required short term loan and term loan which was 80 thousand (75 per cent) and 27 thousand (25 per cent), respectively. It was 176 thousand rupees (50 per cent) each for the large size of 0.121 hectare farms.

4.3.7 Requirement of Credit in Bikaner District

The requirement of credit in the entire Bikaner district has been worked out by enlarging the sample farm credit requirement to the total cropped area in the district, to compare with the credit availability during 1995-96. The same has been presented in the table 4.3.7 (a). The estimates have been worked out separately for irrigated and unirrigated regions.

Table 4.3.7 (a) Total cropped Area and their Credit Requirement during 1995-96 of District Bikaner

Particulars	Area (‘000 ha)	STCR (‘000 rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Irrigated	160 (21.53)	749837 (25.25)	480865 (16.19)	1230702 (41.44)
Unirrigated	583 (78.47)	1050756 (35.38)	688074 (23.17)	1738838 (58.55)
Total Cropped Area	743 (100)	1800593 (60.63)	1168939 (39.37)	2969532 (100)

(Figures in parentheses indicate per cent of the total)

The table clearly shows that the total cropped area in Bikaner district is 743 thousand hectares, out of which 583 thousand hectares (78.47 per cent) is unirrigated and 160 thousand hectares (21.53 per cent) irrigated. The short term credit requirement was estimated as 1800593 thousand rupees (60.63 per cent) and term credit requirement as 1168939 thousand rupees (39.37 per cent), making a total of 2969532 thousand rupees. The total requirement for irrigated area was 1230702

thousand rupees (41.44 per cent) and that for unirrigated region was 1738838 thousand rupees (58.55 per cent).

4.3.7 (i) Requirement of Credit in Bikaner tehsil

The estimates have been worked out for irrigated and unirrigated regions separately and presented in the table 4.3.7 (b).

It is evident from the above table that the total cropped area in Bikaner tehsil is 204 thousand hectares, out of which 118 thousand hectares (57.84 per cent) is unirrigated and 86 thousand hectares (42.16 per cent) irrigated. The short term credit requirement was estimated as 615711 thousand rupees (60.75 per cent) and term credit requirement as 397732 thousand rupees (39.25 per cent), making a total of 1013443 thousand rupees. The total requirement for irrigated area was 661502 thousand rupees (65.27 per cent) and that for unirrigated region was 351941 thousand rupees (34.73 per cent).

Table 4.3.7 (b) Total Cropped Area and their Credit Requirement during 1995-96 of Tehsil Bikaner

Particulars	Area (‘000 ha)	STCR (‘000 Rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Irrigated	86 (42.16)	403037 (39.77)	258465 (25.50)	661502 (65.27)
Unirrigated	118 (57.84)	212674 (20.98)	139267 (13.75)	351941 (34.73)
Total Cropped Area	204 (27.46)	615711 (60.75)	397732 (39.25)	1013443 (34.13)

(Figures in parentheses indicate per cent of the total)

4.3.7 (ii) Requirement of Credit in Lunkaransar Tehsil

The estimates for credit requirement in Lunkaransar tehsil have been worked out for irrigated and unirrigated regions separately and presented in the table 4.3.7 (c).

The total cropped area in Lunkaransar Tehsil is 127 thousand hectares, out of which 88 thousand hectares (69.27 per cent) is unirrigated and 39 thousand hectares (30.71 per cent) irrigated. The short term credit requirement is estimated as 341378 thousand rupees (60.69 per cent) and term credit requirement as 221071 thousand rupees (39.31 per cent), making a total of 562449 thousand rupees. The total requirement for irrigated area was 299984 thousand rupees (53.34 per cent) and that for unirrigated region was 262465 thousand rupees (46.66 per cent).

Table 4.3.7 (c) Total cropped Area and their Credit Requirement during 1995-96 of Tehsil Lunkaransar

Particulars	Area (‘000 ha)	STCR (‘000 Rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Irrigated	39 (30.71)	182773 (32.49)	117211 (20.84)	299984 (53.34)
Unirrigated	88 (69.29)	158605 (28.20)	103860 (18.46)	262465 (46.66)
Total Cropped Area	127 (17.09)	341378 (60.69)	221071 (39.31)	562449 (18.94)

(Figures in parentheses indicate per cent of the total)

4.3.7 (iii) Requirement of Credit in Tehsil Kolayat

The credit requirement of Kolayat tehsil have been worked out for irrigated and unirrigated regions separately and expressed in the table 4.3.7 (d).

The table reveals that the total cropped area in tehsil Kolayat is 136 thousand hectares, out of which 104 thousand hectares (76.47 per cent) is unirrigated and 32 thousand hectares (23.53 per cent) irrigated. The short term credit requirement was estimated as 337410 thousand rupees (60.65 per cent) and term credit requirement as 218917 thousand rupees (39.35 per cent), making a total of 556327 thousand rupees. The total requirement for irrigated area was 246141 thousand rupees (44.25 per cent) and that for unirrigated region was 310186 thousand rupees (55.75 per cent).

Table 4.3.7 (d) Total Cropped Area and their Credit Requirement during 1995-96 of Tehsil Kolayat

Particulars	Area (‘000 ha)	STCR (‘000 Rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Irrigated	32 (23.53)	149968 (26.96)	96173 (17.29)	246141 (44.25)
Unirrigated	104 (76.47)	187442 (33.69)	122744 (22.06)	310186 (55.75)
Total Cropped Area	136 (18.30)	337410 (60.65)	218917 (39.35)	556327 (18.79)

(Figures in parenthesis indicate per cent of the total)

4.3.7 (iv) Requirement of credit in Tehsil Nokha

The requirement of credit in Nokha tehsil have been worked out for irrigated and unirrigated regions separately and expressed in the table 4.3.7 (e).

It is evident from the table that the total cropped area in tehsil Nokha is 276 thousand hectares, out of which 273 thousand hectares (98.91 per cent) is unirrigated and 3 thousand hectares (1.09 per cent) irrigated. The short term credit requirement was estimated as 506094 thousand rupees (60.44 per cent) and term credit requirement as 331219 thousand rupees (39.56 per cent), making a total of 837313 thousand rupees. The total requirement for irrigated area was 23075 thousand rupees (2.75 per cent) and that for unirrigated region was 814238 thousand rupees (97.24 per cent).

Table 4.3.7 (e) Total Cropped Area and their Credit Requirement during 1995-96 of Tehsil Nokha

Particulars	Area (‘000 ha)	STCR (‘000 Rs)	TCR (‘000 Rs)	Total (‘000 Rs)
Irrigated	3 (1.09)	14059 (1.68)	9016 (1.08)	23075 (2.75)
Unirrigated	273 (98.91)	492035 (53.72)	322203 (38.48)	814238 (97.24)
Total cropped Area	276 (37.15)	506094 (60.44)	331219 (39.56)	837313 (28.20)

(Figures in parentheses indicate per cent of the total)

4.3.8 Adequacy of Institutional Credit in Bikaner District

The adequacy of agricultural credit in Bikaner district has been examined by estimating the credit gap for the year 1995-96. It has been further probed at tehsil level in the following sub sections.

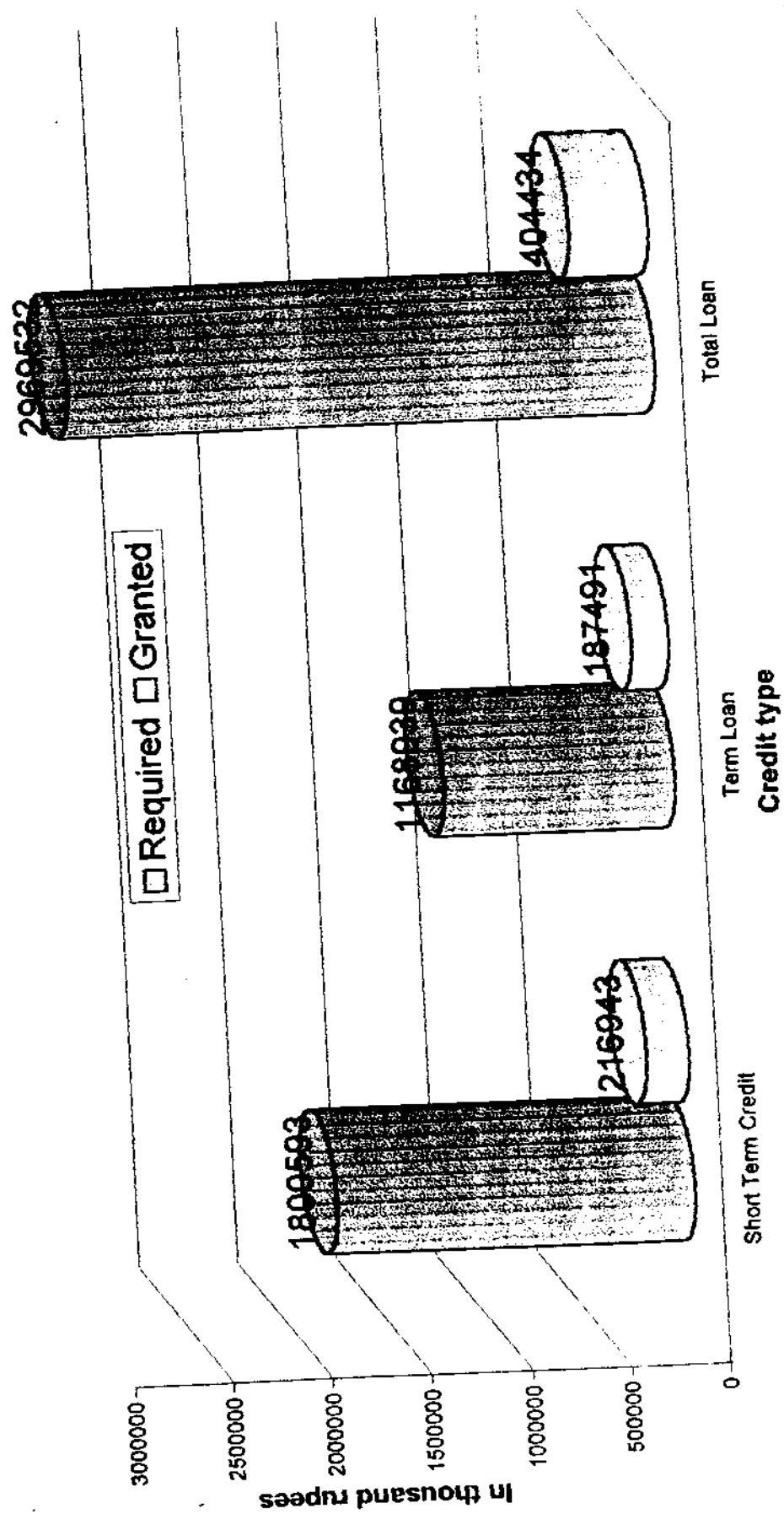
The adequacy of agricultural credit at district level has been presented in the table 4.3.8 (a).

