

Impact of Agricultural Credit on Socio-Economic Condition of Small and Marginal Farmer in Uttar Pradesh

Thesis

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In
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Dedicated
To
my Grand Father, Mother
&
My
Beloved Parents



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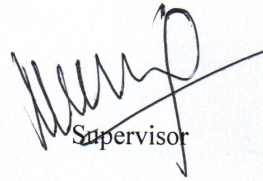
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CERTIFICATE

This is certify that the thesis titled **“Impact of Agricultural Credit on Socio-Economic Condition of Small and Marginal Farmer in Uttar Pradesh”** submitted by Mr. Sanjay Kumar Upadhyay is an original research work and has not been previously submitted in part or full for the award of any other degree or diploma to this or any other university.

This thesis submitted to Babasaheb Bhimrao Ambedkar University Lucknow satisfies all the requirements as stipulated in the **Doctor of Philosophy (Ph.D.)** regulations-1999 as amended in 2008/2010/2013 and it is fit for submission and evaluation for the award of the degree of Doctor of Philosophy of the University.

Date 23/1/18


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DECLARATION

I declare that the entire thesis entitled “**Impact of Agricultural Credit on Socio-Economic Condition of Small and Marginal Farmer in Uttar Pradesh**” submitted to the Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow for the award of Doctor of Philosophy in Economics. It is my original work and it has not previously been produced for the award of any degree, diploma, fellowship or similar other titles anywhere. This research study is carried out under the supervision of **Dr. L.C. Malliah**, Department of Economics, and School for Ambedkar Studies (SAS), Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow, Uttar Pradesh, India.

Place: Lucknow

Date: 19/01/2018

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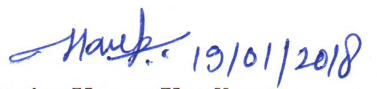
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LIST OF ABBREVIATIONS

ADWDR	Agricultural Debt Waiver and Debt Relief
AFC	Agricultural Finance Corporation
AFC	Agricultural Finance Corporation
AIDIS	All India Debt and Investment Survey,
APC	Agricultural Prices Commission
ARDC	Agricultural Refinance and Development Corporation
ARF	Assets Reconstruction Fund
ATMA	Agricultural Technology Management Agencies
BGREI	Bringing Green Revolution in Eastern India
BLAA	Bonded Labour Abolition Act
BPO	Business Process Out Sourcing
CAGR	Compound Annual Growth Rate
CBB	Commercial Bank Branches
CBs	Commercial Banks
CCS	Cooperative Credit Structure
CD	Credit- Deposit
CI	Cropping Intensity
CRR	Cash Reserve Ratio
CSO	Central Statistical Organization
CSSRI	Central Soil Salinity Research Institute
DCBs	District Cooperative Banks
DCCBs	District Central Co-operative Banks
DDS	Deccan Development Society
DFIs	Development Financial Institutions
ECA	Essential Commodity Act
FAO	Food and Agriculture Organization
FCI	Food Corporation of India
FDI	Foreign Direct Investment
FERC	Fertilisers Consumption
FIIS	Farm Income Insurance Scheme
FSS	Farmers Service Societies
FSS	Farmer Service Societies

GDP	Gross Domestic Product
GOI	Government of India
HDI	Human Development Index
HYV	High Yielding Varieties
HYVP	High Yielding Varieties Programme
IADP	Intensive Agricultural District Programme
IARI	Indian Agricultural Research Institute
IBCA.	Indian Banking Companies Act
ICAR	Indian Council of Agricultural Research
IMR	Infant Mortality Rate
INM	Integrated Nutrient Management
IPM	Integrated Pest Management
IPMA	Integrated Pest Management Approach
IRDP	Integrated Rural Development Program
JLG	Joint Liability Groups
KCC	Kisan Credit Card
KVKs	Krishi Vigyan Kendras
LAMPS	Large Area Multi-Purpose Societies
LBS	Lead Bank Scheme
LDBs	Land Development Banks
LPG	Liquid Petroleum Gas
LT	Long Term
MMR	Maternal Mortality Ratio,
MT	Million Tones
MT	Medium Term
MWA	Minimum Wage Act
NABARD	National Agriculture Bank for Rural Development
NAIS	National Agricultural Insurance Scheme
NCC	National Credit Council
NCDC	National Co-operative Development Corporation
NFSM	National Food Security Mission
NGOs	Non-Government Organization
NHM	National Horticulture Mission
NIA	Net Irrigated Area

NPA	Non-Performing Assets
NSDP	Net State Domestic Product
NSSO	National Sample Survey Organization
NTFP	Non-Timber Forest Produces
NWP	National Water Policy
OBC	Other Backward Classes
OLS	Ordinary Least Squares
PACS	Primary Agricultural Co-operative Societies
PCARDBs	Primary Co-operative Agriculture and Rural Development Banks
PDS	Public Distribution System
PLDB	Land Development Bank
PMJDY	Pradhan Mantri Jan Dhan Yojana
POF	Production of Food grains
PRA	Pest Risk Analysis
PSBs	Public Sector Banks
RBI	: Reserve Bank of India
FIs	Financial Institutions
RFIs	Rural Financial Institutions
RIDF	Rural Infrastructure Development Fund
RKVY	Rastriya Krishi Vikas Yojana
RRBs	Regional Rural Banks
SAA	Service Area Approach
SCARDBs	State Co-operative Agriculture and Rural Development Banks
SCBs	State Co-operative Banks
SCBs	Schedule Commercial Banks
SCC	Swarozgar Credit Card
SHGs	Self Help Groups
SLR	Statutory Liquidity Ratio
ST	Schedule Tribes
ST	Short Term
SWP	State Water Policy
UPCAR	Uttar Pradesh Council of Agricultural Research
UPCB	Uttar Pradesh Cooperative Bank Ltd
UPCSA	Uttar Pradesh Cold Storage Act

UPSWC	State Warehousing Corporation
VIF	Variance Inflation Factor
WUAs	Water User Associations
YOF	Yield of Food grains
ZRS	Local Research Station



CHAPTER I

INTRODUCTION



Agricultural sector plays a vital role in the process of economic development of a country. It has built a significant contribution in the economic prosperity of developed countries and has been playing a significant role in the economic development of less developed countries. Due to agricultural development and primary industries, major countries of the world have achieved economic prosperity. In England that agricultural revolution increased industrial revolution, and in U.S.A and Japan, also agricultural development has helped in the process of their industrialization. However, various under developed countries in the world are not emphasizing over on industrialization to increase economic development and per capita real income. Hence, industrial and agricultural developments are not alternatives but are complementary and are supporting in inputs and output to each other. Agricultural production and productivity has been helping to over all the economic development. Therefore, right and effective policies must be made for increasing agricultural productivity with respect to the economic development.

I.1 IMPORTANCE OF THE AGRICULTURE SECTOR

Agriculture sector plays an important role in the development of the economy. It is not only a major source of livelihoods, but also back bone of the Indian economy. Although the share of the agriculture in national income has decreased since independence, still it has major contribution of the agriculture around 70 per cent population are dependent for their livelihood of the total population, and 60 per cent of the total work force is engaged in agriculture for employment. It is not only increase the employment but also contribute substantial share in gross domestic product (GDP) and in national income at national level. The contribution of agriculture sector in GDP was around 56 per cent in 1950-60 and now it has reduced to 12.3 per cent in 2010-11(K. Aswathappa, 2008). Agriculture sector is also vital for the development of the industrial sector and to feed the urban population at state level and national level. It has been the source of supply of raw materials to leading industries such as cotton and jute textile industries, sugar, flour mills and plantation. There is many other small-scale and cottage industries like handlooms weaving, oil crushing, rice husking, and depend upon agriculture sector for their raw materials. Therefore, the share of manufacturing and service sector is increasing. The agriculture production maintains the price fluctuation in the economy and also plays an important

role in India's international trade market. Agricultural products such as sugar, tea, oil seeds, tobacco, spices, are exporting from India to all over the world. The percentage of agricultural goods in world market was 70 per cent in 1950-51 and became 10.6 per cent in 2009-10 (Economic Survey 2009-10).

Agriculture is supporting railways and road ways which transport facilities of agricultural produce from fields to mandies and factories. Hence, the prosperity of the railways and road ways depends on the agriculture sector. It is playing a very significant role of the revenue to both the central and state governments of the country. The Government is getting more income by increasing land revenue, and some other sectors like railway, roadways are increasing their income from the movement of the agricultural goods. Agriculture sector also provides fodder for the animals in the country and it is an important source for increasing the saving and capital formation among the farmers. Apart from this, agriculture sector has a multiplier effect on the entire economy and also acts as landmark in maintaining food security and in the process of national security as well. The performance of the policies and programs depends on the agriculture growth and it is also helpful to remove the dependency on foreign countries for consumable goods.

I.2 PROBLEMS OF AGRICULTURE SECTOR

The most problems faced by any sector in the economy is agriculture sector. The general problem of agriculture is that investment facilities are not sufficient to increase the agricultural productivity. Investment is more attractive towards in jewelry, trade and money leading activities in the country. There is less investment in land improvement due to slow rate of return. Agriculture sector is also facing natural calamities like floods, cyclone and other calamities which are destroyed crores of crops. The soil erosion has been regarded as to loss the fertility of the land and dependency of the people is too much on agriculture sector. Therefore, the growth of the agriculture production is decreasing. It is seen that agriculture productivity is inversely related to the number of the people engaged on this sector and this leads to small size of land, uneconomic and fragmented land holding. Apart from this, social factors are also responsible for the poor performance of the agriculture like, illiteracy, ignorance, superstitious and conservative ideas stands in the way of the adoption of the modern technology. Therefore, the farmers are against to use of bone manure and

chemical fertilizers and also against to kill the monkey and rats at the farm. The facility of the finance is not sufficient to increase the growth of the agriculture sector. But money is essential for the short period as well as long period in order to increase the agricultural production and market facilities are also not adequate among the farmers in rural areas. Therefore, farmers are forced to sell their crops to the middleman and they take away large portion of their profit. Along with this, Indian market has no facilities of godowns and warehousing where the cultivators may store their produce for a better price. Transportation facilities are a major cause for farmers getting low price of the produce.

Institutional problems are responsible for deteriorating condition of the agriculture sector in the country. Small size, fragmentation and subdivision of the land holdings are the main cause to slow growth of the agriculture sector, so it failed to create profitable employment to the farmers. In India, average size of the holding is 1.8 hectares while in developed countries like U.S.A. it is 122 hectares (R.K Lekhi, 2012). Land tenure system is not insignificant for the development of the Indian agriculture sector. Even after the abolition of the Zamindari system and enactment of the tenancy legislations, the condition of the tenants is still far from satisfaction. Therefore, the cultivators have to pay high rent to the landlords. All these activities have led to decreased incentives and confidence of farmers.

Technological factors are also responsible for low agricultural productivity in the country. Indian agriculture is suffering from lack of inappropriate irrigation facilities. Thus, the farmers are still depends upon the rainfall and the major part of the land is uncultivated due to shortage of rainfall in the several part of India. Therefore, the productivity of the agriculture sector is decreasing. The change of agricultural technologies has adverse effects on the distribution of income in rural areas. It contributed to widening the disparities in income between land owners on the one hand and land less labourers and tenants on the other. Indian agriculture sector is also suffering from inadequate use of the inputs like fertilizers and HYV seeds and also not getting sufficient quantity of the fertilizers and good quality of the seeds. Moreover, the allocation of the seeds and fertilizers is inappropriate at national level. The farmers have been using inefficient method and techniques of cultivation. Most of the farmers are using traditional techniques of the cultivation like wooden plough and other implements. Therefore, the growth of the agriculture sector is decreasing in

the country. The cropping pattern of the agriculture is changing from food crops to non-food or cash crops and the prices of the cash crops are increasing more and more so, large numbers of the lands have been diverting from the food crops to non-food crops or commercial crops. This has been increasing the problems of food crisis in the country. Agriculture sector is suffering from indebtedness because farmers are borrowing loans for meeting productive and unproductive purposes and falling into the debt trap as results of crop failure, low income arising due to low price of the crops, high rate of interest charged by the money lenders. Therefore, farmers are not sufficient money to repay their loans on the basis of the agricultural productivity. Thus, it is observed that “Indian farmers is born in debt, lives in debt and dies in debt.” The facility of the agricultural research is not sufficient among the cultivators. They have been depriving to take the advantage of the research institutions and also there is a lack of co-ordination between laboratory and farm. The standards of living of the farmers are not good, they are very poor. On account of their poor quality, they are needed more quantity which increases the burden on the farmers. The policy and programmes are also responsible for low productivity of the agriculture because land reform policy and its legislation are not appropriate for the agriculture sector. Excessive dependency on the administrative machinery has adversely affected agricultural development and delay in implementation and uncertainty about right on the land diminished land productivity.

The word credit is derived from the Latin word “Credire” which means to believe or to have a trust or have a faith or confidence. Credit is a means of obtaining resources at a certain period of time, with an obligation to repay it at subsequent period in accordance with the terms and conditions of the credit obtained” (RBI, 1954). Credit is the most essential for the development of the economic activities for producers and agriculturist. Credit is an important input in the production process and economic development. It is a financial asset of the bank. It helps both the bank and the borrower in strengthening their financial status (Banerjee, 1977). It is said that “Credit supports the farmers as the hangman’s rope supports the hanged”. Therefore, to raise the agricultural production, an adequate and timely credit is most essential. In the developing countries, farmers cannot fulfill their credit needs from their savings, because their income is insufficient to provide all basic necessities of life, and the growth of the crop productivity was low due to traditional methods of the cultivation

and there was an urgent need to increase the agriculture production to get the self-sufficiency. Therefore, to fulfill these requirements agriculture credit is essential so that farmers may adopt new techniques of the production. It is observed that there may be positive relationship between agricultural growth and availability of the credit. If the availability of the credit high then the growth of the agriculture sector will be proceed in same direction. Credit in the agriculture sector may be divided into short-term, medium and long term to facilitate the development of the lands, break the agricultural stagnation and improve the condition of the farmers. It is not only break the agricultural stagnation but also prevent small and marginal farmers to sell their land, migration and commit the suicide. Therefore, there is a need of study the agricultural credit among small and marginal farmers in the country.

I.3 AGRICULTURAL CREDIT

The agriculture sector requires credit for both working capital and investment. The demand for short and long term credit started rising at a faster rate after modernization of agriculture in the mid 1960's as the farmers had to purchase costly inputs like fertilizers, high yielding varieties seeds and pesticides from the market. In addition, credit was also required for land improvement, to purchase tractors, to build farm structures and dig tube wells. The diversification of the agriculture and rapid growth of the agro-processing has increased the demand of the credit among the farmers in the country.

It is also a major source to improve the soil fertility, decrease the regional disparities and solve the problem of the food security in several parts of India. Agriculture credit is significant for the development of the irrigation facilities, water management, and land development in rural areas and helpful to raise the income, saving and improve the standard of the living of the small and marginal farmers. It not only helps the farmers to increase the production but also to drive day to day consumption, paying for medical, educational and social and religious purposes. In addition, it is the vital tool for enhancing economic activities and support to farmers for better protection as well as making balance in the economy. Institutional credit to agriculture has to be allocated significantly to meet their demand at affordable rates and cost-effective mechanism has to be found for its delivery among small and marginal farmers in the state and in country.

The source of the borrowing can be described into institutional and non- institutional. Institutional source of borrowing are public sectors banks. The main non-institutional sources of the borrowing credit are money lenders who have been operating in India for centuries. Other non-institutional sources are friends, relatives, shopkeepers, and landlords. Money lenders lend for both productive purposes for non-productive purposes and for short and long period, they have very easily accessible and have personal contact with the small and marginal farmers. Borrowing from money lenders is very flexible but they charge very high rate of interest on loans. Often the farmers have to mortgage their land to repay debt and interest.

Institutional source of the credit include cooperative banks, commercial banks and regional rural banks. Institutional loans are generally for the productive purposes and carry much lower interest rates. The state governments also provide loans to farmers besides extending financial support to State Cooperative Banks and Land Development Banks. The Primary Agricultural Cooperative Credit Societies (PACS) provide mainly short term and medium terms loans to the borrowers to finance current inputs, while the Land Development Banks provide long term credit for capital expenditure. The Commercial Banks and Regional Rural Banks provide both short and long term credit for agricultural and allied activities. The NABARD is the apex institution that provides finance to the cooperative banks, commercial banks and regional rural banks. At the top is the Reserve Bank of India which gives overall guidance and provides financial support to NABARD.

There are some criteria for various agencies has to build up for agricultural credit. According to Mr. Louis tardy, the various criteria of the suitable type of the credit is that, It should be granted for a sufficiently long period, accordingly length of the operation, and the rate of interest for the same credit should be very low amongst the farmers. The security of the agriculture credit should not necessarily be materials but it should be in the form of a personal credit secured mainly by the borrower's moral standing and farming ability. During economic recession, it should be adopted to the average yield and capacity for repayment of the farm. There should be also a possibility of extension of the term of credit in the event of crop failure, find out the facts about the borrowers and it should be made locally available without delay.

I.4 PROBLEMS OF AGRICULTURAL CREDIT SYSTEM

The Government of India is trying to increase the flow of the credit in agriculture sector. But still, there are various problems of agriculture credit system. The coverage area of the agriculture credit agencies is limited because 80 per cent farmers are small and marginal and some of the areas are remotely located. Catering to their requirements of farmers of such areas becomes very difficult and costly. So, the people of the poor section depend on the money lenders and landlords to meet their requirements. The paper formalities of institutional agencies are very complicated to avail credit facilities therefore majority of illiterate farmers find the procedure difficult and time taking. So they prefer to borrow from money lenders at higher rate of the interest. On the other hand, there is large gap between submission of the loan application and approval of the loans because the financial institutions are situated in cities, farmers have to go several time to fulfill many formalities to receive the credit. This results to waste of the time and man power.