Table 4.3.8 (a) Credit Gap in district Bikaner (1995 - 96)

Particulars	Amount ('000 Rs.)	Percentage
Short Term Credit Required	1800593	100
Short Term Credit Granted	216943	12.04
Credit Gap	1583650	87.96
Term Loan Required	1168939	100
Term Loan Granted	187491	16.04
Credit Gap	981448	83.96
Total Loan Required	2969532	100
Total Loan Granted	404434	13.62
Credit Gap	2565098	86.38

The table brings out very startling facts about the adequacy of institutional credit. The total credit gap has been estimated as 2565098 thousand rupees in 1995-96, which works out to be 86.38 per cent of the total requirement in the district. Purpose wise, short term credit gap was estimated as 87.96 per cent where as term loan credit gap was to the tune of 83.96 per cent. These high figures of credit gap speaks of the

Figure 4.3.8 (a) Credit Gap in District Bikaner (1995-96)



inadequacy of institutional sources to cater the demand of the farming community, calling for the serious attention of the policy planners.

4.3.8 (i) Adequacy of Institutional Credit in Bikaner Tehsil

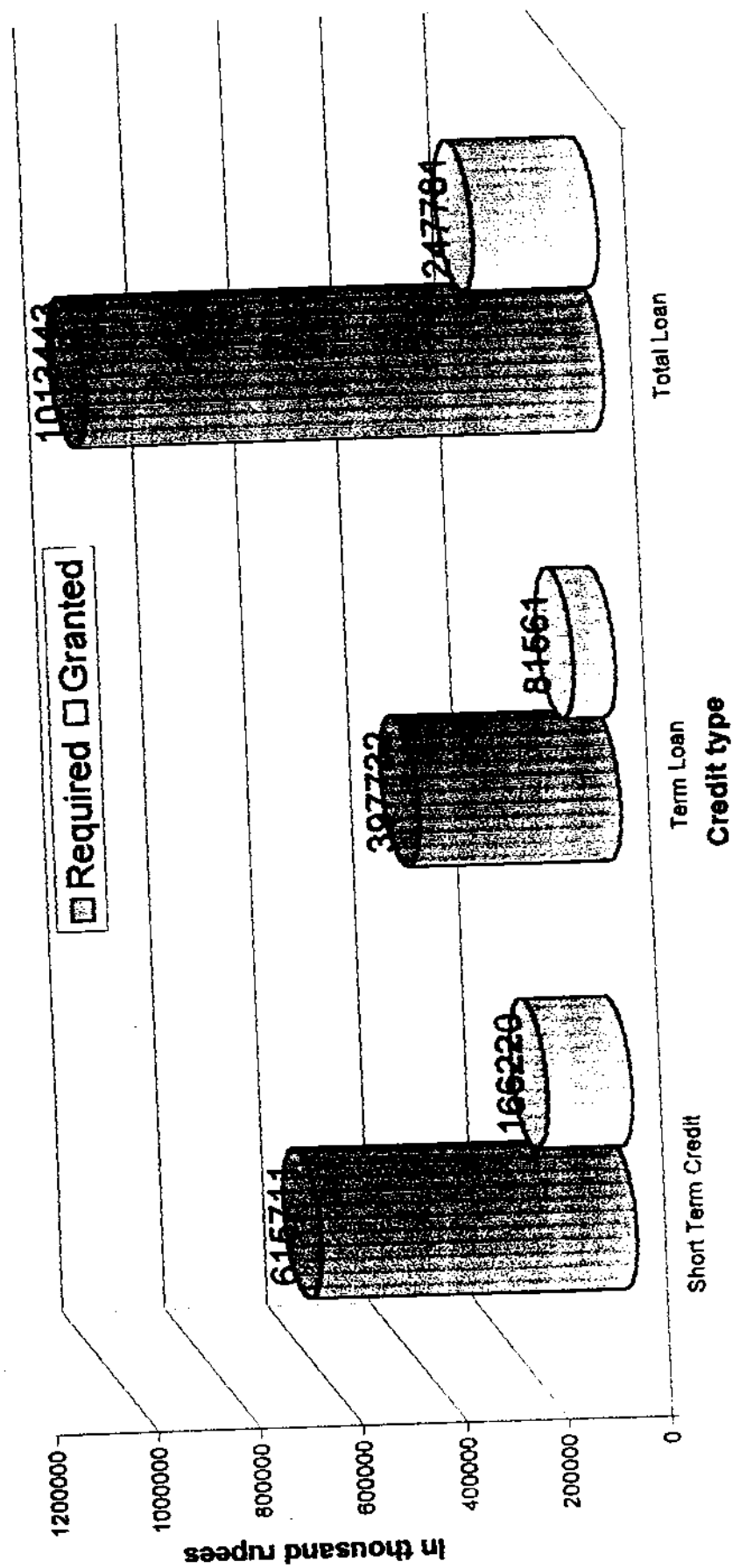
The adequacy of institutional credit/credit gap has been estimated for the Bikaner tehsil for the year 1995-96, on the basis of estimated credit requirement and actual credit granted by these sources during the year. The result have been summarised in the table 4.3.8 (b).

Table 4.3.8 (b) Credit Gap in Tehsil Bikaner (1995-96)

Particulars	Amount ('000 Rs.)	Percentage
Short Term Credit Required	615711	100
Short Term Credit Granted	166220	26.99
Credit Gap	449491	73.01
Term Loan Required	397732	100
Term Loan Granted	81561	20.51
Credit Gap	316171	79.49
Total Loan Required	1013443	100
Total Loan Granted	247781	24.44
Credit Gap	765662	75.56

The table clearly shows inadequacy of institutional credit. The total credit gap has been estimated as 765662 thousand rupees, which works out to be 75.56 per cent. Purpose wise, short term credit gap was estimated as 73.01 per cent. Whereas term loan credit gap was to the tune of 79.49 per cent. These high figures of credit gap speaks of the

Figure 4.3.8 (b) Credit Gap in Tehsil Bikaner (1995-96)



inadequacy of institutional sources to cater the demand of farming community, but at the same time reflect a better than the average picture in the tehsil.

4.3.8 (ii) Adequacy of Institutional credit in Lunkaransar Tehsil

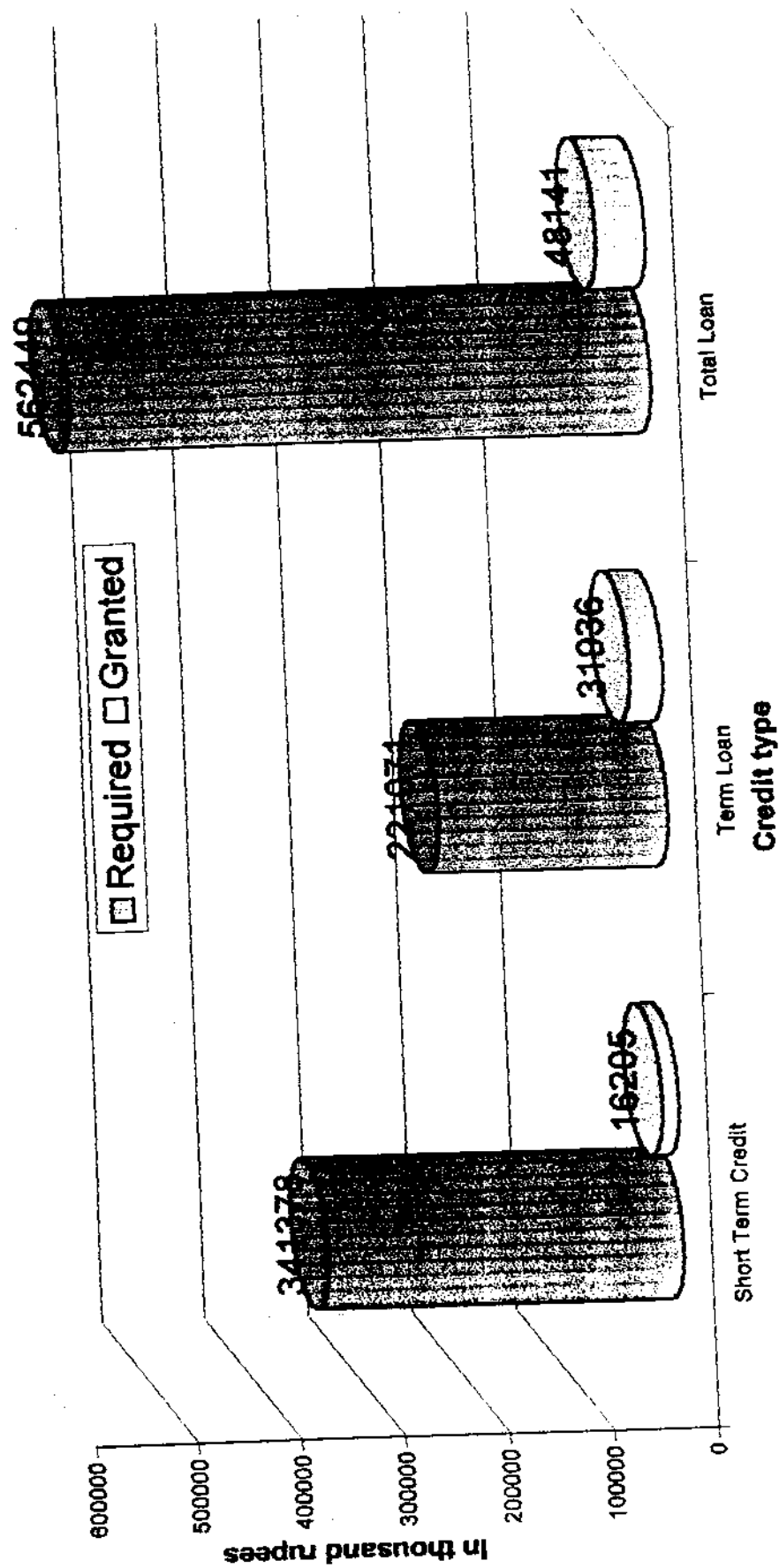
The table 4.3.8 (c) shows the adequacy of institutional credit/credit gap for the Lunkaransar Tehsil for the year 1995-96, on the basis of estimated credit requirement and actual credit granted by these sources during the year.

Table 4.3.8 (c) Credit Gap in Tehsil Lunkaransar (1995-96)

Particulars	Amount ('000 Rs.)	Percentage
Short Term Credit Required	341378	100
Short Term Credit Granted	16205	4.74
Credit Gap	325173	95.26
Term Loan Required	221071	100
Term Loan Granted	31936	14.44
Credit Gap	189135	85.56
Total Loan Required	562449	100
Total Loan Granted	48141	8.56
Credit Gap	514308	91.44

The table indicates the facts that institutional credit is quite inadequate looking to the total credit and the credit gap has been estimated as 514308 thousand rupees, which work out to be 91.44 per cent. Purpose wise, short term credit gap was estimated as 95.26 per

Figure 4.3.8 (c) Credit Gap In Tehsil Lunkarasar (1995-96)



cent whereas term loan credit gap was to the tune of 85.56 per cent. These high figures of credit gap speaks of the inadequacy of institutional sources and worse than the average district figure to cater the demand of the farming community.

4.3.8 (iii) Adequacy of Institutional Credit in Kolayat Tehsil

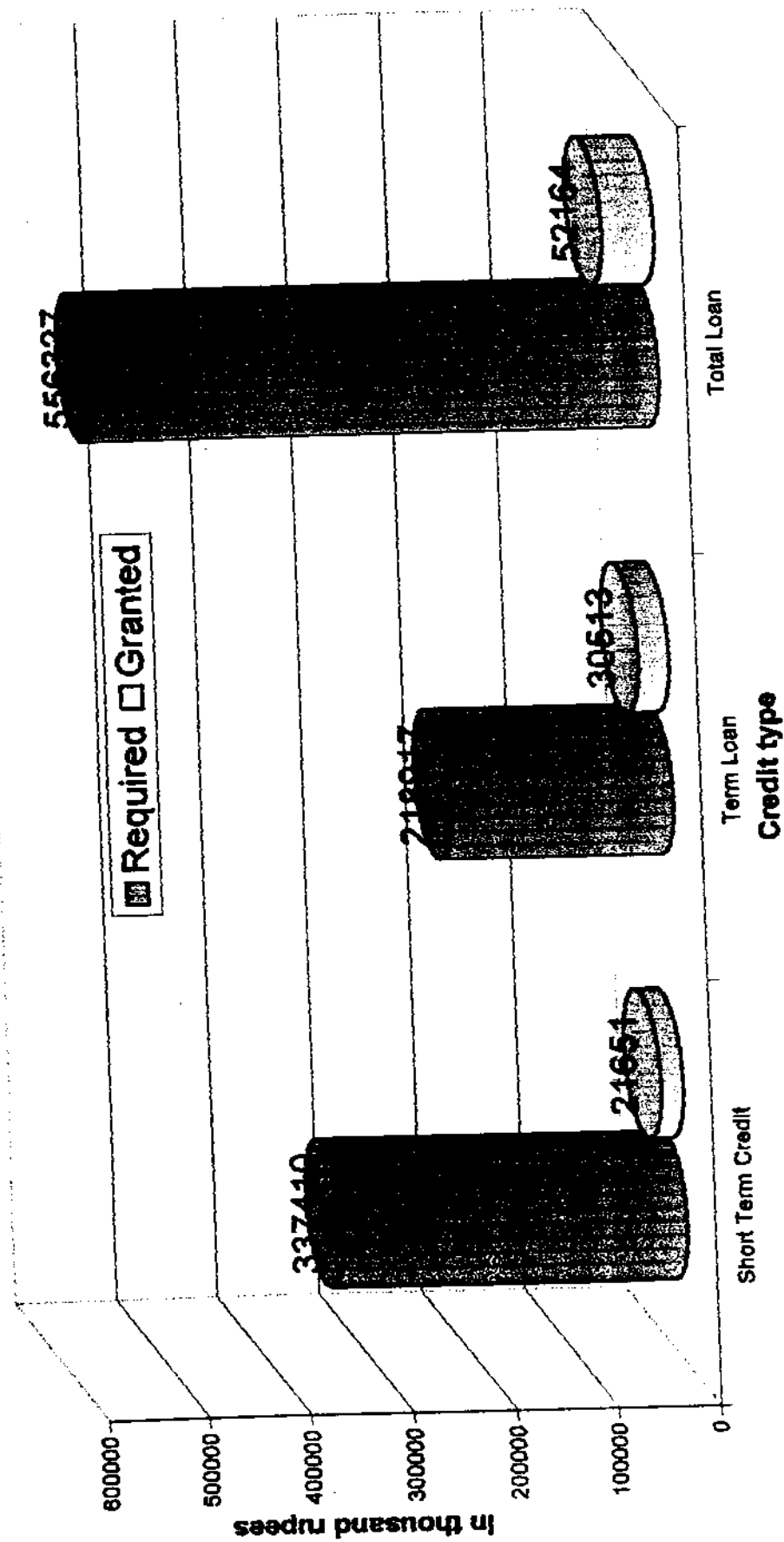
The credit gap has been estimated for the Kolayat tehsil, for the year 1995-96, on the basis of estimated credit requirement and actual credit granted by these sources during the year. The results have been summarised in the table 4.3.8 (d).

Table 4.3.8 (d) Credit gap of Tehsil Kolayat (1995-96)

Particulars	Amount ('000 Rs.)	Percentage
Short Term Credit Required	337410	100
Short Term Credit Granted	21651	6.42
Credit Gap	315759	93.58
Term Loan Required	218917	100
Term Loan Granted	30513	13.94
Credit Gap	188404	86.06
Total Loan Required	556327	100
Total Loan Granted	52164	9.37
Credit Gap	504163	90.63

The table bring out very distributing facts about the role of institutional credit. The total credit gap has been estimated as 504163 thousand rupees, which work out to be 90.63 per cent. Purpose-wise,

Figure 4.3.8 (d) Credit Gap in Tehsil Kolayat (1995-96)



short term credit gap was estimated as 93.58 per cent whereas term loan credit gap was to the tune of 86.06 per cent. These high figure of credit gap speaks of the inadequacy of institutional sources and again worse than the district average figures to cater the demand of farming community.

4.3.8 (iv) Adequacy of Institutional Credit in Nokha Tehsil

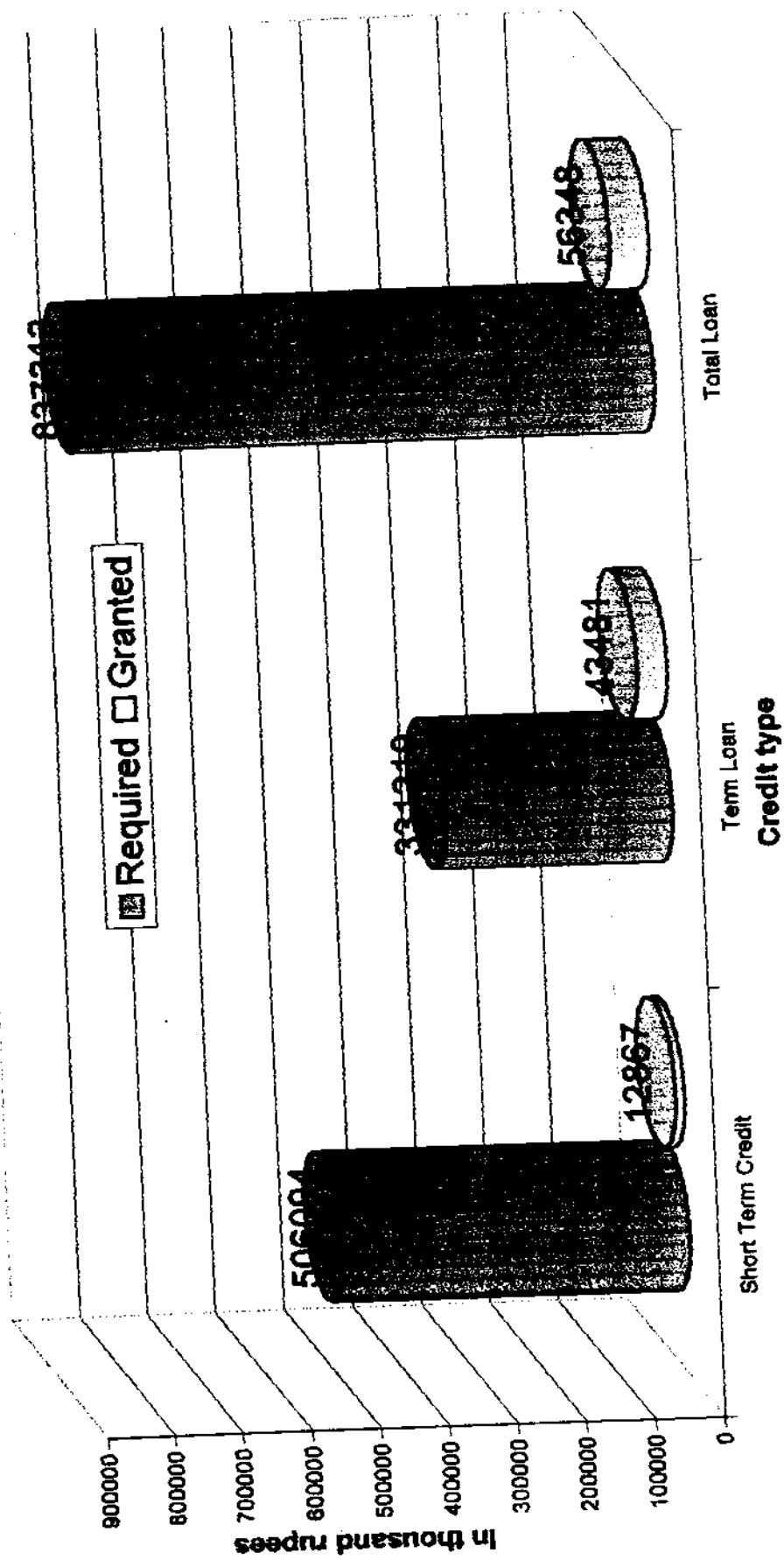
The adequacy of institutional credit has been estimated for the Nokha Tehsil for the year 1995-96, on the basis of estimated credit requirement and actual credit granted by these sources during the year. The result have been summarised in the table 4.3.8 (e).

Table 4.3.8 (e) Credit Gap of Tehsil Nokha (1995-96)

Particulars	Amount ('000 Rs.)	Percentage
Short Term Credit Required	506094	100
Short Term Credit Granted	12867	2.54
Credit Gap	493227	97.46
Term Loan Required	331219	100
Term Loan Granted	43481	13.13
Credit Gap	287738	86.87
Total Loan Required	837313	100
Total Loan Granted	56348	6.73
Credit Gap	780965	93.27

The table again reveals the inadequacy of institutional credit and the total credit gap has been estimated as 780965 thousand rupees,

Figure 4.3.8 (e) Credit Gap in Tehsil Nokha (1995-96)



which work out to be 93.27 per cent. Purpose-wise, short term credit gap was estimated as 97.46 per cent, whereas term loan credit gap was to the tune of 86.87 per cent which is higher than the district averages. These high figures of credit gap speaks of the inadequacy of institutional sources to cater the demand of the farming community, calling for adequate attention of the policy planners.