The financial agencies have been facing the problems of lack of co-ordination. Therefore, the flow of agricultural credit to those areas where credit institutions are strong and the areas with less developed credit institutions, have less availability of agricultural credit. Due to the paucity of the funds agricultural production is decreasing and poverty is increasing among small and marginal farmers. Regional imbalances are also prevailing in the supply of the agricultural credit in many states. So, they adopted new technology and rapid growth in crop productivity. On the other hand, agriculture in other states remained low productive, and is deprived of new technology. Apart from this, farmers would like to avail credit for productive purposes and non-productive purposes of the family. But for the consumption needs, banks are highly associated to the urban areas. Therefore, farmers are compelled to borrow from the money lenders for non-productive purposes such as marriage and others. Hence, they have been trapping and commit suicide. Financial institutions are interested to provide the credit facilities to the rich farmers, industry and safest field rather than the agriculture sector, due to decreasing share in the economic development. So, there is the dominance of the private agencies and professional money lenders. Due to the emergence of immense importance and problems of agricultural credit the Government of India had followed a dynamic agricultural credit structure.

I.5 STRUCTURE OF THE AGRICULTURAL CREDIT SYSTEM

The government of India has appointed Reserve Bank of India to allocate the agricultural credit but this agency appointed National Bank for Agriculture and Rural Development (NABARD) in 1982. This institution has three tier structures to allocate the agriculture credit in rural areas, which consists of commercial banks, rural co-operative credit institutions and regional rural banks. Rural co-operative credit institutions provide two types of the loans i.e., short term credit and long term credit in rural areas. Long term credit institutions consists state co-operative banks, agricultural and rural development banks and primary co-operative agricultural and rural development banks. Short run credit institutions include state co-operative banks, district central co-operative banks and primary agricultural credit societies. The main sources of the agricultural credit are as follows:

I.6 INSTITUTIONAL CREDIT AGENCIES

The government of India started to intervene for providing farmers some protection against the unfair practices of the money lenders in 20th century. In this many legislation (Civil Court) were passed to control the action of the money lenders and unpracticed work among small and marginal farmers in India. The legislation made strong procedures for the registration of money lenders and fixation of the maximum rate of interest. Due to this, the alternative institutional source of finance came into existence for the farmers to free the farmers from the grip of the money lenders. Therefore, the first step in this direction was the passing of the Co-operative Credit Societies Acts of 1904 and 1912, passing of Reserve Bank of India Act 1934, District Centre Co-operative Bank Act and Land Development Banks Act. Hence, the availability of the institutional credit for the agricultural activities and small and marginal farmers became very easy in the country. These agencies have been providing and granting loans on the basis of their recovery.

Institutional sources of the credit can be broadly classified into four distinct phases. First phase (1904- 1969), it is the period of co-operatives agencies and Reserve Bank of India was dominant for providing credit. Second phase (1969-1975), this period is known for nationalization of Commercial Banks and setting up Regional Rural Bank (RRBs) to provide credit to small and marginal farmers and weaker sections of

society. Third phase (1975 -1990) is known for setting up National Bank for Agriculture and Rural Development (NABARD). Fourth phase (1999 onward is seen financial sector reform in the country. The performance of the institutional credit agencies has achieved significant growth after independence in India. The credit flow to agriculture in India was Rs. 1,865 crores in 1971-72, increased to Rs. 11,202 crores in 1991-92, become Rs. 62,045 crores in 2001-02, and further become Rs. 5, 11,029 crores in 2011-12 to Rs. 8, 40,643 crores in 2014-15(Handbook of Statistics of Indian Economy, 2014-15).

Institutional credit agencies have been facing several problems in India. Therefore, they have failed to meet agricultural credit among small and marginal farmers in the country. Co-operative banks, Commercial banks and Regional Rural Banks have been facing high cost and risky rural lending. So, they are avoiding their target for agriculture credit. To provide timely and adequate credit to small and marginal farmers is a problem for institutional credit agencies. Hence, the farmers are dependent on non-institutional source for the agricultural credit and are suicide in several part of the India due to increasing indebtedness and malpractices of the non-institutional credit agencies in India. Institutional credit agencies have been broadly described as follows:

1.6.1 CO-OPERATIVE BANKS

The problem of the agricultural credit has attracted the attention of the government in 19 century to reduce the strike among village peasant community. Hence, Raiffeisen was able to improve the condition of the farmers in Germany by providing low cost credit through the co-operative societies. In this way, Madras Government in 1892 appointed Mr. Nicholson to study the structure of the co-operatives in India. He has submitted his report, and said that co-operative credit societies may be organized in India. Hence first Co-operative Credit Societies Act was passed by the government in 1904 in India. It is noticed that this act was insufficient to meet the requirement of the people. This problem was removed by the co-operative society's act 1912. This act was successful till 1914 after to review the growth of this act Maclegan committee was set up. This committee submitted its report in 1915 and made three tier structure of the co-operative credit such as co-operative credit institutions provide two types of the loans i.e., short term credit and long term credit in rural areas. Long term credit

institutions consists state co-operative agriculture and rural development banks (Central land development banks) and primary co-operative agriculture and rural development banks (Primary land development banks). Short run credit institutions include state co-operative banks, district central co-operative banks and primary agricultural credit societies. The short and medium term structure of the co-operative credit is three tier systems. The state co-operative banks are apex bank in the state level; central co-operative banks are at district level and primary credit societies at village level. The central and primary credit societies depend on districts and villages in the state but there will be only one apex bank in the state. The objectives of the co-operative credit institutions are vital landmark for the development of the rural areas. They are also best institutions for the development of agricultural activities and provide short term, medium and long term credit for the operation of the agriculture sector.

The performance of the co-operative institutions has increased for the development of the agriculture credit among small and marginal farmers in India. The amount of credit sanctioned by the co-operative institutions to agriculture was Rs.769 crore in 1971-72 and increased to Rs.39, 404 crores in 2005-06, Rs.63, 497 crores by 2009-10, and further increased to Rs. 1, 38,469 crores in 2014-15 at national level. The short term credit flow by co-operatives institutions increased from Rs.881 crores in 1983-84 to Rs.34, 930 crores by 2005-06, and further become Rs.1, 13,574 crores in 2013-14 in India. On the other hand, the long term credit was Rs.305 crores in 1975-76 and increased to Rs.4, 474 crores in 2005-06, and further become Rs. 6,389 crores in 2013-14 in India. It is found that the growth of the long term credit of the co-operative institutions was much lower compared to short term credit in India (Handbook of Statistics of Indian Economy, 2014-15).

In spite of the significant growth of the co-operative credit institutions in the development of agricultural credit, it is facing several problems like crisis of resources, low profitability, poor recovery rates and accumulation and increasing non-performing assets in the country. The main reasons of the co-operatives failure are that they have been unable to increase their own resources locally; instead they depend on other sources of the funds like government. The financial position of the co-operative credit system is poor and deteriorating and recovery rates are low and

decreasing for all categories of co-operatives. There are also regional imbalances in the distribution of the credit like co-operative credit agencies are highly biased towards bigger farmers.

I.6.2 COMMERCIAL BANKS

Commercial banks were established in 1969 in India. The major change in banking sector took place when 14 commercial banks nationalized in 1969 and 6 banks in April 1980. The objective of the banks was for larger social purpose and to enhance rapid growth of agricultural production as well as development of backward areas. It's also provides funds for adopting new technology, rural development, improve the productivity of the agriculture sector. Initially, commercial banks were active for the development of the trade, commerce, and industry but after due to risky nature of the agriculture and heavy dependence on the monsoon changed the serving condition of the banks. It has been finding that commercial banks are providing credit for the development of the agriculture sector in the country. The growth of the commercial banks could be seen from 1969 in the country. The total number of the commercial banks branches were 8262 in 1969, and only 1860 banks were located in rural or semi urban areas during same year. The share of the agricultural borrowings accounts was only 2 lakh in 1969 and had increased to 16 million and the loans issued amounted to Rs. 72,886 crores in 2004-05 in the country (G.S.Bhalla, 2007). The credit flow to agriculture by commercial banks (public sector and private sector banks) was Rs. 3,131 crores in 1985-86 and increased to Rs. 5, 99,691 crores in 2014-15 at national level. It is found that the share of commercial banks was only 21 per cent in 1980s and increased to 43 per cent in 1991-92 in India. To acquire self- sufficiency in agriculture and purchasing new technology, seeds and fertilizers, agricultural credit increased to 57 per cent in 2002-03, and increased to 71 per cent in 2014-15 in India (Handbook of Statistics of Indian Economy, 2014)

Commercial banks have achieved significant growth in the country. But there are large regional disparities in the distribution of the bank credit in agriculture sector in national level. It is seen that the percentage of the southern region had the highest and northern region the second highest per cent share in the total agricultural credit in India. The percentage of the other region have relatively lower share of the agricultural credit (G.S. Bhalla, 2007). The growth of the commercial banks is away

from lending small and marginal farmers in the country. On the other hand, there are various differences in credit- deposit ratio of the commercial banks in rural and urban areas at the national level. The credit-deposit ratio in urban areas is higher than rural and semi-rural areas. This is a reason that commercial banks restricted rural lending. It may be also due to lack of demand because of limited productive activities at the lower level.

The quality of the preparing scheme is deteriorating in the country. In the case of integrated rural development program (IRDP).The purpose of the scheme was to improve the condition of the rural people, but this scheme was more attractive towards richer sections and away from the small and marginal farmers. The loans were issued for the scheme has also not been properly evaluated. The recovery positions of the credit of the commercial banks are big problem in the country. The overdue of the credit have been adversely affecting the profitability of the commercial banks. Therefore, the percentage of the commercial banks in agriculture credit has been decreasing. It may be also due to the large number of the small accounts which adversely affecting the profitability of the banks. The commercial banks have failed to serve those areas where other financial institutions also failed to increase the agricultural credit. This results that the large part of the rural India is still deprived from commercial banks. There is also lack of co-ordination among financial institutions. The flow of agricultural credit to those areas with developed credit institutions is strong and the areas with less developed credit institutions have less availability of agricultural credit in the country.

I.6.3 REGIONAL RURAL BANK

The Regional Rural Banks (RRBs) were introduced October 2, 1975 to strengthen the institutional credit structure in rural areas. The main objectives of the regional rural banks are to take banking to the doorsteps of the rural areas where the banking facilities were not available and provide cheaper institutional credit to the weaker sections of society. Prior the commercial banks, co-operative banks were active to provide the credit for the agriculture development in the rural areas. But, they were not able to meet the requirements of the rural people. Therefore, a committee under chairmanship of Shri N. Narisimham was set up to give the suggestion to increase the credit in the rural areas. This committee felt that regional rural banks will be best to

increase the agriculture credit at low cost in the rural areas. Hence, in 1975 five regional rural banks were set up at Gorakhpur and Moradabad in Uttar Pradesh, Bhiwani in Haryana, Jaipur in Rajasthan, and Malda in West Bengal.

Regional Rural Banks were the landmark for the development of the rural and agriculture areas in the state and India. The purpose of the regional rural banks to provide credit those regions where the availability of the institutional credit was inadequate but the potential of the agriculture development is very high. The regional rural banks were also beneficial for small and marginal farmers, landless labourers, agricultural labours and others where productivity of agriculture is potentially not good. They also seek out the functional gap in the present institutional structure and fill the time gap with the help of the credit.

The flow of agriculture credit from regional rural banks was Rs. 596 crores in 1991-92, increased to Rs. 4,854 crores in 2001-02, and further increased to Rs. 1, 02,483 crores in 2014-15 in India. On other hand, it is found that the share of regional rural banks to flow the agriculture credit was only 2.3 per cent in 1975, with 5.3 per cent in 1980s, 11 per cent in 2001-02, and 12 per cent in 2014-15 in India (Handbooks of Statistics on Indian Economy, 2014-15) at national level. It is found that regional rural banks has achieved substantial growth inflow of the credit in the eleventh plan (2007-2012) but share of RRBs continues remained around 10 per cent (Dutt and Sundharam 2012) in the country. The performances of the regional rural banks are quite well but they are facing various problems in the country such as, low recovery rate, lack of resource, and poor management system. As results, recovery of agricultural credit is low. Therefore, they have low earning capacity.

I.7 NON-INSTITUTIONAL CREDIT AGENCIES

Non-institutional sources such as moneylenders, landlords, friends, and relatives are unorganized sources of agricultural credits in rural areas. Non-institutional sources of agriculture credit are professional moneylenders, landlords, inputs suppliers, commission agents and also the large farmers. The percentage of the non-institutional credit to agriculture was 92.7 per cent in 1951 in all over India. But latter, the percentage of the non-institutional credit declined to 38.9 per cent in 2002, and

become 36.44 per cent in 2012-13 in all India (Key Indicators of Situation of Agricultural Households in India, NSSO, 2013).

I.7.1 MONEY LENDERS

Money lenders are still dominant in providing agriculture credit in rural areas despite rapid development of banks. They provide money to buy seeds, fertilizers, insecticides, and agricultural implements. In rural areas, the money lenders are divided into two categories. First: The agriculturist money lenders operate their farming with money lending. Their main occupation is farming. They are the owner of that land, and produces more than their requirements. They have enough money. Their contribution in the total borrowing is about 25 per cent. Second: professional money lenders are those whose main occupation is money lending. They combined it in the development of the rural production. They contribute 45 per cent to rural finance (R.K. Lekhi, 2012). Money lenders provide money to buy seeds, fertilizers, insecticides, and agricultural implements. Therefore, the share of money lenders in total agriculture credit was 69.7 per cent in 1951-52 in India. Further, the share of money lenders in agriculture credit declined 17.5 per cent in 1991, but after increased and increased to 26.8 per cent in 2002, and further increased to 29.6 per cent in 2013 in India. Small and marginal farmers are still dependent on money lenders for productive and unproductive necessities. Money lenders works among the poor farmers, so they do illegal practices among the cultivators and farmers. Some of the malpractices are such as charge very high rate of interest on the total amount and take the thumb impression of the borrower on the blank paper. He may change the records in the register and takes full advantage of the illiteracy of cultivators. He charges high rate of the interest on the total amount and use the method of compound rate of interest. He charges high rate of the interest for the whole year even the money has been taken in the middle year and force to farmers to repayment of the interest on the principal, if the cultivators delay to refund the money, he take grain from the lands and threaten the cultivators.

I.7.2 RELATIVES, FRIENDS AND TRADERS

Traders, Relatives and friends are still dominant source of the agriculture credit for the farmers in rural areas. The percentage of Relatives and Friends was 11.5 per cent in 1981, and decreased to 4.6 per cent in 1991, and further decreased to 4.3 per cent in 2013 in India. On the other hand, the percentage of Traders and Commission Agents was 5.8 per cent in 1981 and become 2.6 per cent in 2013 per cent in the country. The percentage of Landlords was 3.6 per cent in 1981 and become 0.4 per cent in 2013 at national level. It is observed that the percentage of agricultural credit flowed by non-institutional sources is still very high in India. In facts, the majority of the small and marginal farmers are still excluded from the banking system. The strict rule and unfavorable attitude of the banks, farmers forced to take credit through microfinance institution. Hence microfinance institutions play an important role in agricultural development. The emergence of these institutions was possible with the help of NABARD and RBI. These institutions increase their resources by mobilizing savings, accessing capital market in agriculture sector.

I.8 NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT (NABARD)

The Government of India has established the National Bank for Agricultural and Rural Development (NABARD) in 1982. It is an apex and refinance organization. NABARD provides refinance to investment and credit to agriculture, small scale industry, Village industries, artisans and other allied activities to promote rural development. It provides short and long term credit to cooperatives, regional rural banks. The purpose of the Bank is to providing and regulating credit and other facilities for the promotion and development of agriculture and allied activities in rural areas. In brief, NABARD has three main functions namely development, credit and supervision. Development includes those activities which ultimately enhance credit absorption capacity, build awareness and allow policy advocacy for various causes. Credit primarily covers refinancing of cooperatives, RRB's and commercial banks and finance for rural infrastructure and supervision. It also conducts training, consultancy and research relating to agricultural finance and agricultural and rural development.

The performance of the NABARD could be seen from last two decades in India. It has taken several initiatives to meet the credit requirement for the development of agriculture and rural areas. The Government has established Rural Infrastructural Development Fund within NABARD from April 1995. The fund provides loans to State Governments and State owned Corporations for completing on-going projects relating to medium and minor irrigation, soil conservation, watershed management and other forms and rural infrastructure. NABARD has also implemented a “Partnership Model” of linking of self-help groups to commercial banks along with involvement of a NGO. The model has been largely successful in delivering financial services to rural poor. It has also introduced a rehabilitation programme for the weak District cooperative credit banks and State cooperative banks. NABARD has been running 1, 73,000 such projects with Rs 34, 678 crores.

The strategies of the all sources of the rural financial institutions for building agriculture sector significant contribution to the economic growth of the country are like flow of the institutional credit to agriculture has to be increased, provide formal credit for the rural poor and disadvantaged and agriculturally less developed regions has to be improved and the economic viability of rural banking system has to be insured over time. The accessibility of the formal agricultural credit is not adequate to rural poor, small and marginal farmers and agriculturally less areas. Linking of Self Help Groups (SHGs) with financial institutions with the help of non-governmental organization (NGOs) has yielding positive results in the form of asset creation, increased income and greater employment for these disadvantaged sections of the society. The SHGs are encouraging to save and provide micro finance to meet consumption and production requirements to the poor in rural areas.