4.4 Recovery Performance of the Institutional Sources

The recovery performance of the sources reflect the soundness of the loan granted. Usually, high proportions of overdues grow due to grant of loans for unproductive purposes, their diversion owing to inadequate supervision, political influences and so on. Hence, the performances of the institutional sources have been examined and presented in this section to draw some meaningful inferences.

Table 4.4 (a) portrays the demand, collection and overdues of agricultural loans and percentages of collection and overdues to demand at the district level for the period June 1990 to June 1997. The percentage of collection to demand increased from June 1990 to June 1997 from 12 to 45 per cent except in the year 1993, where it decreased but not significantly. The table also brings out the percentage of overdues to demand. It decreased gradually from June 1990 to June 1997 from 87 per cent to 54 per cent.

**Table 4.4. (a) Recovery of Advances and overdues for the year
ending June 1990 to June 1997 in District Bikaner.**

(Amount in '000 Rs.)

Year	Demand	Collection		Overdues	
		Amount	Percentage	Amount	Percentage
1990	195620	23569	12.05	172051	87.95
1991	248912	56982	22.89	191930	77.11
1992	268592	78921	29.38	189671	70.62
1993	323093	89202	27.61	233891	72.39
1994	380287	120256	31.62	260031	68.38
1995	445934	139097	31.19	306837	68.81
1996	517906	234209	45.22	283697	54.78
1997	678348	306575	45.19	371773	54.81

**Bank wise recovery of advances and overdues for the year ending
June 1993 to June 1997 in district Bikaner**

Bank wise demand, recovery and overdues of the agricultural loan for Bikaner district for the period of June 1993 to June 1997 are given in the table 4.4 (b)

The table reveals that the highest demand was in state Bank of Bikaner and Jaipur in 1995, which was 307393 thousand Rupees (68.93

Table 4.4 (b) Bank wise recovery of Advances and overdues for the year ended June 1993 to June 1997 of District Bikaner.
(Amount in '000 Rs)

Name of the financial Institution	1993			1994			1995		
	Demand	Collection	Overdues	Demand	Collection	Overdues	Demand	Collection	Overdues
State Bank of Bikaner & Jaipur	210553 (65)	35800 (17)	174753 (83)	246639 (64.86)	56139 (22.78)	190500 (77.24)	307393 (98.93)	57367 (18.66)	250026 (81.34)
State Bank of India	-	-	-	116 (0.03)	13 (11.21)	103 (88.79)	9719 (2.18)	3023 (31.10)	6696 (68.90)
Alahabad Bank	1297 (0.40)	698 (53.89)	598 (46.11)	1306 (0.34)	885 (67.76)	421 (32.24)	288 (0.07)	217 (72.82)	81 (27.18)
Bank of India	1744 (0.54)	228 (13.07)	1516 (86.93)	3598 (1.54)	1957 (54.39)	1641 (45.61)	-	-	-
Bank of Baroda	6370 (1.97)	1756 (27.57)	4614 (72.43)	5730 (1.51)	1691 (32.98)	3439 (67.04)	-	-	-
Bank of Maharashtra	-	-	-	58 (0.01)	47 (83.93)	9 (16.07)	95 (0.02)	35 (36.84)	60 (63.16)
Canara Bank	150 (0.05)	103 (68.67)	47 (31.33)	170 (0.04)	142 (83.53)	28 (16.47)	245 (0.05)	180 (73.47)	65 (26.53)
Central Bank of India	976 (0.30)	698 (71.52)	278 (28.48)	833 (0.22)	612 (73.47)	221 (26.53)	221 (0.05)	7 (3.17)	214 (96.83)
Dena Bank	3084 (0.96)	673 (21.75)	2421 (78.25)	5899 (1.55)	1491 (25.28)	4408 (74.72)	8198 (1.84)	4208 (51.33)	3990 (48.67)
Indian Bank	445 (0.14)	237 (53.26)	208 (46.74)	46 (0.013)	1 (2.17)	45 (97.83)	260 (0.06)	10 (3.85)	250 (96.15)
Oriental Bank of Commerce	650 (0.20)	106 (16.31)	544 (83.69)	757 (0.20)	301 (39.76)	456 (60.24)	400 (0.09)	118 (29.50)	282 (70.50)
Punjab National Bank	1849 (0.59)	591 (31.96)	1258 (68.04)	4332 (1.14)	2178 (50.28)	2154 (49.72)	3665 (0.82)	2172 (59.26)	1493 (40.74)
Union Bank of India	899 (0.28)	45 (5)	854 (95)	897 (0.24)	386 (43.03)	511 (56.97)	653 (0.15)	414 (63.40)	239 (36.60)
United bank of India	90 (0.003)	-	9 (100)	9 (0.004)	0 (43.03)	9 (100)	9 (0.002)	0 (100)	9 (100)
UCO Bank	2788 (0.86)	289 (10.38)	2499 (89.64)	4560 (1.20)	1560 (34.21)	3000 (65.79)	-	-	-
The bank of Rajasthan	3506 (1.08)	1410 (40.22)	2096 (59.78)	-	-	-	-	-	-
Bikaner Gramin Bank	15979 (4.95)	4560 (28.64)	11419 (71.46)	16714 (4.39)	4423 (26.46)	12291 (73.54)	-	-	-
CCB	59400 (18.96)	34619 (58.28)	24781 (41.72)	73241 (19.26)	39913 (54.50)	33328 (45.50)	95918 (21.51)	58906 (61.41)	37012 (38.59)
PLDB	13384 (4.14)	7388 (55.20)	5996 (44.80)	15984 (4.20)	8517 (53.28)	7467 (46.72)	18860 (4.23)	12440 (65.96)	6420 (34.04)
Total	323093 (100)	89202 (27.61)	233891 (72.39)	380287 (100)	120256 (31.62)	260031 (68.38)	445934 (100)	139097 (31.19)	306837 (68.81)

Table 4.4 (b) continue.....

Name of the financial institution	1996			1997		
	Demand	Collection	Overdues	Demand	Collection	Overdues
State Bank of Bikaner & Jaipur	171156 (33.05)	87840 (51.32)	83316 (48.88)	185203 (27.30)	95014 (51.30)	90189 (48.70)
State Bank of India	10286 (1.98)	4200 (40.91)	6086 (59.09)	13898 (2.04)	9591 (89)	4307 (31)
Alahabad Bank	225 (0.04)	156 (68.33)	69 (30.67)	2745 (0.40)	1900 (69.22)	845 (30.78)
Bank of India	-	-	-	4400 (0.65)	2200 (50)	2200 (50)
Bank of Baroda	6245 (1.21)	3371 (53.98)	2874 (46.02)	6576 (0.97)	4941 (75.15)	1634 (24.85)
Bank of Maharashtra	255 (0.05)	52 (20.39)	203 (79.61)	553 (0.08)	100 (18.02)	455 (81.98)
Canara Bank	158 (0.03)	125 (80.13)	31 (19.87)	214 (0.63)	186 (86.92)	28 (13.08)
Central Bank of India	219 (0.04)	32 (14.61)	187 (85.39)	800 (0.12)	400 (50)	400 (50)
Dena Bank	4652 (0.90)	3451 (74.02)	1211 (25.98)	8000 (1.18)	7000 (87.50)	1000 (12.50)
Indian Bank	288 (0.05)	2 (0.75)	266 (98.25)	99 (0.01)	0	99 (100)
Oriental Bank of Commerce	423 (0.08)	74 (17.49)	349 (82.51)	5600 (0.83)	2800 (50)	2800 (50)
Punjab National Bank	3126 (0.60)	2018 (84.56)	1108 (35.44)	6000 (0.88)	600 (10)	5400 (80)
Vijaya bank	76 (0.02)	0	76 (100)	80 (0.009)	10 (17)	50 (83)
Union Bank of India	1006 (0.19)	613 (60.93)	393 (39.07)	120 (0.02)	20 (16.67)	100 (83.33)
UCO Bank	10486 (2.02)	3106 (29.62)	7380 (70.38)	20500 (3.02)	800 (3.90)	19700 (96.10)
The bank of Rajasthan	16891 (3.26)	3837 (29.62)	13054 (70.38)	10125 (1.49)	7011 (69.24)	3114 (30.78)
Bikaner Gramin Bank	23797 (4.59)	9080 (38.16)	14717 (61.84)	30800 (4.54)	5550 (18.02)	25250 (81.98)
CCB	234187 (45.21)	80332 (38.57)	143855 (61.43)	342854 (50.51)	148452 (43.32)	1942202 (56.68)
PLDB	34453 (6.65)	25920 (75.23)	8533 (24.77)	40000 (5.90)	20000 (50)	20000 (50)
Total	677906 (100)	234208 (45.22)	283897 (54.78)	678348 (100)	306578 (45.19)	371773 (54.81)

per cent). However, the collection was maximum 87840 thousand Rupees (51.32 per cent) in 1996 and the overdues was maximum 174753 thousand Rupees (83 per cent) in 1993.

The central-co-operative Bank was the second next lending institution in which the demand was maximum 342654 thousand rupees (50.51 per cent) in 1997. The recovery of loan in this Bank was highest 58906 thousand Rupees (61.41 per cent) in 1995. The overdues of the loan was highest in 1996, i.e. 143855 thousand Rupees (61.43 per cent).

The next important lending institutional in respect of loan given for agricultural purpose were Primary Land Development Bank and Bikaner Gramin Bank. The maximum loan demanded in these two institutions was 34453 thousand Rupees (6.65 per cent) in 1996 and 15979 thousand Rupees (4.95 per cent) in 1993 respectively. The loan collection was 25920 thousand Rupees (75.23 per cent) in 1996 of Primary Land Development Bank and 9080 thousand rupees (38.16 per cent) in the same year of Bikaner Gramin bank. Similarly, the overdues was 25250 thousand Rupees (81.78 per cent) in Primary Land Development Bank in 1997, against 20,000 thousand Rupees (50 per cent) in the same year of Bikaner Gramin Bank.

The highest amount of collection and overdues was observed 234209 thousand Rupees (45.22 per cent) in 1996 and 233891 thousand Rupees (72.39 per cent) in 1993 respectively. However, there was no specific trend over the years was observed all the years.

From the above discussion it is indicated that there is no visible trend among the Banks in respect of demand, collection and overdues. It

is also clear that overdues amount of all the lending institutions was more than the amount collected. However the aggregate demand by all the financial institutions has increasing trends from 323093 Rupees thousand in 1993 to 678348 thousand Rupees in 1997.