The agricultural credit institutions are making credit delivery very effective to provide adequate credit requirements in agriculture, inputs, and marketing activities of the farmers. It is found that the institutions are planning to provide vast credit support like animal husbandry, fisheries, and agricultural services in rural areas. They are also planning to provide new loan products such as marketing credit, loan to warehouse, export credit and venture capital for agricultural entrepreneurship to meet the challenges faced by globalization. The credit institutions are also strategizing to support the process of agricultural diversification and commercialization.

I.9 REVIEW OF LITERATURE

In this context, the review of literature plays an important role for any research work in social science. It is a justification of the present study can be clarified by reviewing the available literature on the subject. It reveals the nature and the scope of agricultural development and agricultural credit laying the foundation for analysing the interrelationships between them. Analysing the literature in context to present study will help us in displaying the impact of agricultural credit on socio-economic conditions of small and marginal framers in the state of Uttar Pradesh. For rationality and convenience the review is organized according to their themes and year-wise. Therefore, an attempt has been made to review the available literature on the subjects to find out gaps in research before finally selecting the present topic study. The available review of literature is given below:

I.9.1 LITERATURE RELATED TO AGRICULTURE AND ITS DETERMINANTS

There are number of studies at states level and national level that analyses the determinants of agriculture sector. These are sum up by following paragraphs:

Desai and Namboodiri (1997) has analysed their views on the impact of price and non-price factor on agriculture section. The study found that price factor had a less influence on growth in total factor productivity of agriculture than non-price factors. He observed that the single most important determinant of technical change in agriculture was government investment in agriculture research and development, education and extension services.

Mahadevan (2003) described that India is basically agrarian economy was remained closed until the early 1990s. In 1990s, the Indian economy liberalizes the economy to benefit from globalization. The reforms were, both internal and external. However, it must be ensured to promote agricultural productivity. The economic reforms were implemented to educate and training the farmers to adopt new foreign technology. The reforms for the successful globalization there is need for good governance and stability in the political and economic environment. The study also found that the reforms have impacted the Indian economy. However, the process of liberalization has been gradual and remains incomplete. The study suggested that wake of economic

and political stability. She also steers to reap the benefit of increased productivity growth in the agriculture sector.

Singh (2004) identified that Indian agriculture sector is the largest private sector enterprise in the country and provides huge employment to the people. He found that low productivity in the agriculture sector due to lack of research and development, growing disparity between potential yields due to improper technology transfer mechanism, low productivity of the rain fed crops, low inputs use and efficiency in the country. He suggested that to improve the linkages between researcher and farmers and rural people to develop sustainable agricultural technologies for the marginal and small land holders. He also suggested that to develop labour saving and time saving technologies to fuel wood and water collection.

Bajpai and Nicole (2005) studied on agricultural performance in Uttar Pradesh. They highlighted the issues and problems of the agriculture sector in Uttar Pradesh. He analysed the various issues and problems of agriculture sector from 1960 with the relation of Punjab and Haryana. They found that the performance of the public investment in agriculture increased the productivity of the agriculture sector in Uttar Pradesh. Paper also found that Punjab and Haryana had invested heavily in the rural infrastructure as road, irrigation, power and research and development to increase the production of the agriculture sector and said that the western region of the Uttar Pradesh is highly prosperous in the development of infrastructure compare to the eastern region.

Birthal et al., (2009) analysed the growth of the agriculture sector among major states of India during 1980 to 2005. They found that the share of the agriculture declined in the national income due to transfer of the labour from agriculture to non-agriculture sectors. They suggested that low labour productivity in agriculture to the economic growth can be overcome with the help of the growth increasing labour intensive technologies in the short run. This paper concluded that technology led improvement can increase the faster growth of the agriculture sector in all the state of the Uttar Pradesh.

Dev (2009) pointed his views on structural reforms and agriculture issues and policies. This study found that structural reforms on agriculture have positive and

negative effects on agriculture sector. The term of trade, private investment, opportunities for technology and specializations increased for the agriculture sector. On the other hand, trade reform affected some crops and increased dependency on the global prices. Financial liberalization also have effected on investment and credit. This study suggested that the Government special programmes like, National Food Security Mission (NFSM), Rastriya Krishi VikasYojana (RKVY), National Horticulture Mission (NHM) and Agricultural Technology Management Agencies (ATMA) would be useful, if implemented properly to improving and equity in agriculture.

Pandey et al., (2012) focused on agricultural productivity levels and variation in agricultural performance across district and regions of Uttar Pradesh. The study found that performance of agriculture plays an important role for reducing poverty. The analysis has revealed that the features of those districts that have been in low productively. There are 32 districts in Uttar Pradesh where the agricultural productivity low. These districts have low irrigation, low fertilizers use and less area allotted to high value fruits and vegetable crops. Irrigation and fertilizers use have been found the major determinates of agricultural development. The results shows that 1.0 per cent increase in irrigated area would increase agricultural productivity by 0.77 per cent and 1.0 per cent increase in fertilizer use would increase agricultural by 0.27 per cent. On the other hand, the study also found that the linkages between agricultural productivity and poverty. 1.0 per cent increase in land productivity reduces poverty by 0.43 per cent and 1.0 per cent reduction in labour force on agriculture has resulted 0.77 per cent reduction in poverty. The study suggested that there is need to shift the labour force from farm to non-farm and develop research and policies in Uttar Pradesh.

Raman and Kumari (2012) described district and regional level disparities in agriculture development in Uttar Pradesh. UNDP methodology and composite index constructed at the district level and regional level in Uttar Pradesh. This study concluded that the western region of agriculture development in Uttar Pradesh is highly progressive, and Bundelkhand region has been the least developed over the period 1990-1991 to 2008-09. The district and region of the western Uttar Pradesh have advanced agriculture commercialized and advanced in technology. This region is

highly influenced to green and technical revolution, resulted high contribution in export and food production of the state. This study suggested that region specific policies could be improved the problem of the agriculture growth, and need to develop a framework that credit and subsidy to the neediest region.

Dev (2012) studied on the challenges and opportunities of small farmers and focused on challenges of small holding agriculture in India. He also focused on trends in agriculture growth, cultivation patterns, participation of small holdings, performance of small holders, liking small holders with market including value chains, role of small holders in enhancing food security and employment. The study found that small holdings needs credit for both consumption and investment purposes. The overall all indebtedness is not higher for small and marginal farmers compared to large farmers. However, the indebtedness for the small and marginal farmers from formal institutional sources is lower than large farmers, and inverse is true in the case of informal sources. This study also found that formal sources increase with the size of land. The share of formal sources varies from 22.6 per cent to 38 per cent for small and marginal farmers while it varies from 65 per cent to 68 per cent for medium to large farmers.

Tyagi (2012) highlighted the growth stages, challenges and problems of development of Indian agriculture sector. Agriculture is the backbone of the Indian economy, about 65 per cent of the Indian population depends on agriculture for their livelihood. She used secondary data for the study. The finding of the study is that the productivity of the agriculture capital formation is decreasing. There is inadequate credit delivery system and decline the growth of the new technology. The green revolution massively increased the production of the vital food grains in India.

Adhau (2013) has shown that agriculture sector is the backbone for any economic development. Industrial development is possible when agricultural activities will be grown. In this study data collected by the secondary sources, with the help of the books, reports, and articles. This study found that Indian agriculture began 9000 BCE with cultivation of the plants, and domestication of the crops and animal. The British era made India agriculture in global market. This study concluded that after independence, India has become one of the largest producers of the wheat, edible oils, potato, spices, rubber, tea, fishing, fruits, and vegetables in the world while India is

the second largest producer of the groundnut, wheat, vegetables, sugar and fish in the world. India is also third producer of tobacco and rice, fourth largest producer of coarse grains.

Shafiqullah (2013) analyzed the special pattern of regional disparities, variation in the levels of agricultural development and casual relationship between agricultural development and selected variables of regional disparities in Uttar Pradesh. The study found that the north-eastern and southern district is backward in term of agricultural development. The western and central plain district is high in term of agricultural development. The Tarai districts revels backwardness in term of all variables. The relationship between levels of agricultural development and levels of regional disparities are increased from west to central and eastern region. The study suggested that the districts having low level of development should give top priority so that social justice may be achieved.

Singh (2013) studied on income and livelihood issues of farmers in Uttar Pradesh. This study focused on the income level and livelihood issues of farmers on the basis of large field study in Uttar Pradesh. This study has shown that agriculture is not able to provide substance to a large number of farmers in the state. The per day per capita income from agriculture has been found to be Rs. 15 for marginal farmers, Rs. 31 for small farmers, and Rs. 45 for medium farmers , and Rs. 84 for the large farmers in 2011-12. It means that all farmers, who constitute over three fourth of U.P. farmers falls below the poverty line Rs. 22. The study suggested a multi-sectorial integrated strategy of promoting agriculture and non-agricultural activities in the rural areas embedded in the local conditions resources and institutions to meet the challenges of sustainable development in the state.

Ganguli (2015) focused on agrarian policies and programmes for strengthening rural India. He found that agriculture has been feeding the entire world, but the share of agriculture has gradually declined to less than 15 per cent. Therefore, agriculture sector has become the matter of concern in the country. He pointed out towards that the crisis in the Indian agricultural sector cropped up as a result privatization, liberalization and globalization during the nineties. The impact of these changes was on the small and marginal farmers. The major farming community of the country farm saved seeds was replaced by corporate seeds, which needed fertilizers and pesticides.

Agriculture becomes a costly affair. The Indian small farmers failed to adjust with these challenge. He also found that Managing finance for the agriculture work becomes a difficult task. Understanding the problems that have cropped up in farming, some small farmers gave up the farming and shifted to the other occupations. On the other hand, he also pointed that government is trying hard with positive policies to help the farmers who are the most vulnerable group of the society. He suggested that acceleration of growth in this sector will not push over all GDP, but also promote inclusive growth. Although the share of agriculture has declined in the GDP, it made significant advances in agriculture production in the recent decades.

Pal (2016) found that agricultural sector plays an important role in India in term of population engaged in agricultural activities. Therefore, rapid growth of agriculture is necessary for the development of rural economy. But, for rapid growth of agricultural sector huge capital is required. Capital implies from credit required for the purchase of inputs, machinery and new technology. This paper found that access and timely credit especially for small and marginal farmers is crucial for improving agricultural productivity. It is also observed that credit flow doubled in the eleventh plan but mainly by credit decreasing with increasing in farmer's coverage and still leaving 60 per cent of farmers without institutional credit. The study suggested that primary agricultural credit societies (PACS) and Joint Liability Groups (JLG) has widen their coverage area and Self-Help Groups (SHGs) bank linkage programme is still the most appropriate financial mechanism to increase credit to marginal and dry land farmers.

I.9.2 LITERATURE RELATED TO AGRICULTURAL CREDIT AND AGRICULTURAL DEVELOPMENT

There are number of studies analyse the importance of agricultural credit in the area of agricultural development at states, national and global level. These are sum up by following paragraphs:

Bhende (1986) found that money lenders are an important source of credit in the states of Andhra Pradesh whereas the Maharashtra village co-operatives societies and land development banks play an important role and institutional credit is concentrated in richer household having large farm and family size and who are more educated. But it is also found that those house hold who framed more land, are less educated,

had lower livestock, and had more irrigated land related more on informal credit. The study also explains that in the three villages about 40 per cent to 60 per cent from private money lenders is utilized for domestic purpose. The large defaulter of the loans who had borrowed most from institutional sources, relatively households with larger families and higher dependency rates are more prone to default.

Zuberi (1989) analysed that excess investment in the development of the tubewells and canals and water and irrigation infrastructure increased since 1960. The investment increased the agricultural productivity as well as utilization of seeds and fertilizers. The consumption of fertilizers increased. In the same period, the credit disbursement among the farmers through institutional sources increased. The study also shows that increase in the use of seed fertilizers and technology, per hectare productivity in Pakistan is lower relative to other LDCs in the region. Increasing seed, fertilizers and technology is not the sufficient conditions of modernization of agriculture. The study suggested that the strategy designed to increase productivity in the agriculture sector must include investment in human capital, particularly in primary and secondary education.

Sarap (1991) focused on primary survey data from six villages in Orissa and identify the system of guarantee prevalent in informal credit markets with diverse socio-economic conditions. The study found that the system of guarantee to the lenders in rural credit market in less developed countries is much more complex and diverse. The money lenders have effective mechanism, including collateral requirement and personal relationship based on cast, kinship and proximity of borrowers is in a position to screen and monitor the borrowers with negligible cost so that there is hardly any loss due to default of loan. There is ongoing relationship between the parties in a factor which helps the lenders recover loans. The policies ought to direct to provide cheaper credit at reasonable rates of interest and effective intervention ought to be. There outside the credit market such as primary health care delivery system, so that the borrowers not to seek credit for medical purpose at unfavorable rates of interest.

Swami Nathan (1991) described on banking sector reforms and credit flow to Indian agriculture. He stressed on banking sector reforms strongly focus on agriculture sector due to highly risky activity and households are credit rationed by the formal banking

sector. The study found that availability of concessional credit has been supporting the farmers to adopt new technology, encourage investment in machinery and irrigation and augment the use of quality of inputs to increase agricultural productivity.

Jugale (1992) has stated his views on co-operative credit in Indian agriculture and discussed the socio-economic impact of co-operative credit on agriculture sector. In his study, he found that the real success of cooperative credit depends on achievements of the primary agriculture society (PACS) and Land Development banks (LDBs) at micro level. The PACS are engaged with short term and medium term loans whereas long term loans are being disbursed by LDBs. But it is seen that most of the benefits the credit facilities are being harnessed by rich class of agriculture sector. On the other hand, these credit facilities are mainly responsible for transforming the cropping and land use patterns.

Gupta and Chaudhuri (1997) explained that farmers have two types of credit i.e. formal and informal. Informal credit and formal credit may be either substitutes or complements to each other's. The supply of credit controlled by the official and took bribe by the farmers. The formal interest rate is administratively determined. However, the effective interest rate for formal credit incorporates the bribe and official determines the bribing rates as well as the amount of formal credit to be disbursed. The money lenders determine the informal interest rate. The official and money lenders play a non-cooperative game, choosing the bribing rate and the informal rate. The study also explains that that informal interest rate and the effective formal sector interest rate incorporate bribe are equal in equilibrium. A reduction formal interest rate or in the price of product may lead to an increase in the equilibrium bribing rate and the informal interest rate when the formal credit and the informal credit are complementary to each other.

Misra (1999) has focused his views on commercial banks and agricultural development. He found that commercial banks are promoting agricultural development in hilly and drought-prone areas of Orissa. In his study, he found that farmer borrowers also generated certain amount of savings but they lagged behind the amount of savings generated by non-borrower farmers. He also observed that the farmer borrowers have a number of difficulties in respect of inadequate supply of

inputs, lack of marketing facilities, lack of irrigation facilities and the problem of storage.

Chaudhari (2000) revealed his views on interaction between two informal sector lenders and interest rate determination in the informal credit market using a theoretical analysis. He found that traders and money lenders a non-co-operative game in choosing the extent of inter-linkages and the non-interlinked interest rate. In the interlinked contract, the traders earn zero trade profit. His entire income occurs from the credit market where he charges an interest rate, greater than his opportunity cost of loan. The price subsidy policy or a reduction in the delay of disbursement of formal credit may raise it. Besides a price/ a credit subsidy policy raises the informal interest rate of the money lenders but may lower the interest rate in the interlinked contract. Therefore, these policies increased the disparities between the two interests rate in the informal credit market. The subsidy policy designed to benefit the farmers which may be decreased the welfare of the farmers and lower agricultural productivity as the informal sector lenders adjust their behaviour to appropriate the benefit of the policies.

Nair (2000) analysed about the rural financial system which operated through two set of institutions formal and informal sectors. The formal sector includes multi agency approach and includes the co-operatives, public sector commercial banks and regional rural banks. The informal sectors include mainly, traders, merchant, contractors, and commission agent and money lenders. The major trends in rural financial intermediation in India by public sectors commercial banks in the post nationalization period. The recovery position of commercial banks is not satisfactory. However, credit is being used for poverty alleviation in the country. The study able to found that RRB were set up to provide credit of the small and marginal farmers, SC/ST and other beneficiaries of the official poverty alleviation had to dilute their obligation to lead their section subsequently.

Viswanath (2001) has conducted his study on the performance of agriculture credit co-operative and their overdue problems in India. He found that the flow of loan by PAC increased during 1950-51 to 1995-96, but the development index in PAC of 16 states indicates that the performance of 5 states i.e. Karnataka, Gujarat, Tripura,

Orissa, and Maharashtra higher than national average, while that of 11 states Punjab is below average.

Muhammad, et al., (2003) studied on the impact of institutional credit on agricultural production in Pakistan. They highlighted that the growth of the agriculture could be increased by using agricultural inputs, technological change and technical efficiency. This study found that there is positive relationship between institutional credit and agricultural GDP. The availability of the irrigation water and agricultural labour per cultivated hectare, and cropping intensity are also major important determinants of the agricultural development. They suggested that commercial banks and other financial institutions encouraged expanding agriculture credit for larger proportion of the small farmers and needy farmers.

Mohan (2004) has analysed his view on the status and issues of agricultural credit in India. It is a macro level study of the agriculture credit flow, using the secondary data to show the trends of credits in various years. He found that agriculture in India has always been heavily dependent on the monsoon hence, it became risky activities. Agriculture credit plays an important role to increase the production in India. The performance of the agricultural credit in India reveals that the percentage of the institutional credit has increased over the years, but the provisions to provide agricultural credit to the small and marginal farmers are not sufficient.

Shankar (2005) has focused his view on the situation of Uttar Pradesh finance with the help of total budgetary expenditure both on the revenue and capital account. Agriculture and all allied activities like animal and husbandry, soil and water conservation, fisheries, plantation, cooperation which are the backbone of the rural economy. The irrigation facilities and floods control tools can improve the productivity of the agriculture sector. The per capita expenditure in U.P. is the lowest among all the states except Bihar, but the more crucial aspect of it is that the efficiency of such expenditure is very low on account of the vast leakages, unaccountability, corruption, and non-transparency in U.P. compare to other states. Capital is crucial for the development of the economy. Raising public investment should be key issue for rural development.

Shahu and Rajasekhar (2005) focused on banking sector reforms and credit flow to Indian agriculture. They analyse banking sector reforms credit flow in Indian agriculture sector since 1981 to 2000 but focus the short and long terms loans for small and marginal farmers. The main finding of the study is that the commercial banks provided access funds to the agriculture activities to earn the interest income in the rural areas. The rich farmers improved to receive the formal credit compared to the marginal farmers and there is positive relationship between the rural bank branches and credit supply to the agricultural activities.

Veni and Sah (2005) studied on direct institutional credit to agriculture and allied activities in changing scenario. He found that the performance of cooperative banks is lower than schedule commercial banks and regional rural banks in term of short term, long term and total credit. The growth of RRBs and SCBs have recorded higher growth rate during 1975-76 till 2001-02. The study has focused that credit to agriculture and allied activities are decreased from co-operatives banks to SCBs and RRBs. The study suggests that the government should make very effective strategies for the better cooperation between credit institutions and farmers.

Bhaduri (2006) has examined his view on rural credit in 20th century in India. The study indicates various changes requirement of finance in rural India as massive increase in public investment in natural resource regeneration (especially in rain fed India), ecologically sustainable, low cost, low risk agriculture and all forms of rural infrastructure. Reforms of public sector banking (including RRBs) aimed at strengthening capacity to deliver high quality credit, strengthening of the SHG- bank linkage programmed and MFI to improve the human development and sustainable livelihoods for the rural poor.

Bhalla (2007) has discussed their views on various instrument of agriculture credit and described flow of agriculture credit of many years through various credit institutions. Agricultural credit is provided by the co-operative, commercial banks and regional rural banks. The growth rate of the co-operative credit agencies has been lowest and their performance has not been good. Institutional credit to the agricultural development has progressed since independence and now accounts for 58 per cent of total credit to the agriculture but even now, 42 per cent of the agricultural credit is provided by the non-institutional credit agencies at very high rate of the interest.

Some other new institutions have also been fulfilling the demand of specialized groups in society such as Self-Help Groups, Rural Infrastructure Development Fund, and Kisan Credit Cards.

Shah, et al., (2007) analysed the situation of rural credit in 20th century in India and highlighted the various problems faced by the poor. The problems faced by the India's villages display a remarkable continuity from this situation throughout the period being studied. Dependence on the professional money lenders and the operation of a deeply exploitive grid of interlocked, imperfect markets afflicts the rural poor. Repayments of debts are the major compulsion for farmers to sell their crop, and the creditor insists on repayment in the immediate post-harvest period.

Satyasai (2008) has pointed their views on rural credit and its importance for the development of agriculture and rural economy. The financial sector reforms are important in view of influencing on rural credit delivery. The study found that public policy on rural credit in India has been focused on institutionalization to provide cheaper credit to farms. As a result, the share of private money lenders had decreased from 93 per cent in 1950 to 31 per cent in 1991 and further become 39 per cent in 2002. The delivery of credit across the farmers was insignificant due to ineffective and deficiencies of design and architecture of multi credit system. The performance of co-operative banks, regional rural banks and commercial banks have been failed to provide adequate and timely credit due to ineffective rule and regulations. Several measures have been taken to improve the multiagency approach such as Vaidyanathan committee repots on co-operatives and excess capital to RRBs and farm credit package to commercial banks. The self-help groups (SHGs) bank linkage programme has been promoted on a large scale to supply rural credit in India.

Murthy, et al., (2009) have analysed their view on the trends in institutional credit for agricultural and allied activities during 1969-70 to 2001-02. The study found that co-operative banks are still dominating in the field of agricultural and allied credit though the share of intuitional credit reduced from 72.5 per cent to 43.5 per cent during the period 1969-70 to 2001-02. The share of Government was 8.3 per cent in 1969-70 and decreased to 1.1 per cent in 2001-2002. The share of commercial banks had increased from 19.2 per cent in 1969-70 and increased 44.5 per cent in 2001-02. The share of RRBs had increased from 0.1 per cent in 1975-76 to 10.9 per cent in

2001-02. It is clear that the loan outstanding of all institutional agencies increased 79.9 times between 1979-70 and 2001-02. It is observed that institutional credit has been playing important role in increasing agricultural production in India. The amount of institutional credit for agriculture and allied activities has increased over the year.

Arora (2009) has shown the role of the banks in the different state of the India in the post reform period and explored multi-dimensional role of credit. She found that the bank credit has declined since the economic reforms but it helped in poverty reduction at state level. She also shows that credit to the small borrowers was lower in high poverty states, with reverse happening in the low poverty states. The study does not suggest that bank credit is less relevant for growth, nor it allocates and efficiency functions. It's concluded that credit and its potential can achieve higher growth and development in the states.

Kumar, et al., (2010) have explained their views on institutional credit and its importance for the agricultural development in India. Obviously, many institutional credit agencies are providing credit to agriculture. However, majority farmers are taking agricultural credit from the money lenders. Money lenders are still dominating in rural credit market. The study based on the secondary data, has been taken from various sources. It is found that the flow of agricultural credit from institutional sources has been increased during the past two decades. The pattern as well as structure of institutional credit has been changed and commercial banks have emerged the important source for the disbursement of agricultural credit in the recent year. It is also found that the share of long term or investment credit to total agricultural credit is declining. Declining credit is depends on the socio-economic factors of the farming households. The study suggested that institutional credit agencies should adopt better mechanism to access agricultural credit of small and marginal and landless farmers.

Rahman (2011) has studied on the trends and composition of institutional credit to the agricultural sector during the post-reform period in India. He has shown that agriculture plays an important role in the development of the Indian economy. This study found that developments of the agricultural sector both direct as well as indirect institutional credit are essential in the country. This study concluded that the share of the direct finances had increased continuously during the pre-reform period but had declined during the post reform period. On the other hand, the share of indirect

finance decreased during the pre-reform period, but increased during the post reform period. The trends of the institutional credit to the agriculture sector during the post reform period were high compared to pre-reform period.

Satpathy (2011) has highlighted his views on the institutional source of the agricultural credit scenario in India and identifies the important issues in agriculture credit market. For showing the agriculture credit growth trends authors using secondary data from the NABARD reports. This study concluded that institutional source of the agriculture credit play a significant role in agriculture development. The policies on agriculture credit has always directed towards providing adequate credit to the farmers at reasonable rate, but due to lack of the proper implementation of the policies decreased the benefits of the farmers and bureaucratic hurdles in getting credit from the institutional sources, a large numbers of the farmers are still depend on the informal source of the credit, in this market they get trapped and are even compelled to commit the suicide. This study suggested that polices must be proper implemented among the farmers so that the flow of the institutional credit to agriculture sector improved.

Maan, et al., (2012) have estimated that the advances for the distribution of fertilizers and other inputs, advances to the State Electricity Boards, and other types of indirect finances and direct finances given by the commercial banks grew at the rates of 13.60 per cent, 329 per cent, 32.59 per cent and 29.69 per cent. The growth rates of loans for distribution of fertilizers and other inputs, the majority of states like Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Madhya Pradesh, Orissa, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal and Delhi are in low growth rate zone of 0 to 32.12 per cent per annum. The medium growth rate zone of 32.13 to 80.34 per cent compounded per annum the state of Bihar, Haryana, and Goa-Daman Diu was found. The high growth rate zone share is 80.34 per cent, the state of Jammu & Kashmir, Meghalaya, Nagaland, Tripura and Pondicherry. The study suggested that the distribution of all kind of agricultural advances must be equitable.

Chandra (2013) has focused on the persistence of informal credit in rural India with the help of All India Debt and Investment Survey (AIDIS) data. He found that the formal and informal sources of the credit do not have similar lending methods. As results, informal credit has declined as a percentage of the total debt, and the share of

the moneylenders has reduced their share over time. It is also obvious that formal source of the rural credit have not displaced informal sources of the credit in rural India. He concluded that due to risky field of lending to the agriculture sector formal institutions of credit restricted to give the credit.

Mallikarjuna (2013) has described that adaptation of the new technology is life blood for the development of the agriculture. This study found that the share of institutional credit was about 7.0 per cent in 1951, increased 68 per cent in 2010, whereas the share of the non-institutional credit was around 93 per cent in 1951, decreased to about 30 per cent in 2010. This study suggested that co-operative credit structure must be improving the efficiency of the credit delivery system in rural areas. Rural financial institutions should be providing mobile banking to the poor clients, for adopting innovative ways and reducing transaction costs for both the lenders and borrowers.

I.10 MAIN FINDINGS OF THE LITERATURE REVIEWED

The main findings of the related literature reviewed above can be summarized as under:

1. Agricultural productivity has been declined due to lack of credit, lack of inputs, migration of the labour from agriculture to non-agriculture sectors, lack of improved modern technology and lack of research and development at national level.
2. Agriculture credit helps the farmers in term of purchasing various agricultural inputs, new technology, machinery, fertilizers, seeds and pesticides.
3. Credit also plays a crucial role in the development of agriculture, employment generation, reducing poverty, increasing the purchasing power of the farmers, leading to the prosperity of the area and economic growth of the nation.
4. The performance of the public investment in agriculture increased the productivity of agriculture sector in Uttar Pradesh.
5. Credit facilities are mainly responsible for transforming the cropping and land use patterns.
6. There is positive relationship between institutional credit and agricultural GDP and also positive relationship between the rural bank branches and credit supply to the agricultural activities.

7. Some studies revealed that advantage of the institutional credit goes to rich farmers and marginal farmers deprived from credit.
8. The share of long term or investment credit to total agricultural credit is declining due to socio-economic factors of the farming households.
9. Direct and indirect credit is essential for the development of the agricultural sector in the country.
10. Private money lenders are still playing an important role in supplying rural credit and the proportion of borrowings from this source was higher in case of small farmers.
11. A large numbers of the farmers are still depending on the informal source of the credit, in this market they get trapped and are even compelled to commit the suicide in major parts of India.
12. A few study critically explained that formal and informal source of agriculture credit is exploiting in nature, therefore, farmers have engrossed in debt and generally they are selling their land, migrating and committing suicide in several states at national level.
13. A few studies have shown that the policies on agriculture credit has always promoted towards providing adequate credit to the farmers at reasonable rate, but reality due to lack of the proper implementation of the policies decreased the benefits of the farmers and bureaucratic hurdles in getting credit from the institutional sources.

I.11 RESEARCH GAP

The various studies mentioned above have explained agriculture credit and development in different context. A few studies attempted to analyze the impact of agriculture credit on small and marginal farmers. These studies have explained various variables and aspects of the agriculture credit and agricultural development, but no study systemically focused on the analysis of the impact of agriculture credit on the socio-economic conditions among different social groups of small and marginal farmers in Uttar Pradesh. But the variables of these studies may be useful to precede my study. Hence, the present study titled 'Impact of Agricultural Credit on Socio-Economic Conditions of Small and Marginal Farmers in Uttar Pradesh' fills the gap of literature by evaluating the farmer's access to agricultural credit and impact of

agricultural credit on small and marginal farmers in Uttar Pradesh. Hence, an attempt is made to study the impact of agriculture credit on small and marginal farmers in the state of Uttar Pradesh. The present study mainly emphasis on small and marginal farmers because majority of the farmers belong to this category in the state. The main objectives of the study are given below:

I.12 OBJECTIVES OF THE STUDY

The overall objective of the proposed study is to analyse the impact of agriculture credit on socio-economic conditions of small and marginal farmers in Uttar Pradesh. The specific objectives include

- ❖ *To study the impact of Agriculture Credit on Socio-Economic conditions of small and marginal farmers in terms of production, employment, income, consumption, education, poverty and equality in U.P.*
- ❖ *To study the performance of Agriculture Credit Market and suggest to effective delivery mechanism of Agriculture Credit for the development of agriculture in U.P.*

I.13 HYPOTHESES OF THE STUDY

For achieving the above mentioned objectives, the present study has tested the following hypotheses:

- ❖ *The positive impact of Agricultural Credit on Socio-Economic conditions of small and marginal farmers is negligible.*
- ❖ *Agricultural credit is responsible for structural changes in rural economy in form of losing their assets and occupational changes and migration of small and marginal farmers in U.P.*

I.14 METHODOLOGY

It is a primary study. Necessary primary data is collected from a sample of small and marginal beneficiaries of agricultural credit in Uttar Pradesh. This study is confined to the state of Uttar Pradesh. The primary data is collected through interview method by selecting 300 samples of small and marginal farmers who have taken agricultural credit from different sources of credit during the period 2015. Purposing sampling methods are used to selecting the data of small and marginal Farmers. We have taken 150 household farmers from Jhansi district and 150 household farmers from Bulandshahr districts. The study is conducted in state of Uttar Pradesh because the population of small and marginal farmers is very high i.e. more than 70 per cent which is highest in India (CSO). For secondary data the research reports and case studies are used. The studies and reports of such as Food and Agriculture Organization (FAO), World Bank, United Nation reports, Indian Agricultural Research Institute (IARI), Indian Council of Agriculture Research (ICAR), and Indian Agricultural Statistics Research Institute, Central Statistical Organization (CSO), Reserve Bank of India (RBI), National Sample Survey Organization (NSSO), RBI Bulletin. National Agriculture Bank for Rural Development (NABARD), Yojana magazine, Kurkshtra magazine, Statistical diary U.P, Economic Review of U.P , Economic census, Monthly Progress reports of Rural Development works, Districts Socio-Economic Review, Quarterly Statistics on Deposits and Credits of scheduled commercial banks are used for the study. These sources are very relevant providing monthly and annual secondary data. Some of the statistical tools like SPSS, STATA, simple calculations, and regression analysis are used for estimations and analysis of the data. The time periods are different at the different level of analysis. This work is organized into seven chapters on significance of the theme of the study as given fallows:

I.15 CHAPTERISATION

The present study consists of seven chapters. The first chapter 'Introduction' consists of agriculture issues, challenges, role of agriculture sector, meaning of agriculture credit, advantages and problems of agriculture credit, scope of agriculture credit in India, structure of agriculture credit, need for agriculture credit, the role of

government in agriculture credit among the small and marginal farmers, review of literature, objectives of the present study, hypothesis, research methodology adopted for the study, significant of the study had given in the this chapter.

The second chapter entitled ‘Theoretical Perspective of Agricultural Credit’ presents theories, linkages of agriculture credit, agricultural institutions, programmes, policies, and committees on agriculture credit at state and national level.

The third chapter ‘Agricultural Development in Uttar Pradesh’ is devoted to the agricultural development in Uttar Pradesh. In this chapter, we analyse agricultural growth and identify the issues and problems associated with the agricultural sector in the state of Uttar Pradesh, and find out appropriate ways for the development of agriculture sector in future. Agricultural development in terms of land utilization, production, productivity, cropping pattern, inputs, credit, agricultural market, agriculture labour, technology, constraints, and policies & programmes have been analysed in the state of Uttar Pradesh.

The fourth chapter ‘Small and Marginal Farmers in Uttar Pradesh’ explained issues, challenges and contribution of small and marginal farmers in the state economy. This chapter analyse the socio-economic development of small and marginal farmers in Uttar Pradesh.

The fifth chapter entitled ‘Performance of Agricultural Credit Market in Uttar Pradesh’. This chapter analyse the flow of agricultural credit, agricultural GDP, problems, and prospects of credit in Uttar Pradesh.

The sixth chapter entitled ‘Impact of Agriculture Credit on Small and Marginal Farmers’. This chapter is based on primary survey. Present chapter analyse the impact of agriculture credit on socio-economic conditions of small and marginal farmers in Uttar Pradesh. The impact of credit is analyzed and examined in term of socio-economic development of the small and marginal farmers. This chapter reveals that the change in the social status of the farmers of the society, social equality, social justice and social emancipation in the state of Uttar Pradesh. The economic development reveals that the economic development in term of production, income, employment, education and consumption of the farmers. The impact of agricultural credit studied by collecting and analyzing the primary data of socio-economic

development variables from the samples of 300 small and marginal farmers with social category from two districts of two regions of Uttar Pradesh.

The seventh chapter entitled 'Findings and Conclusion' which analyse the main findings of the study and suggest the effective delivery mechanism for agriculture credit and the policy measures in Uttar Pradesh.