4.5 Role of Institutional Credit on Agricultural Development

Credit provides the basic impetus for undertaking any development activity. Institutional sources, though inadequate, are extending credit for a number of activities, that are having bearing on agricultural development process. It is always difficult to quantify the impact of the particular factor, as the development is associate with a number of related factors. However, the suggestive indicators can always be obtained by gauging the development in various related parameters. In the present context, mechanisation as reflected by the growth in tractors, tubewells, bullockcarts; growth in irrigated area; use of chemical fertiliser; growth in crop productivities; and growth in livestock, have been considered together to proxy the role of institutional credit and the results have been presented in this section.

4.5.1 Mechanization

Machnisation has been proxied by the growth in tractors, tubewells, and bullock / camel carts and the results have been presented in this sub section.

4.5.1 (i) Tractors

The position of tractors in 1977, 1983, 1988 and 1992 census has been mentioned in the table 4.5.1 (a).

Table 4.5.1 (a) Growth of Tractors

Particulars	1977	1983	1988	1992
Bikaner	49	199	647	1190
Lunkaransar	4	197	403	463
Nokha	41	186	270	430
Kolayat	14	140	248	538
Bikaner District	108	722	1568	2621

The table reveals that number of tractors increased from 108 in 1977 to 2621 in 1992 in the district Bikaner.

Bikaner tehsil also followed the same trend and the number of tractors increased from 49 in 1977 to 1190 in 1992 census. Similarly in tehsil Lunkaransar the number of tractors increased from mere 4 in 1977 to 463 in 1992 census. In tehsil Nokha it increased from 41 in 1977 to 430 in 1992 census and in tehsil Kolayat the number of tractors increased from 14 in 1977 to 538 in 1992.

It is quite evident from the table that there was a clear trend of increase at the number of tractors at district level as well as at tehsils level. These data provide possibility of the fact that loan sanctioned for purchasing tractors were properly and fully utilized.

4.5.1 (ii) Tube well/Pump sets

The number of tube well/Pump sets in 1977, 1983, 1988 and 1992 census has been presented in the table 4.5.1 (b).

Table 4.5.1 (b) Growth of Tube well / Pump sets

Particulars	1977	1983	1988	1992
Bikaner	33	6	130	83
Lunkaransar	0	2	37	29
Nokha	0	0	10	10
Kolayat	1	0	1	2
Bikaner District	34	8	178	124

The table reveals that there was no clearcut and visible trend from census to census at district level as well as at tehsil level. In the district Bikaner the maximum number of tube wells / pump sets were 178 in 1988 and as low as 8 in 1983 census. Similarly, in tehsil Bikaner, number of tube well / pump sets varied from census to census from as low as 6 in 1983 to as high as 130 in 1988 census. The tehsil Lunkaransar showed wide fluctuations from as low as 2 in 1983 to as high as 37 in 1988. In tehsil Nokha the number of tube well/pump sets was 10 in 1988 and similar number was observed in 1992 census. However no pump sets were found in 1977 and 1983. Similarly, in tehsil Kolayat number of tube well/pump sets was one each in 1977 and 1988 and two in 1992 census, no tube well/pump sets were found in 1983 census.

Since, the census has not been carried out after 1992, therefore, it is too early to predict any relations between loan sanctioned and its proper utilization at this stage. However, prior to 1992 there was no clear trend available for using tube well/pump sets. In addition, the above data reveals that maximum development has taken place in Bikaner tehsil, reflecting probable imbalance in the loans granted.

4.5.1 (iii) Bullocks/camel carts

The number of Bullocks/Camel carts in 1977, 1983, 1988 and 1992 census has been presented in table 4.5.1 (c).

Table 4.5.1 (c) Growth of Bullock / Camel carts

Particulars	1977	1983	1988	1992
Bikaner	5860	8804	8432	11356
Lunkaransar	2192	6427	6130	8087
Nokha	7284	7850	5675	6082
Kolayat	3460	6441	5436	6035
Bikaner District	18796	29522	25673	31560

It is evident from the table that number of bullocks / camel carts increased from 18796 in 1977 to 31560 in 1992 in the district Bikaner. Similarly in tehsil Bikaner, number of bullocks/camel carts increased from 5860 in 1977 to 11356 in 1992 census, followed by Lunkaransar tehsil in which it increased from 2192 in 1977 to 8087 in 1992 census. In tehsil Kolayat, it increased from 3460 in 1977 to 6035 in 1992 census. However, in tehsil Nokha it decreased from 7284 in 1977 to 6082 in 1992 census. In this tehsil probably bullock carts have been replaced by tractors. The 1988 census figure showed decline in all respects at district as well as tehsil level.

4.5.2 Use of Chemical Fertilizer

The use of Nitrogen, Super Phosphate and Potassium (N,P,K) in Bikaner district from 1977 to 1996 has been presented year wise in the table 4.5.2 (a).

Table 4.5.2 (a) Use of Chemical Fertilizer

(in Metric Tonnes)

Years	Nitrogen (N)	Super Phosphate (P)	Potassium (K)
1977	52 (100)	9 (100)	-
1978	283 (543.36)	15 (166.65)	4 (100)
1979	297 (570.24)	275 (3055.25)	15 (375)
1980	1688 (3240.96)	130 (1444.3)	51 (1275)
1981	1250 (2400)	63 (699.93)	23 (575)
1982	1260 (2419.2)	63 (699.93)	37 (925)
1983	540 (1036.8)	21 (233.31)	65 (1625)
1984	4755 (9129.6)	464 (5155.04)	163 (2575)
1985	3153 (6053.76)	474 (5266.14)	36 (900)
1986	4200 (8064)	807 (8965.77)	35 (875)
1987	21496 (41272.32)	5028 (55861.08)	73 (1825)
1988	12330 (23673.6)	2773 (30808.03)	14 (350)
1989	19262 (36983.04)	5203 (57805.33)	81 (2025)
1990	18028 (34613.76)	8000 (88880)	97 (2425)
1991	26747 (513454.24)	8302 (92235.22)	184 (4600)
1992	28132 (54013.44)	9042 (100456.6)	190 (4750)
1993	34928 (67061.76)	10919 (121310.1)	230 (5750)
1994	35164 (67514.88)	8827 (98067.97)	136 (3400)
1995	7282 (13981.44)	1863 (20697.93)	27 (675)
1996	9873 (18956.16)	1738 (19309.18)	31 (775)

It is evident from the table that use of N,P,K varied in different years and no trend has been observed in district Bikaner. The use of N,P,K by the farmers from 1977 to 1996 increased from 52 MT to 9873 MT for Nitrogen, 9 MT to 1738 MT for Super Phosphate and 4 MT to 775 MT for Potassium.

From year to year the quantity of chemical fertilizer showed wide fluctuations. It has been observed that Nitrogen was utilized to the maximum extent in 1994 (35164 MT), while Super Phosphate and Potassium were utilized to the maximum extent in 1993 showing quantity of use as 10919 MT and 230 MT, respectively.

These data reveal a continuous growth in the use of chemical fertilizer by the farmers in Bikaner district probably due to sanctioning of crop loan by the institutional sources. However the NPK use decreased in 1995-1996 probably due to not funding the loan in adequate amounts.

4.5.3 Growth Rate of Irrigated Area Under Different Crops in

Bikaner District

The growth of irrigated area under crops in Bikaner district was examined from 1983 to 1996, to have an estimate of the infrastructural development and the results were presented in table 4.5.3 (a).

A total of 14 crops, namely arhar, bajra, barley, chanwala, cotton, gram, groundnut, jwar, rapeseed & mustard, sugarcane, til, wheat, other kharif crops and other rabi crops were examined. The results indicated a growth rate of irrigated area under crops from 92 to 99 per cent for different crops under consideration. It was highly significant at one per

cent level in very case suggesting a general development of irrigation facilities.

Table 4.5.3 (a) Growth of Irrigated Area Under Different Crops in Bikaner District

S.No.	Particulars	G.R. (r)	R ²
1.	Arhar	99.8**	0.98
2.	Bajra	100**	0.99
3.	Barley	100**	0.99
4.	Ghawla	100**	0.92
5.	Cotton	99**	0.97
6.	Gram	100**	0.97
7.	Groundnut	100**	0.93
8.	Jwar	97**	0.99
9.	Other Kharif Crops	99.5**	0.93
10.	Other rabi crops	100**	0.94
11.	Rai & Mustard	100**	0.94
12.	Sugarcane	100**	0.95
13.	Til	99**	0.98
14.	Wheat	100**	0.99

** Highly significant at one per cent level of significance

* Significant at 5 per cent level of significance

4.5.4 Relation of Credit of Bajra, Wheat and Groundnut Area and Production

Bajra, Wheat and Groundnut being the important crops grown in Bikaner district, the relation of credit with the area and production of these crops was examined tehsil-wise as well as for the Bikaner district as a whole. For this purpose correlation and regression analysis was carried out, and the results have been presented in table 4.5.4 (a) and 4.5.4 (b).

Table 4.5.4 (a) Correlation Coefficient Between Area and Production with Loan of Bajra, Wheat and Groundnut Crops

Particulars	Bajra		Wheat		Groundnut	
	Area	Production	Area	Production	Area	Production
Bikaner Tehsil	0.7015*	0.6007	0.6201	0.7114*	0.5235	0.5162
Kolayat Tehsil	0.3230	0.5088	0.6083	0.5813	0.4130	0.4000
Lunkaransar Tehsil	0.5360	0.1516	0.7735*	0.8053**	0.1149	0.219
Nokha Tehsil	0.3186	0.4806	0.9290**	0.9287**	0.8775**	0.9112**
Bikaner District	0.1855	0.5654	0.4970	0.9860**	0.679**	0.9738**

** Significant at one per cent level of significance

* Significant at 5 per cent level of significance

The results indicated that in case of bajra, the correlation was significant only for area in Bikaner tehsil and it was 0.7015. The regression coefficient for the area suggested that with every Rs. one lac

increase in credit the area under bajra is likely to increase by 179.4 hectares in Bikaner tehsil. Rest of the coefficients in case of bajra crop were non-significant. In case of wheat crop, the correlations were significant for area in Lunkaransar and Nokha tehsil, where as the production correlations were significant in Bikaner, Lunkaransar, Nokha tehsil and district as a whole. The correlations were 0.7735 and 0.9290 for credit and area under wheat in Lunkaransar and Nokha tehsil, respectively. The regression coefficients suggested that for every Rs. one lac increase in credit the area under wheat is likely to increase by 206.4 and 12.3 hectares in Lunkaransar and Nokha tehsils respectively. For credit and wheat production the correlation were 0.7114, 0.8053, 0.9287 and 0.9860 for Bikaner, Lunkaransar and Nokha tehsils and the district, respectively. The regression coefficients obtained, suggested that every Rs. One lac increase in credit is likely to increase wheat production by 64.7, 102, 6.14 and 59.02 metric tonnes in Bikaner, Lunkaransar, Nokha tehsil, and the district, respectively. The correlation of credit with area and production of groundnut were significant only in case of Nokha tehsil and the district. The coefficient were 0.8778 and 0.6791 for credit and area, in Nokha tehsil and district respectively. The corresponding regression coefficients, suggested that likely to increase by 43.36 hectares in Nokha tehsil. The coefficient was non-significant for the district. The correlation coefficient for credit and groundnut production were 0.9112 for Nokha tehsil and 0.9738 for the district as a whole. The regression coefficient was, again,

significant for the Nokha tehsil only. It suggested that for every on Rs. one lack increase in credit, the groundnut production is likely to increase by 233.9 metric tonnes in Nokha tehsil.

Table 4.5.4 (b) Rate of Change in Area and Production with respect to Loan (Linear Regression Analysis)

Particulars					(Area in ha) (Production in Metric Tonnes)	
	Bajra		Wheat		Groundnut	
	Area	Production	Area	Production	Area	Production
Bikaner Tehsil	179.4* (0.49)	68.8 (0.36)	94.6 (0.38)	64.7* (0.51)	33.7 (0.27)	14.7 (0.27)
Kolayat Tehsil	3380 (0.10)	173.7 (0.26)	269.8 (0.37)	116.2 (0.34)	142.10 (0.17)	73 (0.16)
Lunkaransar Tehsil	75.6 (0.004)	59.2 (0.02)	206.4* (0.60)	102** (0.65)	21.4 (0.01)	10.3 (0.04)
Nokha Tehsil	724.7 (0.10)	208.3 (0.23)	12.3** (0.86)	6.14** (0.86)	43.36** (0.77)	233.9** (0.83)
Bikaner District	680.11 (0.07)	166.56 (0.28)	104.71* (0.49)	59.02* (0.51)	61.31 (0.25)	31.8 (0.64)

** Significant at one per cent level of significance

* Significant at 5 per cent level of significance

(Figure in parentheses are coefficient of determination)

4.5.5 Live stock Development in Bikaner District

Bikaner district, like other district of western Rajasthan, has a livestock based agricultural economy. Institutional as well as other sources finance this activity on wide spread basis. Hence, this parameter has been choosen, alongwith other, to

4.5.5. (a) Live Stock Development in District Bikaner

Particulars	1977	1983	1988	1992
Cows/Bullocks				
Bullocks more than three years	18903 (1.2)	26792 (1.3)	20754 (0.8)	83674 (4.2)
Cows more than three years	136318 (8.9)	247899 (12.1)	265811 (10.6)	239299 (11.9)
Cows/Bullocks not more than three years	129241 (8.4)	177975 (8.7)	165638 (6.6)	132290 (6.6)
Total	284462 (18.5)	452666 (22.1)	452203 (18.1)	455263 (22.7)
Buffaloes/He Buffaloes				
He Buffaloes more than three years	1167 (0.1)	924 (0.0)	893 (0.0)	9077 (0.5)
Buffaloes more than three years	22568 (1.5)	31494 (1.5)	35869 (1.4)	3773 (1.9)
Buffaloes/He Buffaloes not more than three years	18212 (1.2)	26030 (1.3)	826134 (33.0)	25331 (1.3)
Total	41947 (2.7)	58448 (2.8)	862896 (34.5)	72181 (3.6)
Sheep	797374 (51.8)	1079973 (52.6)	826134 (33.0)	953125 (47.4)
Goats	343533 (22.3)	395687 (19.3)	297865 (11.9)	453875 (22.6)
Camel	60749 (3.9)	58752 (2.9)	52218 (2.1)	57504 (2.9)
Poultry	10186 (0.7)	6378 (0.3)	11681 (0.5)	17941 (0.9)
Grand Total	1538251 (100)	20511904 (100)	2502997 (100)	2009889 (100)

proxy the role of credit. The results, obtained, have been presented in this section.

Table 4.5.5. (a) gives the livestock population across the census in Bikaner district. It is evident from the table that maximum number of animals in Bikaner district were sheep (51.8 per cent) followed by goats (22.3 per cent) and cows/bullocks (18.5 per cent) in 1977. Similarly in 1983 census also, sheep occupied first place (52.6 per cent) followed by cows/bullocks (22.1 per cent) and goats (19.3 per cent). In contrast to these results in 1988 buffaloes/ he buffaloes gained first place (34.5 per cent) closely followed by sheeps (33 per cent) and cows/bullocks (18.1 per cent). Surprisingly, the proportion of buffaloes remarkably decreased from 34.5 per cent in 1988 to 3.6 per cent in 1992 and the sheep regained the first place (47.4 per cent) followed by cows/bullocks (22.7 per cent) and goats (22.6 per cent).

It was observed that the cows and goats were the main milch animals maintained by the villagers in Bikaner district. These animals can sustain unfavourable conditions and easy to maintain. The population of bullocks increased in 1988 but could not sustain. The proportion of draught animal (bullock and he buffaloes) was very less in comparison to milch cows / bullocks.

These data indirectly support our earlier observations that farmer's prefer medium term loan for purchasing sheep, goats and milch animals compared to draught animals in Bikaner district.

The development of livestock in different tehsils of Bikaner has been separately examined and presented in the following sub-sections.

4.5.5 (i) Livestock Development in Tehsil Bikaner

It is evident from the table 4.5.5. (b) that maximum number of animals in Bikaner tehsil were sheeps (50.7 per cent) followed by cow/bullocks and goats sharing equal percentage of (20.9 per cent) in 1977. Similarly, in 1983 sheeps again explained maximum proportion (49.7 per cent) followed by cows/bullocks (26.2 per cent) and goats (18.5 per cent). In contrast to these results in 1988 buffaloes/he buffaloes secured 1st place (34.8 per cent) in the census followed by sheeps (33.5 per cent), cows/bullocks (18.2 per cent) and goats (10.8 per cent). The number of buffaloes/he buffaloes remarkably decreased from 34.8 per cent in 1988 to 2.6 per cent in 1992 and the sheep regained 1st place (50.8 per cent) followed by goats (21.9 per cent) and cows/bullocks (21.2 per cent).

It was observed that the number of cows were highest in all the three census from 88 to 67 per cent in comparison to the bullocks 12 per cent to 33 per cent, probably due to profitable dairy business in Bikaner tehsil. Similarly on account of the same reasons buffaloes also were maximum from 96 to 78 per cent in comparison to the he buffaloes 4 to 22 per cent in all the three census.

These data indirectly support over earlier observations that farmers prefer medium term loan for purchasing sheep, goats and milch animals as compared to draught animals in Bikaner tehsil.

Table 4.5.5 (b) Live stock development in Tehsil Bikaner

Particulars	1977	1983	1988	1992
Cows/Bullocks				
Bullocks more than three years	6216 (1.50)	9749 (1.71)	10935 (1.2)	45144 (4.9)
Cows more than three years	44295 (10.50)	71631 (12.2)	90990 (9.9)	92970 (10.1)
Cows/Bullocks not more than three years	37890 (9.00)	72929 (12.4)	64670 (7.1)	56143 (6.1)
Total	88401 (20.90)	154309 (26.2)	166595 (18.2)	194257 (21.2)
Buffaloes/He Buffaloes				
He Buffaloes more than three years	202 (0.00)	160 (0.00)	320 (0.0)	3476 (0.4)
Buffaloes more than three years	5508 (1.3)	8370 (1.4)	11323 (1.2)	12022 (1.3)
Buffaloes/He Buffaloes not more than three years	4052 (1.00)	8172 (1.4)	307031 (33.5)	8257 (0.9)
Total	9762 (2.3)	16702 (2.8)	318674 (34.8)	23755 (2.6)
Sheep	214445 (50.7)	292715 (49.7)	307031 (33.5)	466066 (50.8)
Goats	88613 (20.9)	108617 (18.5)	99145 (10.8)	201257 (21.9)
Camel	12488 (3.0)	12109 (2.1)	14880 (1.6)	18756 (2.00)
Poultry	9294 (2.2)	4027 (0.7)	10343 (1.1)	13185 (1.4)
Grand Total	423003 (100)	588479 (100)	916668 (100)	917276 (100)

4.5.5 (ii) Live Stock Development in Tehsil Lunkaransar

It is evident from the table 4.5.5 (c) that maximum number of animals in this tehsil also were sheep (53.5 per cent) followed by cows/bullocks (20.0 per cent) and goats (18.7 per cent) in 1977. The sheep again stood 1st in 1983 census (61.5 per cent) followed by cows/bullocks (21.8 per cent) and goats (11.7 per cent). Following the trend of the district the buffaloes/he buffaloes secured 1st place (33.1 per cent) followed by sheep (31.6 per cent) cows/bullocks (24.0 per cent) and goats (8.3 per cent) in 1988 census. Again, the number of buffaloes / he buffaloes decreased from 33.1 per cent in 1988 to 2.1 per cent in 1992 and sheep regained 1st place (45.6 per cent) followed by cows/bullocks (29.6 per cent) and goats (18.1 per cent).

Again It was observed that the number of cows were highest in all the three census from 95 per cent to 83 per cent in comparison with the bullocks 5 per cent to 17 per cent, showing profitable dairy business in Lunkaransar tehsil also. Similarly for the same reason buffaloes also accounted maximum from 94 per cent to 83 per cent in comparison to he buffaloes 6 to 17 per cent in all the three years.