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CHAPTER II

THEORETICAL PERSPECTIVE OF AGRICULTURAL CREDIT



Agricultural Credit is very important input for increasing agricultural production and productivity in the country. According to the old proverb “*Credit supports the farmers as the hangman’s rope supports the hanged*”. The inputs can be purchased and used by the small and marginal farmers are only possible by capital. But capital is always inadequate and small and marginal farmers fulfill their needs from outside finance or credit. To fulfill the all requirements of agricultural activities, credit has been considered as the life blood. Thus, growth of agriculture, production, productivity, and improving the socio-economic conditions of small and marginal farmers an adequate and timely credit is required. The history of the credit system is very complicated to know but it is consider that 1870s British government began to notice the problems of the agriculture sector. In 1980s, it was noticed that the situation of the cultivators was very miserable. The cultivators were exploited by the money lenders. They used to charge very high rate of interest as well as cheating activity. The incident of Poona and Ahmed nagar districts in Maharashtra against the moneylenders made Government to think agricultural problems very seriously. Thus, the Government of the India appointed Fredric Nicholson to Europe for studying land banks and suggesting appropriate system of agriculture credit in India. Nicholson as well as famine commission in 1901 submitted their reports. Studying these reports, the Government of India passed first co-operative societies Act in 1904. It was observed that the Act of 1904 had failed to provide services. Hence, another Co-operative Societies Act was passed in 1912 to provide adequate services. Therefore, Government of India appointed Maclagan Committee (1994) to evaluate whether the movement of co-operative was on right path or required some remedies and suggestions. In this way, the Committee submitted its reports in 1915 and suggested that there should be proper knowledge of co-operative rule and regulation, proper selection of the member, honesty of credit, and proper security while granting loans. The committee also suggested on encouragement of thrift, constitution of an adequate reserve fund, continuity in repayment of loans, established co-operative in every village, and every village should be covered by a co-operative. Non-credit societies should also be encouraged, properly audited, and continuously supervised.

In 1919, the Government of India Act was passed. This Act made co-operation a state subject and was administered by Provincial Government. This Acts had brought tremendous success in areas of the co-operation in each and every state but

the great depression of 1930's gave a tremendous set back to the co-operation movements. The great depression made agricultural goods cheaper and disturbed the stability of the economic activities. Recovery of the loans became extremely difficult as results the co-operative credit had been decreased. It was observed by the Royal Commission on Agriculture (1928) made the observation "*if co-operation fails, there will fail the best hope of rural India.*" Further the Government of India passed Reserve Bank of India Act in 1934. This Act made a very important provision for the agriculture credit at national level. This provision was closely associated with rural credit and Banking sector. In the same way, Malcolm Darling submitted a report on co-operative credit to Government of India in 1935. The report suggested that Reserve Bank of India should be established an Agricultural Credit Department and expert staff to advise state and central governments, state co-operative banks, and co-ordinate with RBI for agricultural credit. On the basis of this recommendation, Reserve Bank of India established an Agricultural Credit Department in the bank and extension of refinance facilities to the co-operative credit system. It was observed that entire finance for agriculture purpose was supplied by money lender and the share of co-operatives and other agencies were negligible. Latter, the World War II (1939-1948) increased the problems of co-operative movement. But it is seen that RBI strongly promoted co-operative movement and encouraged building two separate arms, one for short term and one for long-term. It was noticed that the War stimulated the growth of the consumer's stores and marketing societies, and also progressed the movements of the co-operatives. Further, the RBI appointed several committees to study the progress of rural credit and introduced credit facilities to co-operative banks for seasonal agricultural operations and marketing of crops. The major improvement during this period was the appointment of the co-operative planning committee in 1945 under the chairmanship of Shri R.G. Saraiya. This committee recommended that the primary societies should be converted into multipurpose societies and also advised that the Reserve Bank of India should provide greater support to co-operatives. Agricultural Finance sub – committee under the chairmanship of Dr. D.R. Gadgil stated that "*the spread of the co-operation would provide the best and the more lasting solution for most problems of rural economy in general and for the problems of agricultural credit in particular*".

The major development of the agricultural credit and co-operatives field progressed since independence when the Government made the five year plan and constituted the Rural Credit Survey Committee in 1951 by Reserve Bank of India. The Committee submitted its report in 1954 and mentioned that “*Co-operation has failed but co-operation must succeed*”. Committee agreed that co-operatives can be the strong source to solve most of the rural problems so co-operative must be encouraged. The committee recommended that an integrated approach to co-operative societies by expanding their area of operation, setting up SBI, co-ordination of credit with other economic activities specially processing and marketing and encouraging rural saving. The committee also recommended that Government should participate in the share of cooperatives capital, relief and guarantee fund should be established at the national and state level to solve the problems from natural calamities in rural areas. The committee advised that loans should be issued on the basis of crops and not on the basis of security of land. Similarly, national stabilization fund should be setup in the Reserve Bank of India, apex, and central banks throughout the country. Further the Government of India established Agricultural Refinance Corporation to provide funds for refinance. But lack of rural credit was a major challenge even in 1950s and 1960s. In 1965-67, drought condition made major attention of the government to increase the production of the agriculture as well as banking facilities. Hence, social control scheme was introduced in 1967 to achieve higher growth in rural credit. Similarly, National Credit Scheme was introduced in 1968. These schemes were failed to achieve the desired objects and goals.

The biggest change in banking sector came in 1969 when 14 major commercial banks were nationalized. It was clear that before 1969 co-operative banks were the main institutional agencies providing finance to agriculture sector. After nationalization, it was compulsory for the banks to provide finance for agriculture purpose. These banks started to expand bank branches, setup a network of banking services throughout the country and started financing agriculture on large scale. Later, agriculture credit acquired multi-agency dimension for the development of agriculture sector and adoption of new technologies. It was noticed that credit played very important role during ‘Green Revolution’, ‘White Revolution’, and ‘Yellow Revolution’. However, credit services still are not improved. The commercial banks are not willing to fulfill the needs and requirements of small and marginal farmers.

Hence, an attempt is made in this chapter to describe the theoretical perspective of Agricultural credit theories, linkages of agriculture credit, programmes, policies, and committees on agriculture credit at state and national. The present chapter is divided into three sections. Section I analyses the theoretical perspective of agricultural credit. Section II describes about institutions, committees, programmes and policies on agriculture credit and development at state level and national level. Final section III describes conclusion of the present chapter.

II.1 THEORETICAL PERSPECTIVE OF AGRICULTURE CREDIT

There are two types of credit namely institutional credit and non-institutional credit. Institutional source consists such as cooperative banks, commercial banks, regional rural banks. Non-institutional source includes of moneylenders, landlords, traders, friends, and relatives. These two sources of agricultural credit are providing credit for increasing productivity of agriculture and improving standard of living of the farmers. Indian agriculture is facing various institutional and non-institutional constraints. Therefore, keeping all these considerations and to restructure agricultural credit policy in an innovative spirit. With these objectives, it becomes necessary to examine critically various approaches towards the theories of agricultural credit.

II.1.1 INTERLINKING OF FACTORS MARKET TO AGRICULTURE

The tenancy contracts are interlocked with transactions in other market like credit, labour, and marketing of crop produce. The nature of agriculture production is feudalistic. In feudalistic mode of production, there is social relationship between lenders and tenants but in capitalistic mode of the production there is bondage between lenders and tenants. If the tenancy is market in nature then it raise the surplus in whole economy. It is found in Punjab that about 75 per cent tenancy is capitalistic in nature.

The implication of interlinking of factor markets and its impacts on farm economy are viewed differently by neoclassical and the Marxist economist. Neoclassical said that interlinking factors market increase the efficiency in the economy but Marxist had observed that such interlinking of markets increases the exploitative power. The neo-classical approach of interlinking factors market will face the Moral Hazards and Principle Agents' problems. Moral hazards arise due to

unequal distribution of the wages among the workers. If the worker will get fewer amounts of the wages then they will finish work in more days. It is clear that tenancy will be efficient in peak season because in peak season the demand of the labour will be high, and there will be no chance to reduce the wage of the workers. On the other hand, principle agents' problems arise due to asymmetric distribution of the information among principle and agents, banks and farmers, and lenders and borrowers. But the principle agent problems do not arise in tenancy because tenants know the all information of agents. It is fact that tenancy agreement's output is greater than non-tenancy output.

II.1.2 INTERLINKED TENANCY AND CREDIT TRANSACTIONS

Tenancy plays an important role in a credit system i.e. the landlord provide production loans to the poor tenants for purchasing essential resources as well as to undertake cultivation. These views have been emphasized by many classical writers like smith and neoclassical writers like Marshal, Marx (1974), and Braverman and Stiglitz (1982). A tenants receiving consumption loan from the landowner at times of need thus tenancy acting as an insurance against hunger has been depicted by Scott (1976). A tenant has borrowed money from the land owner to incur expenses on the funeral ceremony. Land lords charge very high rate of interest on the loan and contracts between the land lords and tenants is that the tenant's will be repaid principal amount and along with the interest in terms of labour on the lessor's field. It is considered that when a loan is repaid in terms of labour the wage payment is calculated at a lower wage rate then prevailing market rate. Thus, it involves additional implicit interest charges. Sometimes tenants borrow money from their land lords for cultivation. Here the contracts are that he will repay the loan in term of paddy at the market price just after harvest. It is obvious that loans from the land lords are not interest free. The interest rates charged whether explicit or implicit are quite high. But, in formal sector the interest rate charged is quite low compare to informal source of the credit. It is seen that due to risk of default of the borrowers, the lenders charge high rate of interest and collateral kept as security. Sometimes, it is seen that there is different type of linked credit contracts are observed such as, the farmer's barrowed loans by mortgaging land with a large farmers. The situation is that when he repays the loan, then he would get the land. As long as full repayment of the loan has not made, the lenders cultivates the land and retains the crop produce as interest

charged towards the loan. On the other hand, the tenants find the loan from the lenders on the behalf that he will cultivate the land and retain the entire crops until the tenants repays the full loan. It is observed that the landless labour borrow loan by placing his gold and necklace as collateral near a large farmers. They also charge high rate of interest. When, he repays the loans, he will get his necklace.

II.1.3 INTERLINKING OF LABOUR AND CREDIT

The labour of the rural area is heavily dependent on social and territorial affinities. The personal knowledge of the employers in relation to the work capacity, reliability and truth worthiness of the particular labour plays a vital role in hiring labour (Bardhan and Rudra 1985). These affinities are often cemented by relationship of regular consumption credit, provision of the rent-free land or homestead land and wage advances. Due to absence of the any developed market, these relationships play a crucial role for the development of the socio-economic condition of the labour. It is seen that landless labourers take loans against the promise of future labour in the lenders field. When labourers repay loans in terms of labour then he will get lower wages than the prevailing market wage rate and thus implicit interest is charged. Generally, labourers find loans when he will repay loans in term of labour. In other case at the peak period, there is urgent need of the farmers. So, the medium and large farmers prefer to make labour tying arrangements with the labourers by providing them land for cultivation or homestead land, so that the labourers are compelled to work when the employer is in need of his service. Sometimes attached labourers usually borrow from their employers at the time of their need either in cash or in kind and repay in terms of labour at the usual wage. The large farmers sometimes advance loans to some labourers to buy their loyalty and to avert their group assertiveness in collective bargaining. In this regards Bhalla's (1976) study in Haryana reveals that the landowners employ some trust worthy workers as permanently attached labourers who supervise the work of casual labourers and this arrangement works as check on class solidarity.

The large farmers or landowners make a contract for one year among immigrants or native labourers. The immigrant farm servants stay in the land owner's house and their maintenance expenses are born by the employer. They work for ten hours a day which includes field and domestic work. Sometimes, they supervise the

work of the casual labourers. All the employers of the farm servants have extra income other than cultivation like professional, salary, remittances and pension. The native farm servants usually take cash advances at the beginning of the contract year which they repay in term of the labour. But immigrants are paid after the completion of the contract period. The farm servants are given clothing twice in a year on the main festivals. The interlinked transactions may be observed in a particular place not because of poverty or unequal exchange relationship in that particular area but because of prevalence of poverty somewhere else. For example, in Punjab the employment of farm servants is on increase and most of the farm servants are immigrants from backward and poor states.

II.1.4 INTERLINKAGE OF CREDIT AND PRODUCE

The Interlinkage between credit and produce is important to increase the productivity of the agriculture. In the rural areas, the returns from the cultivation are often low and insufficient for internal financing. Formal source of the finance is hardly found to meet the requirement of the farmers. As results, the private trader-lenders are emerging in the village. The trader- moneylenders provide advance loans for the cultivation of cash and non-cash crops at the time of sowing or transplanting with the condition that after harvest the cultivator will sell the crop to the lender at predetermined price irrespective of the market price. The borrower is compelled to sell their harvest when the price is low. They also paid the interest or the same amount of the crops on the loans. The interlinked transactions are more prevalent in irrigated village rather than the non-irrigated village. The exploitation of the farmers, tenants, cultivators, labourers and farm servants has been increasing due to interest rate charged either in form of explicit or implicit.

The Marxist approach is more appropriate in explaining Interlinkage than the neoclassical approach. Tenancy and Interlinkage can be better explained by the Marxist approach. Macro framework attempting to study the changing power relation with respect to changes in macro variables like overall population growth, the unemployment rate, the rate of industrialization, unbalanced regional development and other economic factors like migration caused by overall development. These variables should also be integrated to the analysis to provide a holistic view.

II.1.5 RISK AND UNCERTAINTY THEORY OF AGRICULTURAL CREDIT

The risk and uncertainty theory of agricultural credit are discussed by theoretical economist and empirical analyst. It is very difficult to protect the farm enterprise compare to commercial and Industrial enterprise. Forecasting in non-agricultural enterprises is easy but the forecasting of farm income is difficult task. Agriculture suffers from various risk and uncertainties such as earthquakes, floods, droughts, hail-storms, and drainage of crops due to pests, insects and others. On the other hand, the risks of loss of property by fire, theft and loss due to fluctuations in the prices of the products and loss due to death or disability of the farmers.

Credit risk is one of the basic aspects in the economic success or failure of both lenders and borrowers. It is faced by the both by the lenders and borrowers. Credit risk is measured by actual credit difficulties recorded after the fact losses. It look ahead to the future difficulties is often measured by the movements of those loan and borrowers characteristics as repayments to income ratios, maturities and loan-to value ratio. Risk comes from physical as well as natural factors. Borrowers have to face unexpected financial losses arising out of low income and other unforeseen natural occurrences and fluctuations. It is obvious that farm investment will take place only when the risk and uncertainties in the minds of the farmers are removed. The borrowers risk is greater than that of the lenders risk. It is said that there are some types of changes occurring over time in the risk position of the economy. There is variation in business cycle and credit risks varies due to cyclical movements of the economy and associated with cyclical changes in production, income, and employment.

Credit risk will vary with changes in the degree of economic stability and related to both cyclical stability and credit risk; institutional changes take place in the credit market. Therefore, it is obvious that risk bearing abilities of both lenders and borrowers should be increased. Risk bearing abilities means ability to accept unexpected low income and unpredictable losses and expenses and continue in farming. The risk may be reduced by encouraging saving money. It will increase the stability and reliability of income. Ability to borrow in both good and poor times reduces operating and living expenses in poor periods and owns funds are the backbone of the risk bearing. The Farmers fear from to be in debt. Farmers expressed

this fear by a feeling that it was something to be avoided at almost any cost. This view is expressed long ago by Shakespeare in following in following words: “Neither a borrower nor a lender be, for loan oft, losses both itself and friend”. The risk bearing ability among borrowers and lenders might be explained with certain features. The lenders risk may be minimized by certain linkages, as given below:

$$\mathbf{LR} = \mathbf{f(X_1, X_2, X_3, X_4, X_5, X_6)}$$

Where, LR = Lender risk, X₁ = Linking credit with marketing, X₂ =Coinciding with time of payment, X₃ = Motivate borrowers to pay the loan by building personal relations, X₄ = Supervision over credit utilization, X₅ = Meeting market imperfection by keeping reserve funds, X₆ = Involving outsiders partner by supplying seeds, fertilizers and implements.

The agricultural activities are still dependent on nature in the country. The risk and uncertainty bearing capacities of credit borrowers are lack among the farmers. The borrowers risk bearing ability may be strengthened by adopting less risky and stable farm enterprises, encouraged diversification of production, flexibility in processing of production programmes and plant protection programmes. In the same way, crop insurance and other insurance should be established and forward contracts for products sales and inputs purchases should be developed to build up fair dealings for personal credit and equity. Therefore, borrower risk is dependents on various linkages as:

$$\mathbf{Br} = (\mathbf{qs, cc, cp, bmt, i, m, fn, is, fb, cli})$$

Where, Br = Borrower risk, qs = quality of soil, cc = choice of crops, cp = crop protection, bmt= use of bio-chemical and mechanical technology, i = irrigation, m = marketing, fn = family needs, is = availability of inputs services, fb = family back ground, and cli = capital oriented or labour oriented investment. These variables are dependent on rate of returns of investments as given below:

$$\mathbf{Rr} = \mathbf{PP (Y_i - Y_0)/C}$$

Where, Rr = rate of return of one rupee invested on any concurrent or fixed investment items, PP = price of products, Y₀ =Yield of crop without using the

concurrent (variables) or fixed capital investment in farm activity, $C =$ Cost of investment.

The rate of interest is employed by Cone (1975) and Singh and Nautical have measured the rate of returns of fertilizers investment in Uttar Pradesh. They explained the reason for which the borrowed amount is being used. They also explained when and how much to borrow depends upon financial stress, assets owned. The financial stress may be calculated as debt to asset ratio. The indicators of financial stress are given below:

1- The Time Interest Earned Ratio

This is calculated by dividing earnings before interest and taxes by total interest payment.