4.5.5 (iii) Live stock Development in Tehsil Kolayat

The table 4.5.5 (d) reveals that maximum number of animals were again sheep (63.6 per cent) followed by goats (20.4 per cent) and cows/bullocks (sharing 12.5 per cent in 1977 Census). In 1983 Census sheep again stood 1st (50.2 per cent) followed by cows/bullocks (24.3 per cent) and goats (21.1 per cent). In 1988 buffaloes/he Buffaloes gained 1st place (37 per cent) followed by sheep (36.7 per cent), cows/bullocks

Table 4.5.5 (c) Live stock Development in Tehsil Lunkaransar

Particulars	1977	1983	1988	1992
Cows/Bullocks				
Bullocks more than three years	1379 (0.4)	7560 (1.1)	2219 (0.3)	14782 (3.5)
Cows more than three years	28045 (8.7)	96381 (14.7)	98778 (15.3)	73417 (17.4)
Cows/Bullocks not more than three years	35127 (10.9)	39238 (6.0)	54188 (8.4)	36731 (8.7)
Total	64551 (20.0)	143179 (21.8)	155185 (24.0)	124930 (29.6)
Buffaloes/He Buffaloes				
He Buffaloes more than three years	170 (0.1)	518 (0.1)	171 (0.0)	1030 (0.2)
Buffaloes more than three years	2801 (0.9)	6567 (1.0)	9371 (1.5)	4917 (1.2)
Buffaloes/He Buffaloes not more than three years	2103 (0.7)	2154 (0.3)	204125 (31.6)	2852 (0.7)
Total	5074 (1.6)	9239 (1.4)	213667 (33.1)	8799 (2.1)
Sheep	172761 (53.5)	404710 (61.5)	204125 (31.6)	192084 (45.6)
Goats	60365 (18.7)	77171 (11.7)	53627 (8.3)	76235 (18.1)
Camel	19856 (6.1)	22276 (3.4)	18090 (2.8)	17321 (4.1)
Poultry	330 (0.1)	1039 (0.2)	577 (0.1)	2149 (0.5)
Grand Total	322937 (100)	657614 (100)	645271 (100)	421516 (100)

able 4.5.5 (d) Live Stock Development in Tehsil Kolayat

Particulars	1977	1983	1988	1992
Cows/Bullocks				
Bullocks more than three years	6371 (1.5)	5933 (1.5)	4746 (0.8)	12133 (3.6)
Cows more than three years	24279 (5.8)	54502 (13.5)	47015 (8.0)	37230 (11.1)
Cows/Bullocks not more than three years	21450 (5.1)	37640 (9.3)	27237 (4.7)	16818 (5.0)
Total	52100 (12.5)	98075 (24.3)	78998 (13.5)	66181 (19.7)
Buffaloes/He Buffaloes				
He Buffaloes more than three years	79 (00)	35 (00)	55	392 (0.1)
Buffaloes more than three years	743 (0.2)	1689 (0.4)	1776 (0.3)	2080 (0.6)
Buffaloes/He Buffaloes not more than three years	624 (0.1)	2634 (0.7)	215074 (36.7)	1345 (0.4)
Total	1446 (0.3)	4358 (1.1)	216905 (37.0)	3817 (1.1)
Sheep	264884 (63.6)	202521 (50.2)	215074 (36.7)	179817 (53.5)
Goats	85183 (20.4)	85259 (21.1)	85034 (11.1)	74137 (22.1)
Camel	12731 (3.1)	11747 (2.9)	9089 (1.6)	9558 (2.8)
Poultry	405 (0.1)	1312 (0.3)	516 (0.1)	2393 (0.7)
Grand Total	416749 (100)	403272 (100)	585616 (100)	335903 (100)

(13.5 per cent) and goats (11.1 per cent). The number of buffaloes/he buffaloes remarkably decreased from 37 per cent in 1988 to 1.1 per cent in 1992, and sheep again occupied 1st position (53.5 per cent) followed by goats (22.1 per cent) and cows/bullocks (19.7 per cent).

The number of cows and buffaloes was again much higher to bullocks and he buffaloes, indicating wide spread dairy activity.

4.5.7 (iv) Live stock Development in Tehsil Nokha

It is quite evident from the Table 4.5.5 (e) that maximum number of animals were sheep (38.7 per cent) followed by goats (29.1 per cent) and cows/bullocks (21.1 per cent) in 1977, confirming the district trend. Similarly, in 1983 sheep again stood 1st in the census (44.7 per cent) followed by goats (31 per cent) and cows/bullocks (14.2 per cent). In contrast to these results in 1988 buffaloes/he buffaloes secured 1st place (32 per cent) followed by sheep (28.1 per cent) and cows/bullocks (14.5 per cent).

The number of buffaloes drastically reduced from 32 per cent in 1988 to 10.7 per cent in 1992 but still remaining higher than the district figure and other tehsils. Sheep regained 1st place (34.4 per cent) followed by goats (30.5 per cent) and cows/bullocks (20.9 per cent). The higher number of buffaloes in this tehsil indicate a better dairy condition.

The results obtained in respect of the role of institutional sources suggest a positive picture. Though, it has been possible to quantify the role its indications have been quite prominent by the proxy parameters considered.

Table 4.5.5 (e) Live Stock Development in Tehsil Nokha

Particulars	1977	1983	1988	1992
Bullocks more than three years	4937 (1.3)	3550 (0.9)	2854 (0.8)	11615 (3.5)
Cows more than three years	39699 (10.6)	25385 (6.3)	29028 (8.2)	35682 (10.6)
Cows/Bullocks not more than three years	34774 (9.3)	28168 (7.0)	19543 (5.5)	22598 (6.7)
Total	79410 (21.1)	57103 (14.2)	51425 (14.5)	69895 (20.9)
Buffaloes/He Buffaloes				
He Buffaloes more than three years	716 (0.2)	211 (0.1)	347 (0.1)	4179 (1.2)
Buffaloes more than three years	13516 (3.6)	14868 (3.7)	13399 (3.8)	18754 (5.6)
Buffaloes/He Buffaloes not more than three years	11433 (3.0)	13070 (3.2)	99904 (28.1)	12877 (3.8)
Total	25655 (6.8)	28149 (7.0)	113650 (32.0)	35810 (10.7)
Sheep	145284 (38.7)	180027 (44.7)	99904 (28.1)	115158 (34.4)
Goats	109372 (29.1)	124640 31	80059 (22.5)	102246 (30.5)
Camel	15674 (4.2)	12620 (3.1)	10159 (2.9)	11869 (3.5)
Poultry	157 (0.0)	0	245 (0.1)	216 (0.1)
Grand Total	375562 (100)	402539 (100)	355442 (100)	335194 (100)

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

SUMMARY

From the point of view of economic importance and also, that of social consideration, agriculture constitutes the kingpin of the Indian economy. Any effort to develop other sectors without simultaneously developing agriculture is bound to be frustrating. Again, we can not solve the problem of unemployment nor can we promote social justice unless all possible efforts are put in to induct dynamism into this vital sector.

Despite the crucial importance of this sector in our economy and social frame work, it did attract the desired attention of commercial banks till their nationalisation. Since then a conscious endeavor has been made to involve banks in the development of this sector. One would not claim that unqualified success has been achieved during the last many years and yet one can not fail to notice the beginning of a far-reaching change that augurs well for the future of agriculture. When the debt redemption legislation for the small and marginal farmers, and agricultural labourers, the traditional source of funds from the money lenders could not generate the required pace, it became absolutely necessary to provide institutional credit to fill in this gap. Financial requirement for capital build up and capital investment is possible only for the well-to-do in the rural areas. Most of the others, if required to take part in the modern agriculture and modern subsidiary occupations have to look to the credit institutions for funds.

The institutional sector has played a very important role by providing credit not only to medium and large farmers but also to the marginal and small farmers. The whole system is an operation of spread of rural banking aiming at mopping up rural resources for rural lending. The programme requires a great deal of organisation and the operation must not go beyond the capacity of the commercial banks. Not only the banks but also the farmers are already familiar with the short, medium and long-term lending for agricultural development and subsidiary occupations.

The development of agriculture in the arid / semi arid regions of Rajasthan, such as Bikaner, requires additional efforts on Part of all development agencies. This district suffers from extremes of the climatic conditions and poor infrastructural development. The soil productivity is low and rainfall is uncertain and unevenly distributed. The agricultural economy is mainly livestock based. Above all, there has been no systematic study to identify the credit requirement and credits related problems in the district. Therefore, the present study will be confined to Bikaner district for the benefits of administrators, planners and the financial institutions.

The specific objectives of the study were :

- (i) To study the growth of Institutional credit to agriculture over period of time,
- (ii) To study the nature and extent of Institutional credit to agriculture,
- (iii) To estimate the requirement for agricultural credit and adequacy of the institutional source to cater it,

- (iv) To estimate the extent of overdues,
- (v) To study the role of institutional credit on agricultural development, and
- (vi) To come out with policy implication for further improvement in institutional credit to agriculture.

The primary data for the study was collected from 90 borrower and 72 non borrower farmers in different size groups, spread over 6 villages, with maximum loaning activity, from two tehsils representing average agro climatic conditions of the district were randomly selected through proportionate sampling.

For collection of secondary data, State Bank of Bikaner and Jaipur, as being the lead bank among the nationalized and schedule Commercial Banks was selected to collect the time series data for 11 years (from 1986 to 1996), on expansion of institutional credit to agriculture, growth of institutional finance, repayment position and overdues problem etc. Four rural branches of lead Banks (SBBJ) were selected from each tehsil viz., Bikaner and Nokha, to collect secondary data at tehsil level. In order to collect time series information on cropping pattern, productivities, irrigation and other infrastructural development during the last 20 years (from 1963 to 1986), the District Statistical Bulletins published by the Directorate of economics and statistics, Govt. publications, Books, Journals and News papers were consulted.

To study the growth in term of agricultural advances, last 11 years secondary data obtained from institutional agencies, were analysed, by using the relevant statistical techniques.

The proportion of short, medium and long term credit advanced were worked out by simple tabular analysis.

To work out the credit requirement of study area, cost of cultivation was calculated for the year 1995-96. The adequacy of short and term credit requirements were estimated and the credit gaps between the credit requirements and their availabilities through the lending institutions were worked out.

The relationship between repayment and demand for repayment and overdues to demand at the district level, year-wise and bank-wise were worked out by simple tabular analysis.

The growth of institutional credit was worked out in terms of absolute amounts as well as at compound growth rate. In terms of absolute figure the study reveals that crop loan followed by farm mechanisation and minor irrigation has been very important. Animal husbandry and dairy development occupied the fourth place. The compound growth rate seems to have proceeded in the right direction. For irrigation and farm machinery, it was estimated as 60 per cent and 20 per cent respectively. The growth rate in all other cases were highly significant except in the case of AHSGP and other miscellaneous activities.

There was no clear cut and visible trend in the nature of credit and the amount granted by the lending institutions in the district of Bikaner and its tehsils. The long term loan was mainly given for tractors and heavy implements which account for over 50 per cent of the total loan. The tube well, pump sets and sprinkler sets were second most important components for which the loan was given. Land improvement and soil

conservation measures also found good place for loaning. But in recent year the amount of loan given for these two items was not found significant. The medium term loan was mostly given for milch and drought animals, sheep and goats, in which more than 75 per cent loan was given for milch and drought animals in the district, confirming the strong livestock base of the rural economy. The short term loan was given for crop production and its share represent 50 per cent of the entire loan. Maximum loan was given for bajra followed by groundnut and wheat crops in the district as a whole. However, the crop loan given in various tehsil varied according to the crop grown. The crop loan given for major crops in different tehsil were wheat and groundnut in Bikaner tehsil, bajra and groundnut in Kolayat, bajra and wheat in Lunkaransar and bajra in Nokha tehsil.