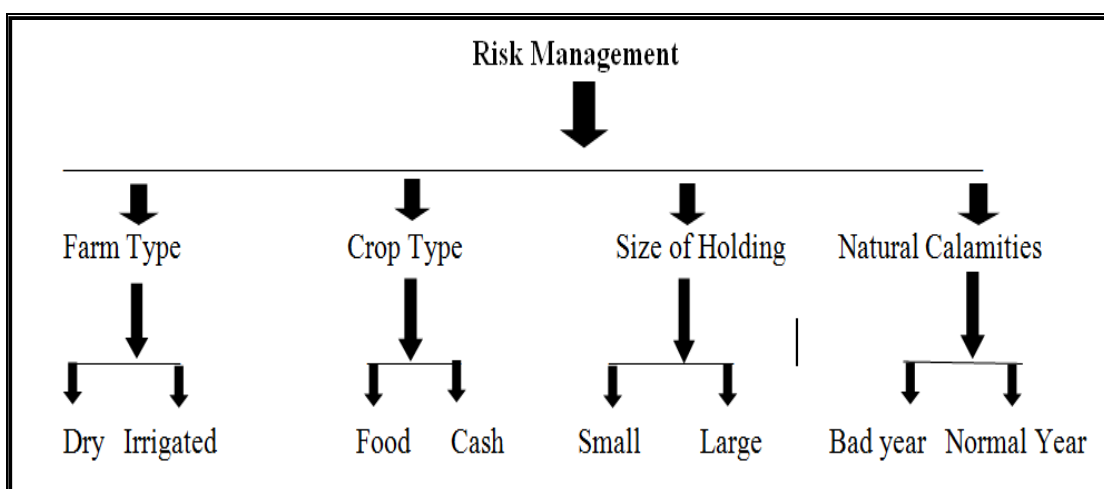
2- Financial Leverage Index

= farm business expenses - interest payment from net sales by farm business

3- Debt Burden Ratio

= Net cash farm income (cash farm business income - cash farm business expenses)/ total farm debt

Peter J. berry and Liden J. Robinson have categorized the risk into two categories. First is Business Risk arises from the variability of returns to the investor's risky assets. It depends on the financial structure of the investor's portfolio. Second is Financial risk arises from the composition and terms of the financial claims on the assets. The farm level risk management can be categorized as:



II.1.6 DEMAND AND SUPPLY THEORY OF AGRICULTURE CREDIT

It is obvious that the needs of farmer's credit depends upon the various factors like size of the operating unit, efficiency and farm's productivity, the control over the production and prices, economic conditions and knowledge of modern technology, need for the long term investment in agriculture. It is obviously well known that agriculture sector undertakes both subsistence and commercial activities. So, the farmers dare to invest in agriculture for long term practices, but they have lack in the availability of internal and external funds.

The demand for the credit is dependent on socio-economic and technological background of the farmer's family and the technological background, and the need is a desire of self-development among farmers. The demand for the credit has no effective burden when it uses for the production purposes, because credit increases the productivity of the agriculture sector. The demand of agricultural credit varies from farms, regions and over time. So, supply according to demand is difficult to predict. There is also a variation in the demand for credit according to the season. But there is no future or perspective farming plan due to variety of reasons. They could not prepare a demand schedule because "demand for credit is determined liquidity of crop pattern and cropping intensities, size of family and farm labour, cost of credit and mode of transactions, degree of risk and uncertainties involved in production, marketing inclusive of inventory control and managerial skills. Generally, it is seen that demand for the credit depends upon main factors like cost of credit, marginal efficiency of credit, repaying capacities, and farm production profitability.

$$DC = f(X_1, X_2, X_3, X_{3a}, X_{3ai}, X_{3aii}, X_{3b}, X_4, X_{4a}, X_{4b}, X_5, X_{5a}, X_{5b})$$

Where, DC = Demand for Credit, X_1 = conditions of credit, X_2 = cost of credit, X_3 = Marginal efficiency of credit, X_{3a} = New Technology, X_{3ai} = Bio chemical Technology, X_{3aii} = Mechanical technology, X_{3b} = Agricultural Yield, X_4 = Repaying capacities, X_{4a} = Assets owned, X_{4b} = Managerial skills, X_5 = Farm Production predictability, X_{5a} = Natural Calamities, X_{5b} = Price policy.

The supply of the credit depends on the various agencies. These agencies might be remained the same proportion to provide credit for a long time. The rate of

institutional lending agencies has changed only. Non-institutional lenders remained at a significant level.

$$SC = f(S, GG)$$

$$SC = f(S_1, S_2, S_3, S_4)$$

Where, SC is supply of agricultural credit, S is saving, and GG is government grants. The supply of the agricultural credit mainly dependent upon the level of savings and capital formation (S_1), degree of risk and uncertainties in lending (S_2), prospects of financial institutions (S_3) and the alternative opportunities for investment (S_4). The dominant factors are described below:

Saving rate depends on level of income, propensity to consume, and rate of interest on deposits. Higher the income and lower the propensity to consume may increase saving, higher rate of interest on deposits and motivate the saver to save more. Saving always motivate to invest in a higher income earning activities. Ones rise income starts, the fourth coming effects will again cumulate and contribute to the original income. This is how an economy expands with a positive increase in income, saving, investment, capital formation, production and employment.

$$CF = f(I, DST, DMIC)$$

Where, CF is Capital formation, I is industrialization, DST is demand for science and technology, and DMIC is demand for the manufacturing or industrial commodities. The risk bearing abilities of both lenders and borrowers affects the supply function of credit. One Lender will bear the risk and uncertainties, can supply funds on a greater scale. Nicholson observed, “*Credit is a weapon that may destroy the unskillful wielder, it is helpful or destructive according as it is used or abused*”.

II.1.7 BUSINESS, SOCIAL AND MORAL THEORY OF AGRICULTURAL CREDIT

The social and moral concepts of agriculture finance are vital for remaining in business for a long time. It is the reason that institutional credit agencies are not dominant in rural credit even today but money lenders are remain dominant in rural credit system even today. But, now a day the institutional credit agencies are giving precedence to social and moral aspects for their growth. However, it is seen that the

social and moral aspects of any credit institutions differ according to their bureaucratic attitude, interest and efficiency in business. It is observed that now a days the spirit is absent in majority of business and professionals. It is obvious that when a business is predominant and ignores the aspects of moral and social then both creditors and debtors are disregarded and revolt against the credit agencies (formal and informal agencies).

The performances and growth of the public sector banks might be increased with increasing growth of deposits, improving management credit system, social banking, and agreements with reserve requirements, housekeeping, customer services, and profitability. On the other hand, the parameters like social banking and customer service are emphasized only because of social and moral responsibilities of banking business. It is observed that the urban co-operatives banks and urban credit societies have become very popular due to their moral and social agreements.

The moral and social aspects of agricultural finance are not socially acceptable because farmers must be supplied of credit in time of need and should arrange repayment capacity of the loans when conditions improve. Therefore, there should be socially balanced management of agriculture credit from the both suppliers and borrowers of credit and must behave with social and moral awareness. There should be developing a sense of belongingness to the entire system, so that the need for rules, regulation and laws of agricultural finance will be minimized. It is seen that in western countries, balance between economic efficiency and social and moral restraints has evolved regularly.

Social and moral facets mainly comprise as non-profit operation of a firm, self-help, brotherhood, mutual help in any activity and welfare of majority of the people. In the same way, the business aspects include as, departure from unlimited liability pattern to limited liability pattern with a paid manager, multipurpose activities for viability of the institutions, government help, unionization and vertical integration of agricultural finance institutions. Generally, every credit agencies must adopt rules and regulations for economic considerations but also turn to moral and social aspects of the agricultural finance.

II.1.8 KIND AND CASH LOANS THEORY OF AGRICULTURAL CREDIT

This theory has emerged to avoid diversion of credit and strengthen repayment capacity. In the present scenario agricultural credit is linked with the marketing which aim to reduce incidence of defaults. The farmer takes short term loans for purchasing of seeds, pesticides and fertilizers. The medium term and large term loans are highly durable for purchasing agricultural equipment and “the long term loan should be repayable from the margin profit of the borrower’s holdings without putting him to the necessity of starving his current financial needs (domestic and occupational) or of borrowing from another source, or selling his holding to discharge the loan” (the central banking enquiring committee). The medium term and long term schemes of credit are implemented for providing technical services for the agricultural and infrastructure development. It is found that in some cases, medium term loans may not be kind but indirectly identified and examine the use for which it is borrowed. The kind loans require direct linked between production and service centers by a credit agency.

It is seen that very few credit agencies fallow the method of issuing both in kind and in cash. Co-operative banks follow this method. In such a method, the borrowing farmers is expected to submit purchase bills or the agricultural inputs, only after the loan installment released and some other agencies have been issuing kind loans directly to the farmers. On the other hand, this method has a various problems like farmers have to accept the fertilizers, seeds or pesticides which they may not find appropriate to their needs. However, issuing of credit for purchasing of agricultural inputs is the best example of kind loans. In India, the Land Development Banks (LDBs), have been issuing such credit to the farmers for purchasing tractors, threshers, pump sets, pipelines for irrigation, and for other agricultural inputs. Therefore, kind loan system is to do away with the need for supervision over the utilization of the credit and thus avoid possible diversion of credits. It is seen that each and every system has merit and demerits. So, the credit utilization system is totally depending on the borrowers. But, it remains a fact that in a sound credit system, both elements of credits like kind loans and cash loans will play very important role.

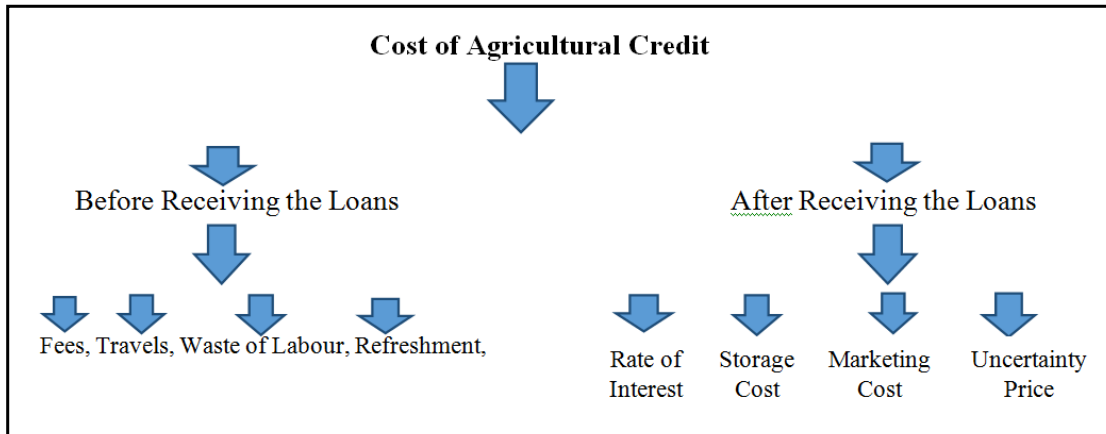
It is necessary to give attention that to issue credit either in cash or in kind. Their responsibility should be left to the banks who may take the decision accordingly

to the specific position of the borrowing farmers. It is always better to issue portion of loans as kind loans and remaining as cash. But the credit to small and marginal farmers should be in kind. But, there is need to identify the loans to be paid in kind or in cash. For example, short term credit is issued for purchasing seeds, fertilizers, irrigation, minor equipment's, and machineries, pesticides, and other minor expenses may be issued in kind whereas medium term and long term credit should be issued in kind either directly or indirectly.

II.1.9 COST THEORY OF AGRICULTURAL CREDIT

Cost of the agricultural finance includes not only rate of interest but also other expenses which the farmers have to pay to receive credit. These includes fees for receiving a copy of land ownership records, travel towards banking branch, refreshment during the visits of banks, waste of labour hours while visiting bank branch, expenses on photographs and other expenses. This type of cost does not end after getting loans but continuous up to final repayment of loans installment. The items like rate of interest, storage charges, cost includes in uncertainty, marketing costs and period of waiting for marketing the agricultural goods after the agricultural harvesting are the costs incurred after receiving the loans. Thus, cost of agriculture may be classified such as the cost incurred by farmers before receiving the loans and the direct and indirect costs which farmers have to bear after receiving the loans.

The farmers would like to minimize the each and every cost, but lack of certain obstacles they cannot minimize the costs. These obstacles may be like literacy, poverty, skill less, and lack of awareness of the marketing activities. Generally, Indian agriculture is backward. The cost of the agriculture finance is high in comparison to marginal returns. Moreover, macro and micro policies and programmes are not functioning effectively to provide credit for timely. It is seen that before getting credit, a farmer have to prepare such documents like a copy of land ownership records, a certificate of quantity of crops last year produce, no dues certificate from primary agriculture co-operative society and a copy/copies of recent photographs. Farmers also have to pay fees for these enclosures, other expenses including travelling, waste of labour hours and stamp duties.



Due to lack of proper supply of credit of formal agencies, farmers prefer to borrow credit from money lenders, traders or relatives and friends, despite of high rate of interest. L.J. Norton have developed certain rules for the use of formal and informal agriculture credit such as, borrow for the business purpose, keep debts at low points and maximize business at high points, to study the price level, to receive loans only for income producing purpose, a definite programme of repayment, keep debts from getting to high capital and income, choose appropriate credit agencies which will commit in writing to go along when incomes are low and to have access amount of insurance.

Credit influenced by internal and external factors of the farmers. When the use of capital is restricted by the internal factors it is called internal factor rationing and when it is restricted by the external factors it is called external factors rationing. Internal capital rationing factors are both socio-psychological and economic in their nature and these factors may be classified into two classes as aversion to change and propensity to change. Lenders and borrowers try to maximize the yield under various items like; lenders maximize profit through collecting the loan and borrower take credit to meet the emergency. Lenders would like favorable rate of return on his loans and borrowers would like receive credit at reasonable cost. Lenders would like to increase the proper degree of liquidity and borrowers do not prefer endangering his own assets as little as possible. Lenders would like to make adequate volume of loans to keep his funds demand and borrowers prefer a favorable repayment principles. Lastly, lenders would like to minimize their cost and borrowers minimize of trouble and “red tape”.

The various possibilities arising out of expected rise in prices, rate of harvest, cost of credit, cost of storage, and cost of marketing over a period of time. The farmers always try to maximize profit at low cost. If cost overcomes the earnings it reveals poor management and if yield overcomes total cost incurred, it shows good management.

$$I = PRT/ 100 \dots\dots\dots (1)$$

Where, I= Interest, P= Principle, R= Rate of percent, T= time.

II.1.10 RETURNS, REPAYMENT CAPACITY, AND RISK BEARING ABILITY THEORY OF AGRICULTURAL CREDIT

The agricultural finance has two aspects like, acquisition of loans and the maximum efficient utilization of loans in farm activities. The agricultural finance include as institutional business aspect and borrower's business aspects. The bankers and farmers aspects would like maximize satisfaction in farm finance activities. Institutional entrepreneur has to bear risk and uncertainties regarding repayment of loans while the farm entrepreneur has to know the marginal productivities by utilizing loans through using his rational ideas. However, technology attracts the attention of borrowing. Finance helps to change technological traditions with reorganization of production plans in agricultural practices. Thus, agricultural finance should lead to greater on the borrowed investment, which again will strengthen the farm assets and repaying capacity of a farmer.

Aaron G. Nelson, William G. Murray, S.S. John and C.V Moore referred three *R's are returns, repayment capacity and risk bearing ability* of agricultural credit. These terms are in a sense indicators of three C's of agricultural credit i.e. character (risk of returns), capacity (repayment) and capital (risk bearing). It is important to analyse the additional returns vis-à-vis the additional cost in utilizing the borrowed funds. But the problem is the credit management for the bankers and farmers. Banks would like minimize risk and uncertainties of repayment and farmers would like to maximum utilization of credit in farm resources. The question always arises what to produce, how much to produce and how to produce, when to sell and where to sell. The vital points to be remembered in this analysis as estimates of returns should be made on the basis of total resources including the borrowed funds and estimate of

returns and cost should be made at the margin and not an average cost. Similarly, MR=MC principle should not keep in mind but law of equi-marginal returns must be kept in mind while deciding upon the amount of credit. The land and labour should also be considered before deciding upon the amount of working capital to be used and the funds should be advanced neither inadequately nor excessively but just the right amount that can be profitably used. On the other hand, money needed for the consumption purposes should also be considered for their marginal value to farm family satisfaction against the marginal productivity of the production loans.

The repayment has two approaches as conventional approach with emphasis on credit limit and modern approach which is based on production plans. The modern approach considered the question whether the borrowers will have sufficient repayment capacity and mortgage? A loan may be profitable but the farmers still may not be able to meet the repayments as they come due. Repayment capacity may be assumed with the following methods:

- A- **Marketable Surplus Method** = (previous stocks + net farm produce in the year) – consumption requirement till the next harvest.
- B- **Liquidity Method**: this method measure the repayment capacity through excess of receipt over payments in cash.
- C- Liquidity and marketable surplus method which emphasis the repayment capacity measured by the excess of income over expenditure. This may be given below:

$$RC = Y - C$$

Where, RC = Repaying capacity, Y = Gross income – farm expenses met from owned fund + non-farm income, C = consumption expenditure. Income and expenditure items are listed below:

Income	Expenditure
1. Previous balance (cash and kind).	1. Household expenses (cash and kind).
2. Net Farm Product.	2. Farm expenses paid (cash and kind).
3. Borrowing.	3. Any amount paid to creditors other than co-operatives.
4. Cash and Kind receipts of cultivation.	4. Expenses on repairs and from sources other than maintenance of assets.
5. Realisation of loans interest.	5. Requirement of households.
6. Money from disposal capital assets and any other receipts.	

The repaying capacity may be strengthen by increasing equity, removing the imbalances in resource availability, adjusting the time period of the loan requirements, improving inputs efficiency through resource use planning, adjustment

in the type of loan, introduction of new and more profitable enterprises, adopting improved technology, proper marketing of farm produce and improvement management skill of the cultivators.

The risk bearing has two types of aspects as borrower's unexpected losses and lenders unexpected losses. The lenders risk is protected by mortgage of borrower's assets, while the borrowers risk will not be covered. Therefore, the risk bearing ability may be strengthen through increasing his willingness to save, strengthening the will to borrow in bad times, to acquire equity and net worth and to create ability to adjust in adverse conditions. The risk and repayment capacities are determined by the factors either directly or indirectly involved in the farm finance.

$$G = J (T)^n$$

Where, G = risk in terms of percentage of investment, T = repayment capacity, J = constants which depend upon farm situations. The equation reveals that repaying capacity depends upon farm situations and farmers credit worthiness. It is noticed that sometimes adoption of new technology through credit strengthens the risk bearing capacity.

II.1.11 THE PRINCIPLES OF SUPERVISED CREDIT

The principle of supervised credit is an important guidance system of credit which prevents avoiding the diversion of credit and to strengthen the repayment capacities of the borrowing farmers. The purpose of the supervised credit is to provide technical guidance to the borrowers. Therefore, supervised credit is nothing but educating the farmers in the farm business. It is necessary that guidance should begin with pre-lending survey of credit requirement to the final repayment of loans. At every stage, the technical experts from the credit agency should guide the farmers in their farming activities. The various agricultural credit agencies follow this method of credit disbursement. Commercial banks sanction their agricultural credit through agricultural department of the banks. In other case, banks also have the inspectors supervise and recovery officers for giving appropriate guidance. In co-operative bank, the supervised credit system has been in practice for long time.

Reserve bank of India has appointed a committee under the chairmanship of Dr. Khusro to evaluate the working of co-operative credit societies and measures to

strengthen the rural banking business in India. And the S.C. Jain has defined the supervised credit such as improved the farm produce through training the farmers, making availability of adequate credit to the farmers, helping farmers in the purchases of various agricultural inputs and promoting the development of agro-based industries. The development of supervised individual credit has significance not only for financial operations but also for the entire process. Therefore, all banking agencies should help in the procedure and administration of supervision. Hence, Maclagan Committee suggested that a separate supervisor unions are also formed to look into the functioning of PACS.

The supervision of credit has two aspects i.e. first- internal and second-external. The internal supervision provides proper guidance for utilization of credit borrowed by the farmers. But external supervision is a supervision of upper agencies on lower agencies. The supervision should not be in the sense losing. It should be to educate the farmers in farm business according to the science of cultivation. A lending agency should also behave with the borrowers as a member and their family. It is noticed that the social and personal relations will strengthen the moral and psychological feeling towards development and growth.

The supervised credit aims to improve the impact of credit on agricultural business and improve the living conditions of the farming community. Dario B. Brossed has addressed that, “The system of supervised credit is not an ordinary banking credit system but it depends mainly upon education work of agricultural officers to plan and carry out his work, to market his produces, and upon home economic officers (usually women) assisting the farmer’s wife in household affairs. In facts this system of credit depends basically on the influence exercised by the field staff over the farmer, his family and the rural community in which they live. They are primarily responsible for its success and failure.

The credit agencies prefer lending through supervision emphasizes pre-lending surveys of the farmers. Pre-lending surveys are very significant because supervised credit programme offers two sources i.e. credit and extension (education) to farmers. The purpose of the system is to help the farmers through better farming and improved living conditions of the farmer’s family. It is also essential to provide additional funds for raising the standard of living as well as for motivating additional saving and

capital investment. Therefore, planning and supervisory process are very crucial in this system of lending. This system is very useful, especially for the improvement of the economic conditions of small and marginal farmers.

II.1.12 PRINCIPLE OF CO-OPERATIVE CREDIT

The developments of co-operative credit agencies are vital for improving socio-economic activities of the small and marginal farmers in the farm business. Therefore, these agencies have huge financial resources of rural co-operative credit in India. The financial resources are essential for rural co-operative in the country for certain reasons such as to prevent exploitation, the investment for development and to grow the developing economy with smoothly and peacefully.

The purpose of the co-operative credit are like to promote thrift for increasing supply of funds, to obtain additional resources from outside the society, to promote the effective use of loans and to reduce risk in granting loans by carefully and effective supervision, to reduce the lending risk of credit co-operatives by adequate surety, to keep the cost of credit as low as possible and to make societies worthy. This theory concluded that to make credit effective, a well design expansion services, programme, policies and research centers must closely attached with the co-operatives agencies for improving agriculture sector. The adequate and timely credit should be available both for production and consumption needs of the farmers.

II.1.13 PRINCIPLE OF BETTER CREDIT

The principle of better credit is very effective way to solve the problem of credit among all sections of people in India. It is noticed that the principles differ from country to country. S. Nakkiran has given a few principles of good credit such as adequacy, proximity, reasonable rate of interest, supervision, self- management, and timely disbursement of credit. It is obvious that the provision of better credit operation depends upon national policy and the use of the credit for agricultural development. Sometimes, the availability of better credit depends on the institutional or non-institutional agencies. It is observed that co-operative credit agencies provide good credit to the farmers because it mobilize rural saving, promote national thrift, carefulness of self-control, generate new ideas in the general population and self-mutual help. On the other hand, the institutional system of rural credit should

emphasized on these point such as attached with the policies of the state, an effective alternative to the private agency of credit, have adequate resource and well trained agencies of credit. Similarly, the institutional agencies should not only provide short term (ST), medium term (MT) and long term (LT) credit but also attached with providing institutional arrangement and other economic activities of the cultivators. There is also need to concern the rate of interest on the agriculture credit.

The co-operative agencies are the only solution to provide sufficient rural credit. Moreover, co-operatives movement allowed the poor class to improve their conditions because majority of the poor are the rural poor belonging to agriculture and allied sector. That is reason our late Prime Minister Mr. Pandit Jawahar Lal Nehru ones stated, “We want to include every village in the co-operatives whether he has resources or not. Unless we do so, only those who have functioned, other who have not, will not have a chance to go ahead.”

The long term credit aims to provide loans for development purposes and must be effectively administered. LDBs have adopted rational way of LT loans for agricultural purposes and have less chance to default. In this regards the Royal commission also emphasized on managerial efficiency and further suggested that no step forward should be taken unless management is efficient. Hence, micro credit increased productivity of land or farm unit. But macro level credit increase agricultural output and find to optimum returns on capital invested.

It is clear that agriculture production and productivity has been directly and indirectly interlinked with agricultural credit at global, national, state, and regional level. Agricultural credit are influencing either positively or natively of agricultural productivity. Agricultural credit is important factor which are also affecting the socio-economic condition of small and marginal farmers in Uttar Pradesh. It is observed that agricultural credit not only influence the productivity of the agriculture but also affects such as education, health, consumption, income, discipline and guide the borrowers, motivate to save teach the lesson of self and mutual help. It is also seen that the purpose of the agriculture credit should be safe cheap and should be available wherever it is demanded. There are various institutions, committees, programmes and policies which were set up to improve agriculture sector and flow of agriculture credit in the rural areas. These factors are discussed below:

II.2 INSTITUTIONS, COMMITTEES, PROGRAMMES AND POLICIES

There are several institutions, committees, programmes and policies as given follows:

II.2.1 Agricultural Finance Corporation (AFC): Agricultural Finance Corporation was incorporated on April 10, 1968 by the Indian Banks' Association in order to provide advisory services to commercial banks in matters related to financing agriculture. AFC is a consortium of commercial banks established under the Indian Companies Act 1956 to provide consultancy services to member banks in matter related to projects for agriculture and rural development. Scheduled commercial banks numbering 37, notified under RBI Act of 1934 had subscribed to the share capital of the corporation. The authorized share capital of agricultural finance corporation was Rs. 100 crores and the issued share capital was Rs 10 crores (P.S. Badal, BHU).

The main objective of the corporation is financing to institutions / organization / individuals which are involving agriculture development as well as promoting commercial bank advances for agricultural development. The corporation financing for sinking, deepening and energizing of irrigation wells and production, distribution and marketing of agricultural inputs such as seeds, fertilizers, insecticides, machinery.

II.2.2 Lead Bank Scheme (Lbs): The Government of India in October 1968, with the approval of the National Credit Council (NCC) organized a study group under the chairmanship of D.R. Gadgil. The group would like to establish a strong organizational framework for banking system. The study group suggested that district should be the unit in an area approach because district is the main administrative unit of the country. The group was of the opinion that the lowest unit under area approach has to be necessarily identified with the district which is the main administrative unit in the country. Latter in August 1969, Reserve Bank of India (RBI) appointed a committee of bankers to take decision on banking facilities and established adequate banking facilities in unbanked districts. The committee suggested that banks should be selected specific districts where they could take the lead in the banking development through extending branches and credit facilities in the unbanked districts of the country (R.K. Lekhi, 2011).The main aims of the LBS is that to choose appropriate areas for branch expansion and to formulation of a phased programme for expanding the branch offices with the purpose of providing banking facilities to the entire area covered. Along with, the scheme assessed the major hurdles in the

development of the district and to experiment with financing schemes which can help in mobilizing deposit and promoting investment among the local people, promoting agricultural development, and small scale industries for inducing local entrepreneur. It is found that the Lead Bank Scheme reduced the regional disparities in the availability of the bank credit yet its scope and contents have been changing time to time. In first phase, the banks confined the activities in the districts and Districts Consultative Committee and State Level Bankers Committees formulated to find solution to the problem encountered by the banks in the second phase. In third phase, to found the problem and solution and overcome the gap between the need and availability of credit at district level and emphasized was laid on the compilation of district level banking statistics in the fourth phase. In fifth phase, RBI established a separate cell to supervise and guide the banks in the preparation of districts credit plan (R.K. Lekhi, 2011).

Lead banks scheme covered all the districts of the north- eastern region in India. But it has organizational problems which effects the implementation of credit plans. The cooperatives, have failed to recover their dues in time. Thus, it restricted further flow of credit to their member. Therefore, this has compelled the commercial banks to establishing rural branches. It is observed that there is lack of co-ordination among financial institutions operating in districts and has no equity in the distribution of the credit. In the same way, the attitude of the branch managers is against towards credit. Their responsibilities and attitude of the banks officials at the branch level in many case at the controlling and performing their commitments is not appropriate increasing credit in rural areas. Therefore, it is necessary to tell the people how they will be benefited through banks. It is seen that illiteracy and ignorance make work very difficult and complicated. Therefore, there is need for educate the agriculturists about the high yielding variety seeds and improved agricultural techniques and practices. For the better functioning, the Lead Banks must be improved attitudes, organizational problems, co-ordinations, and public participation is very important for the development of the institutions.

Commercial banks and co-operatives banks were not able to meet the credit requirements in the rural areas. Therefore, a committee under the chairmanship of Shri N. Narasimham was set up to give suggestions to fill the gap in the disbursement of rural credit. This committee suggested the institution of Regional Rural Banks

(RRBs) as low cost banking for rural areas which should set up particularly to meet the credit needs of rural areas. Hence, on October 2, 1975, regional rural banks were set up to grant direct loans and advances only to small and marginal farmers, rural artisans, agricultural labours and others of small means for productive purpose. To solve the agricultural problems, the government of India appointed a working group under the chairman ship of C.E. Kamanth. The working group given their recommendations like the function of the credit agencies should be determined on the basis of geographically not functional basis and cooperative societies including Land Development Bank would play a crucial role providing agricultural finance and commercial banks and regional rural banks have supplementary role to support and strengthen the co-operative sectors. The group suggested that commercial banks and regional rural banks should support to weak cooperatives credit agencies and also finance to rural development activities which is operating by the cooperatives. It is observed that the interest rate on agricultural loans should vary from 4 per cent to 16.5 per cent on the basis of the duration and size of the loans, differences in cost of funds and diverse character of different financial institutions. Therefore, uniform interest rate should be adopted by the commercial banks.

The Narisimham Committee suggested that public sector banks should set up one or more rural banking subsidiaries depending on the size and administrative convenience of each sponsor banks. The rural subsidiaries should have the freedom to swap rural branches. Such rural banking subsidiaries should be treated on par with RRBs in regard to CRR and SLR requirements and refinance facilities from NABARD and sponsor banks. The committee suggested that RRBs should be allowed to engage in all type of banking business and should continue to provide loans to the target groups to maintain at a minimum the present level of their lending to these groups but they should not be forced to restrict lending operation to the target groups alone. The interest rate structure of the RRBs should be in line with those of the commercial banks. Finally, NABARD should help RRBs to earn higher level of interest income for their surplus cash balances and for their funds presently invested in government securities or in government guaranteed securities for SLR compliance. These measures would help to improve the viability of RRBs (Datta & Sundharam, 2006).

The Agricultural Credit Review Committee under the chairmanship of Dr. A.M. Khusro observed that the weaknesses of Regional Rural Banks were endemic and non-viability was built into their structure. The committee observed that RRBs were getting huge losses. Therefore, they were not in the position of the survival and provide loans to the poor section of the society. Hence, Dr. Khusro suggested that there is no place for RRBs in the country's rural credit system in the near future and they should be merged with sponsor banks. The Government of India considered the recommendation of Narasimham and Khusro Committees. The Government observed that co-operatives, commercial banks and regional rural banks have a critical role to perform multi-agency approach to provide agricultural and rural credit. In 2004, the Government took a strong steps to improve the strength and functioning RRBs. Reserve Bank of India appointed a committee such as M. C. Bhandari Committee, the Committee was set up to suggest measures for restructuring RRBs. The issued share of RRBs has been enhanced from Rs 75 lakh to Rs. 1.0 crore. NABARD should supports RRBs as to increase productivity, cash management, advances portfolio and recovery performance. NABARD has advised a short term measures for RRBs and to liberalized from their service area obligation and are allowed to increase their non-target group financing from 40 per cent to 60 per cent. They are permitted to relocate some of their loss making branches at agricultural produce centers, market yards, and mandies and have freedom to open extension counters. They have freedom to provide loans for non-priority sectors to cover the non-fund activities (Datt and Sundharam 2006).

The recommendations of the "Committee to Review Arrangements for Institutional credit for Agriculture and Rural" in 1979 and recommendation of the CRAFTCARD (Sivaraman Committee, 1981), the National Banks for Agricultural and Rural Development (NABARD) was set up in July 1982. It has taken over the functions of the agricultural department of the RBI and the Agricultural Refinance and Development Corporation (ARDC). The ARDC had been set up earlier in July 1968 to meet the long term credit to the rural areas. Latter, ARDC was merged with NABARD to expand the scope of functioning. NABARD is an apex and refinance organization. As a refinance, NABARD provides refinance to investment and credit to agriculture, small scale industry, village industries, artisans and other allied activities to promote rural development. It provides short and long term credit to cooperatives

and regional rural banks. The purpose of the banks is provides and regulate credit and other facilities for the promotion and development of agriculture and allied activities in rural areas. NABARD has three main functions namely development, credit and supervision. Development includes those activities which ultimately enhance credit absorption capacity, build awareness and allow policy advocacy for various causes. Credit primarily covers refinancing of cooperatives, RRB's and commercial banks and finance for rural infrastructure and supervision. It also conducts training, consultancy and research relating to agricultural finance and agricultural and rural development.

The Agricultural Credit Review Committee by Khusro Committee in 1989 stressed that the importance of encouraging member's thrift and savings for the cooperatives. He also emphasized that the need for better business planning at the local level and for strategies to be enable cooperatives to be self-sustaining. The committee was in favour of serving non-members. In 1990s, it witnessed more concerted attempts by both the government and non-official organizations and cooperators to explore ways to improve the cooperatives. Several committees were set up to suggest cooperative sector reforms during 1990s. In 1991, the report of committees on financial system brought biggest change in the areas of the finance. The Government of India set up a high level Committee with Mr. M. Narasimham (1991), a former Governor of the Reserve Bank of India as Chairman to examine all aspects relating to the structure, organization, functions and procedures of the financial system. The committee on the Financial System submitted its report in November 1991. The Committee was interested in improving the financial health of public sector banks and development financial institutions (DFIs), to provide and meet the viable facilities of the economy. The committee recommended that the Government should reduce the SLR from the present 38.5 per cent of the net demand and time liabilities of banks to 25 per cent over next five year. A reduction in the SLR level would increase more funds with banks for allocation to agriculture, industry and trade. The committee also recommended that the government borrowing rates should be market-related and this higher rate would help banks to increase their income from their Statutory Liquidity Ratio (SLR) investment and Reserve Banks of India (RBI) rely on open market operations and reduce dependence on Cash Reserve Ratio (CRR). The committee also suggested that CRR should be reduced from the present level of

15 per cent to 3.0 to 5.0 per cent and recommended that the direct credit programmes should be phased out and agriculture and small industry had already grown to a mature stage and they did not require any special support and only two decades of assistance with interest subsidy were enough and therefore, concessional interest rate could be dispensed. The committee argued that the system of the direct credit should not be regular programme but should be an extraordinary support to certain weaker section of the economy and priority sector should be redefined to include only the weakest sections of the rural community such as marginal farmers, rural artisans, village and cottage industries and tiny sector. The direct credit programmes for this redefined priority sector should be fixed at 10 per cent of the aggregate bank credit and emphasized that “The postulates of social banking need not clash with sound banking”. The Narasimham Committee (1991) recommended that the level and structure of interest rates in the country should be determined by market forces and all controls and regulations on interest rates on lending and deposit rates of banks and financial institutions on debentures and company deposits should be removed. The committee suggested that Reserve Bank of India should be main authority to determine the structure of interest rate.