The credit requirement for the district of Bikaner for the year 1995-96 has been worked out at the district level as well as tehsil level. In the same way the availability of the credit by the financial institutions has also been calculated at the district as well as the tehsil level, for working out the credit gap. Thus the total credit requirement for 1995-96 (short and term, irrigated and unirrigated) comes to 2969532 thousand rupees. The total credit granted during the same year comes to Rs 404434 thousand rupees. The above figure show that there was a credit gap of 86.38 per cent of the total requirement for the district. Purpose-wise short term credit gap worked out to be 87.96 per cent and term credit gap worked out to be 83.96 per cent.

The study reveals the extent of overdues in the district of Bikaner. The study has been carried out year wise and bank wise. The percentage

of collection to demand increased from June 1990 to 1997 from 12 per cent to 45 per cent. There was a slight decrease in the year 1993. The study also revealed the percentage of overdues to demand. It decreased gradually from June 1990 to June 1997. The percentage declined from 87 per cent to 54 per cent. The Bank wise study revealed that the overdues amount of all the lending institutions was higher than the amount of collection. The highest amount of overdues was 45.22 per cent in 1996 and 72.39 per cent in 1993. However, there appeared no specific pattern in case of all the credit institutions.

The relation of credit with the area and production of bajra, wheat and groundnut crops was studied with the help of correlation and regression analysis. It was observed that correlation was significant for area in Bikaner tehsil for bajra crop only. In case of wheat crop the correlations were significant for area in Lunkaransar and Nokha tehsil, whereas for productions correlations, it was significant for Bikaner. The correlation of credit with area and production of groundnut were significant only in case of Nokha tehsil and the district. The coefficient of regression analysis was non significant for the district. However, the regression coefficient was also significant for Nokha tehsil.

A study of the infrastructural development in the irrigated area, covering 14 crops namely arhar, cotton, groundnut, jwar, rapeseed and mustard, wheat, sugarcane and other miscellaneous crops, was carried out for the period 1983 to 1996. The area in respect of all these crops increased from 97 per cent to 100 per cent, it was highly significant at one per cent level in every case.

An observation of the available data regarding the number of tractors shows that there was a steady increase in their number from 108 in 1977 to 2621 in 1992 in the district as a whole. However, the data after 1992 was not available. Even than on the basis of the data for the previous years we can assume that the same trend must have continued even after 1992.

The number of tube well/pump sets during the census period from 1977 to 1992 shows that the number was as low as 8 in 1983 and as high as 178 in 1988. It shows no visible and regular trend.

A year wise observation of the data on the use of chemical fertilizer from 1977 to 1996 showed no regular trend. It was seen that nitrogen was utilized to the maximum extent in 1994 (35164 MT). Whereas superphosphate and potassium were also used to the maximum extent in 1993 (10919 MT and 230 MT).

The study regarding live stock (milch, drought, sheep and goats etc.) revealed that the maximum number of animals were sheep (51.8 per cent) followed by goats (22.3 per cent) and cows/bullocks (18.5 per cent) in 1977. In 1983 sheep again stood 1st in census (52.6 per cent) followed by cows/bullocks (22.1 per cent) and goats (19.3 per cent). In contrast to these results in 1988 buffaloes/he buffaloes secured 1st place (34.5 per cent) in the census followed by sheep (33 per cent) and cows/bullocks (18.1 per cent). However, the number of buffaloes remarkably decreased from 34.5 per cent in 1988 to 3.6 per cent in 1992, and the sheep regained 1st place (47.4 per cent) followed by cows/bullocks (22.7 per cent) and goat (22.6 per cent).

The role of institutional credit though appeared positive, it lacked direction mostly due to ad hoc policies followed by the lending institutions.

CONCLUSION AND POLICY IMPLICATIONS

1. The compound growth rate in respect of irrigation and farm machinery has also been in the right direction. Importance has been given to animal husbandry and dairy development. It was however, observed that plant and horticulture, land development, sheep, goat and poultry have received less attention in the scheme of granting loan.

Western Rajasthan, and specially the district of Bikaner falls within the arid region and, hence, it becomes absolutely necessary that horticulture and plantation activities of various types should attract much attention from the planners to control the expansion of desert area. It will be also useful for bringing rainfall in the region.

In order to utilize the leisure period of the farmers and to increase their income, it is suggested that more and more loan should be sanctioned for sheep and goat farming, pig farming and poultry farming.

2. There seems to be no long term perspective in the system of different types of credit granted to the farmers. The yearly fluctuation in the amount and type of credit indicated that the arrangement of credit has been mainly on the ad hoc basis.

A careful study of the available data shows that there has been no systematic and long range perspective in the grant of institutional credit and the loans have been advanced on ad hoc basis. It would be much better for the farmers if the lending pattern was more rationalised.

The district of Bikaner is mostly a desert area and hence the land improvement should be encouraged on a permanent footing. More funds should be made available for this purpose on a regular basis.

3. The credit requirement of the district and the credit provided by the institutional sources creates a difficult problem for the farmers. The problem, therefore, requires serious attention on the part of the planners for the improvement of agriculture in the district.

This study shows that the policy planners should take the problems related to the institutional credit for the agriculture very seriously as it affects the overall standards of life and living of a very large section of the people. They should provide more funds to this section so that the resultant gap between the actual requirement and the credit provided by the financial institutions is minimised. This will go a long way in the overall economic development of the people in a welfare state. Agriculture being the core sector not only in the district but in the country as a whole should get its place of pride in the economic planning of the state.

4. A careful observation reveals that there has been an increase in the percentage of collection. So the percentage of over dues declined slightly. But the percentage of collection was not satisfactory and the over dues percentage was still heavy.

It should be brought home to the notice of the lending institutions that they must advance loan not only on the basis of security offered but for purposes which enhance the income of the farmers. Uneconomic loans are not easily recoverable. There appears to be no proper supervision over the loan sanctioning authority. Lending institutions must take steps to educate the farmers in production, marketing of crops and modern technology. This will go a long way in increasing the income of the farmers which will facilitate quick and easy recovery of the loans.

5. From 1986 to 1996 credit for tube well, pumpsets, sprinklar set etc. increased from 1118 to 1,01, 892 thousand rupees (5.33 per cent to 47.08 per cent). The area increased from 97 per cent to 100 per cent for different crops but the amount of loan sanctioned is very disproportionate.

It is, therefore, suggested that more and more credit should be provided for the development of irrigational facilities so as to strike a proper and genuine balance between the vast area which need more and more irrigational facilities and the credit provided therefor.

6. The correlation of credit with the area was significant in Bikaner tehsil for bajra crop only and for wheat crop it was significant for

Nokha and Lunkaransar tehsil. The correlation of credit with area and production of groundnut were significant only in case of Nokha tehsil and district.

It is suggested that the credit for all crops and in particular for bajra, wheat and groundnut should be increased due to credit gap of crop loan (88 per cent) as observed in our past study.

7. A study of the table showing the long term loan district and tehsil wise showed that 50 per cent of these loans were granted for tractors and heavy implements. But there appears to be no definite trend. The data of the number of tractors and also the data on long term loans showed that the loan granted for tractors have been fully and properly utilized.

Notwithstanding the fact that the loan granted for the mechanisation of farming has been fully utilized, there appears to be no regular trend year wise. It is suggested that the lending institutions should change their ad hoc policy so as to bring about a regular trend.

8. Since, no census has been carried out for tube well/pump sets from 1992 onwards it is not possible to predict any trend after that year. Since there were lesser irrigation facilities before 1992, therefore, it is difficult to say any thing definitely about the role of the credit for irrigation purposes.

9. The wide ranging fluctuations in the use of chemical fertilizers seems to be the result of the ad hoc lending policy of the financial institutions.

It is suggested that the financial institutions should adopt a regular policy for crop loaning so that the irregular trend comes to an end.

10. There is a visible trend that the percentage of cows and buffaloes in comparison to the bullocks and he-buffaloes is much high. But on aggregate level this percentage was much lower than the percentages of sheep and goats. It appears that proper attention has not been paid to the loan sanctioned for milch and draught animals. The lending institutions should take steps to increase loan for milch and draught animals.

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4. Reserve Bank of India Review
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2. Record of Central Co-operative Bank.
3. District Statistical Bulletines.
4. Jamabandi and Girdawari Register of Tehsil Bikaner and Nokha.
5. Patwari Register of Selected Village of Tehsil Bikaner and Nokha.
6. V.L.W's Register of selected villages.

PHD. EW -
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Appendix I
RAU, Bikaner

Department of Agril. Economics
RCA, Udaipur

1. Title of Research : "Role of Institutional Credit for the Growth and Development of Agriculture in Bikaner District of Rajasthan."
2. Name of consultant : D.P. Singh
3. Village :
4. Name of Respondent :
5. Category of farmer : Small and Marginal/Medium/Large
6. Age : Year
7. Caste :
Weather S.C./ST
8. Educational Status : Uneducated/Primary/Middle/Secondary/Above
9. No. of family members :

9 (a) Adult male (Above 16 years)	: Earners	Not earners	
9 (b) Adult female	: Earners	Non earners	
9 (c) Children school going	:		Others
- 10 (a) Main source of family income :
- 10 (b) Other sources of family income :

Source	Income	Rs./Year	
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Farm Resources Inventory
Details of Operational Holding
Area in Bigha/Hectare

S.No.	Particulars	Irrigated Land	Unirrigated Land	Total
1.	Land Owned			
2.	Land Leased in			
3.	Land Leased out			
4.	Land Kept Fallow (For the full year)			
5.	Land Operated			

Amount of Land Rent/Revenue paid for Leased in Leased out in Rs.

Source of Irrigation

1. Canal
2. Well
3. Tube well
4. Any other

Name of Crops
Input use, cost and return

Variety
Area in hectare

Operation	Labour Cost				Material Cost				Total Cost in Rs.
	Type	Qty.	Price	Value	Type	Qty.	Price	Value	
Input									
1. Presowing	FL HL AL ML								
2. Seed Treatment	FL HL AL ML								
3. Sowing	FL HL AL ML								
4. Interculture	FL HL AL ML								
5. Irrigation	FL HL AL ML								
6. Manuring	FL HL AL ML								
7. Plant Protection	FL HL AL ML								
8. Harvesting	FL HL AL ML								
9. Threshing	FL HL AL ML								
10. Others	FL HL AL ML								
Total									

Output

PhD-ITC
58.1 5820

Particulars	Quantity (in qtls.)	Value Rs.	Total Value
Main Product			
By Product			
Total			

FL = Family Labour in hours

HL = Hired Labour in hours

ML = Machine Labour – oil Engine/Electric Engine/Sprinkler set/Tractor/Thresher in hours.