The committee advised to reduce the number of public sector banks through mergers and acquisitions. The committee said that 3 to 4 large banks (SBI) should have international character and 8 to 10 national banks engaged with universal banking and local banks should determine the specific regions and rural banks including regional rural banks whose operations and business should be confined to the rural areas to finance agriculture and allied activities. The committee proposed that the system of the licensing of branches spreading habits of banks should be changed and banks should have the freedom to open branches for the profit motives. The government should to make positive declaration that there would be no more nationalization of banks and RBI should focus to establish new banks in the private sector. There should be no difference in the treatment between public sector banks and private sector banks. The Narasimham Committee (1991) recommended the Government should allow the foreign banks to set up branches or subsidiaries but rules and regulations of the banks should follow the same as Indian banks. Foreign banks and Indian banks should be allowed to set up joint ventures in business, investment banking and other financial services. The committee recommended setting

up Assets Reconstruction Fund (ARF) and dual control over the banking system between RBI and Ministry of Finance should be end and RBI should be the primary agency for the regulation of the banking system. The public sector banks should be autonomous and the appointment of the executive of a bank should not be based on political consideration but should be appointed by the panel of the experts and not by the Government as at present.

II.2.3 Rural Infrastructure Development Fund (RIDF): The Government of India established the RIDF in NABARD with a corpus Rs 2000 crores in 1995-96 for financing ongoing rural infrastructure projects. The purpose of the fund is to provide loans to state governments and state-owned corporations to enable them to complete ongoing rural infrastructure projects. Infrastructure projects refers such as irrigation, rural bridges, rural road, watershed development, flood protection, market yard/godowns, drainage, command area development, cold storage, fisheries, forest development, inland water ways, primary school, rural drinking water and soil conservation. The corpus of the fund was contributed by domestic commercial banks to the extent of their short fall in stipulated priority sector lending to agriculture of 18 per cent. It is considered that with every successive budget the Government of India continued RIDF, designating as RIDF-I, RIDF-II (NABARD 2011-12).

It was observed that the performance of the projects was satisfactory in RIDF-I and RIDF-III where the disbursement was high as 90 to 91 per cent. From RIDF-IV, disbursements were declined continuously. It is found that between RIDF-IV to RIDF-VII (1998 to 2002), loans disbursed as percentage of loans sanctioned declined from 78 per cent to 40 per cent. It is seen that the fund was extremely underutilized and in facts, during the year 2006-07, disbursement was a pathetic 15 per cent. However, disbursement became 66 per cent in 2009-10.

The shortfall in disbursements of RIDF as compared to sanctions continues to remain a matter of concern in the implementation of RIDF. To address this problem, the scope of RIDF has been widened. For example, the activities to be financed under RIDF-X include minor irrigation projects/ micro irrigation, flood protection, watershed development/reclamation of waterlogged areas, drainage, forest development, market yard/godowns, mandies, rural haats and other marketing infrastructure, cold storage, seeds/agriculture/ horticulture farms, plantation, and

horticulture, grading and certifying mechanisms such as testing and certifying laboratories. Community irrigation wells should be for irrigation purposes for the village as whole, fishing harbor/jetties, riverine fisheries, animal husbandry and modern abattoir.

It is observed that NABARD has taken several measures to make the loans under RIDF more attractive and to increase the reach of such loans. Apart from state government, other institutions and groups such as Panchayat Raj Institutions (PRIs), Self-Help Groups (SHGs), and Non-Government Organization (NGOs) should be implemented in RIDF projects.

Further, RBI appointed Gupta committee on micro credit institutions in 1999 and the Kapoor committee on micro credit institutions in 1999. Rural credit has ceased to be the Cinderella of RBI. But, what is lacking is clear vision of the type of new architecture of the rural credit delivery system, which would be both vibrant and viable, and which we should eventually aim to establish. V.S. Vyas Committee (2001), the expert Committee on Rural Credit” restoration of health of Primary Agricultural Credit Societies (PACS) by scraping the cadre system, selective delaying of cooperatives credit structure and integration of short and long term structure. M.V.S. Chalapathi Rao (2002), the working group to suggest the amendments in the Regional Rural Banks Act 1976, and suggest that diversification of the business of RRBs, and recommended introduction of capital adequacy norms for RRBs in a phased manner, along with the RRB specific amount of equity based on the risk-weighted assets ratio. On the other hand, Mehta’s Committee on Co-operative Credit under the chairmanship of Mr. V.L. Mehta has made several recommendations for the development of the co-operative credit in the country. Some of the main recommendations were such as the organization of co-operative should be based on the village community and each and every village should be covered by the societies. The societies should care maximum limits population of 3000 and distance of not more than 3 to 4 miles from the headquarters. State partnership in the share capital of primary agricultural societies should be subject to the maximum contribution ordinary limit Rs. 5,000 and only in exceptional circumstances, and it should be increased to Rs.10, 000. Membership should be open to all classes of cultivators and attention should be paid for production requirement and repaying capacity of borrowers while granting loans. All short term and medium term loans should be given without

mortgage of landed property but up to Rs.500 only. Co-operative institutions must increase their range of the credit and distribution operations and for reorganization and revitalization of the primary societies. There must be full- time paid staff. There should be liberalization of lending policy by the Reserve Bank of India to central co-operative banks for receiving larger funds. Departmental and other staff should be increased and proper arrangements and training programmes.

II.2.4 Mirdha Committee: The detailed conditions should be prescribed to ensure a minimum performance before a society is registered. These might be mostly in terms of a minimum membership and a minimum share capital to be achieved before registration. The planning of a new society must ensure that target have some relations to financial resources and administrative preparedness. The committee said that the problem of dormancy of a large number of agricultural credits- service societies was very disturbing, and quick action was needed to eliminate societies which had no chances of revival. A programme of revitalization for growth should be carried out quickly. It is obvious that the present shortcomings could be remedied with vigilant administration and supervision at official and non-official level.

II.2.5 Agricultural And Rural Debt Relief Scheme: The Union Finance Minister (Madhu Dandawate) announced the Agricultural and Rural Debt Relief Scheme in his budget in 1990-91. This Scheme also called the loan waiver scheme. The scheme came into existence from May 1990. The scheme provided debt relief up to Rs. 10,000 to the barrowers of public of the public sector banks and regional rural banks. Under this scheme those borrowers were taken who was engaged in agricultural and allied activities and artisans engaged in any activity of the rural development relating to cottage and village industries, handicrafts and weaving (NABARD, 2011-12). The Government of India made a provision of Rs. 1000 crore in 1990-91 budget towards the debt relief scheme and committed to afford the entire burden of the relief which would be provided by commercial banks and regional rural banks. The government was also committed to providing 50 per cent assistance for the relief to be provided by the co-operative credit institutions.

The finance minister indicated one time debt waiver for all small and marginal farmers holding up to 2 hectares of land in 2008-09 budget speech. The waiver would involve a total amount of Rs. 61,000 crores. The banks have waived nearly Rs. 65,000

crores. The Government of India would reimburse the banks in two installments. The performance of the scheme was admired by many experts but other has criticized the scheme. It has penalized honest repayers to the banking and cooperative sector. Beside, without tackling the problem of money lenders, no scheme to help the farmers can really succeed. In future too, farmers may resort to willful defaulting of their institutional loans and hope to get repeat “one time” waivers.

II.2.6 Agricultural Debt Waiver And Debt Relief Scheme: The scheme of Agricultural Debt Waiver and Debt Relief (ADWDR) for farmers was announced in the Union Budget 2008-09 to address the indebtedness of farmers and difficulties of the farming community especially small and marginal farmers. NABARD implemented the scheme as the nodal agency for co-operative banks and regional rural banks. It is considered that about Rs. 192.59 lakh farmer borrowers of co-operative banks and RRBs are estimated to have benefited under the scheme, of which small and marginal farmers constituting 83.5 per cent, were the major beneficiaries. Out of Rs. 29240 crores received under the Agriculture Debt waiver and Debt relief Scheme 2008, the cumulating disbursements by NABARD was Rs 29,099 crores covering 1.88 crore accounts of the farmer. The share of State Co-operative banks (SCB), State Co-operative Agriculture and Rural Development Bank (SCARDB) and RRBs stood at Rs. 18,282.30 crores, Rs 3843.37 crores and Rs 6973.66 crores respectively (NABARD, 2011-12).

II.2.7 Comprehensive Crop Insurance Scheme: The Government of the India announced a comprehensive crop insurance scheme in 1986 to protect the farmers from natural calamities and ensure their credit eligibility from the next season. The scheme covered major cereal crops, oilseeds and pulses. The cooperative credit institutions, commercial banks and regional rural banks were responsible for providing crop loans to the farmers. The sum insured equal to crop loan disbursed subject to maximum of Rs 10,000 per farmer the premium charged was at the rate of 2.0 per cent for rice, wheat and millets and 1.0 percent for pulses and oilseeds. The scheme covered 15 states and 2 Union territories. The participation in the scheme was voluntary and States were free to opt for the scheme. It was found that 5 million farmers and 8 to 9 million hectares land were annually covered by the crop insurance scheme. If the actual average yield in any area covered by the scheme fell short of the guaranteed yield, the farmers were entitled to insurance on compensation to the extent

of shortfall in yield. The General insurance Corporation of India (GIC) administered the scheme on behalf of the Ministry of Agriculture and Government of India. The growth of the scheme was seen that 65 million farmers were covered upto Rabi season in 1997-98. The total amount of claims paid was Rs. 1623 crores as against a premium collection of only Rs 313 crores. The scheme was thus unviable. The losses incurred were met by the Government of India and the concerned State Governments in the ratio of 2:1. The weaknesses of this scheme were seen that the total amount claims paid was Rs 1,623 crores in India. Gujarat State alone received Rs 792 crores for one single crop like groundnut. That is the main reason that the scheme became ineffective.

II.2.8 Experimental Crop Insurance Scheme: The Government of India introduced experimental crop insurance scheme in 1997-98. The scheme covered non-loanee small and marginal farmers growing specified crops in selected districts. In this scheme the premium was totally subsidized. The premium and claims were shared by Central and State Governments in the ratio of 4:1. The scheme could be implemented only in 14 districts of 5 states and only 5 lakh farmers were covered for a sum of Rs. 172 crores. The premium collected was about Rs. 3.0 crore and claims amounted to Rs. 40 crores (NABARD, 2011-12)

II.2.9 Kisan Credit Cards: Kisan Credit Card (KCC) scheme was introduced in 1998-99. The purpose of the KCC scheme has facilitated the flow of credit to farmers. The numbers of Kisan Credit Card (KCC) issued in India are presented in Table 2.0

Table 2.0 Kisan Credit Cards issued in India (in Million)

Year	Co-operative Banks	Regional Rural Banks	Commercial Banks	Total
2006-07	2.29	1.41	4.81	8.51
2007-08	2.09	1.77	4.61	8.47
2008-09	1.34	1.42	5.83	8.59
2009-10	1.75	1.95	5.31	9.01
2010-11	2.81	1.77	5.58	10.16
2011-12	2.96	1.99	5.12	10.07

Source: Annual Report, NABARD, 2011-12.

During 2011-12, 10.07 million KCC were issued by banks with sanctioned credit limit of Rs. 54,269 crore. The end of December 2011, CBs issued 53.06 million cards (46.58 per cent), cooperative banks issued 43.66 million cards (38.33 per cent) and RRBs issued 17.19 million cards (15.09 per cent). Kisan Credit Card is a popular scheme among the small and marginal farmers in the country. KCC holders are also provided personal accident insurance cover of Rs. 5,000 for death and Rs. 25,000 for disability (NABARD, 2011-12).

II.2.10 National Agricultural Insurance Scheme (NAIS): The Government of India announced National Agricultural Insurance Scheme (NAIS) or Rashtriya Krishi Bima Yojana in 1999-2000 due to ineffective performance of the “Experimental crop insurance scheme (1997-98). This scheme covered all food crops as cereals, pulses, oilseeds, horticultural and commercial crops. It also covered all farmers such as loanee and non loanee. The premium rate charged by the scheme varies from 1.5 per cent to 3.5 per cent for the food crops but for the horticultural and commercial crops actual rate was charged. Under this scheme small and marginal farmers were entitled to a subsidy of 50 per cent of the premium charged. The subsidy is equally shared between the Government of India and the States. The scheme operates on the basis of the areas for crops and hailstorm, landslide, cyclone, and floods. The performance of the scheme was that it were covered about 135 million farmers and sum insured was Rs. 1,48,278 crores and the insurance charges were Rs. 4,427 crores during 2008-09. The total claims came to Rs. 15,230 crores during 2008-09. The scheme is growing fast and in presently it covered 25 states and 2 union territories.

II.2.11 Farm Income Insurance Scheme (FIIS): The Central Government has announced a new scheme for the farmers known as Farm Income Insurance Scheme (FIIS) in 2002. The scheme focused on farmer’s income and prices. The scheme provides income protection to the farmers by insuring both production and market risks and also insured the farmers to get the minimum guaranteed income and minimum support prices (MSP) from their average yield. If the actual income is less than the guaranteed income then the insured will be compensated by the Agriculture Insurance Company of India (2002). The scheme only covered wheat and rice. National Agricultural Insurance Scheme (NAIS) will be withdrawn for the crops covered under FIIS but would continue to be applicable for other crops. FIIS has been introduced as a pilot project from Rabi 2003-04 covering wheat and paddy in 18

districts and 12 states. The scheme would extend, with necessary changes on the basis of the pilot project.

II.2.12 Weather Based Crop Insurance Scheme (WBCIS): The Government of the India launched one more insurance scheme for farmers in his Union Budget 2007-08. The scheme was launched to provide insurance protection to farmers against adverse incidence, like deficit and rainfall which would impact adversely crop production. The scheme is implemented by the Agricultural Insurance Company of India Ltd. The scheme also provides private insurance like ICICI- Lombard. The performance of the scheme could be seen during Kharif 2007- to Kharif 2010. In this period, about 81 lakh farmers have been covered under this scheme. There was much fluctuation to decide the specific areas for the implementation of the scheme. Sometimes it was implemented for specific crops, sometimes for the stable farm incomes, sometimes for specific areas. In the meanwhile, farmers suffer from crop failures and commit suicides in different part of the country.

II.2.13 Modified National Agricultural Insurance Scheme (MAINS): The Government of India has launched modified national agricultural in 2010-11. This scheme was launched to provide protection farmers from natural calamities like floods, drought and cyclone. The premium subsidy is shared by the Central and State Governments on 50:50 basis and claims are the liability of the insurance companies. The scheme has been notified by 17 states in a total of 50 districts for Rabi 2011-12 season. During Rabi 2010-11, about 3.58 lakh ha have been covered, insuring a sum amounting to Rs. 694.06 crores. The claim amounting to Rs. 15.96 crores has been provided to 46,224 farmers. 4.89 lakh farmers have been covered over an area of 7.18 lakh hectare insuring a sum amounting to Rs. 14.70 crores.

II.2.14 Livestock Insurance: This scheme has been implementing through the General Insurance Corporation of India since 1991. Under this scheme cover is provided for the sum insured or the market value of the animal at the time of death. The scheme covered all the state of the country and benefits farmer and cattle bearers having witch cattle and buffaloes. The performance of the scheme was that in 2010-11 Rs. 20.12 crore has been released upto December 2010 and 20.63 lakh animals have been insured from 2006-07 to 2009-10.

II.2.15 Microfinance Scheme: The government of India implemented micro credit or micro finance scheme under the supervision of Micro Credit Summit held in 1997. This is a novel approach to provide banking facilities to the poor farmers, promote credit for employment and other financial and business services (including saving and technical assistance) to very persons. The delivery of the credit is possible through Self Help Groups (SHGs), Non- Government Organizations (NGOs) and credit Unions. Microfinance includes savings, credit, insurance and other financial services for the poor or informal sector communities. This scheme attempts to combine lower transaction costs and high degree of repayment. To provide potentially credit NABARD introduced SHG-bank linkage programme. Micro finance has been seeing best methods of creating additional employment and removing poverty. NABARD has been playing a catalytic role in term of promotional support to NGOs and also in nurturing quality SHGs. The performance of the micro credit is that till March, 2007, 2.9 million SHGs are now linked with banks and 7,000 NGOs are associated with the scheme. It is estimated that end of the March 20 million poor families were brought within the fold of formal banking services and more than 90 per cent women linked with banks. It is seen that there is strong repayment performance. Despite various achievement of micro-finance or micro-credit has some drawbacks. It is seen that nearly 70 per cent of the poor families are yet to be covered under this scheme. The growth of the SHGs bank-linkage model is still slow and it has to grow faster. It is seen that only four state account 70 per cent SHGs linked to bank credit and 80 per cent bank loans. Andhra Pradesh account 40 per cent SHGs linked to the banks and Tamil Nadu, Karnataka and Uttar Pradesh account only 30 per cent SHGs linked to the banks. In the other words, most state in the country has not yet encouraged the organization and promotion of SHGs-bank credit link. The Reserve Bank of India has been making efforts to build SHGs strong with focusing funding, regulating and structure and sustainability.

II.2.16 Swarozgar Credit Card Scheme: Swarozgar Credit Card (SCC) scheme was introduced in September 2003 for providing adequate and timely credit to small artisans, handloom weavers, other micro-entrepreneurs, SHGs from the banking system in a flexible, hassle free and cost effective manner. During the year, 94,479 SCCs having credit limit of Rs. 495.81 crores were issued for facilitating hassle-free credit for investment and working capital requirements of small macro entrepreneurs.

The cumulative number of SCCs issued was 13.06 lakh involving credit limit of Rs. 5,445.32 crores.

II.2.17 Pradhan Mantri Jan Dhan Yojana (PMJDY): The Pradhan Mantri Jan Dhan Yojana is conceived with the objective of financial inclusion of the poor and rural population giving them dignity and financial independence. The Prime Minister launched the National Mission on Financial inclusion named as Pradhan Mantri Jan Dhan Yojana (PMJDY) in national capital on August, 28, 2014. The PMJDY, a national mission on financial inclusion, has the objective of covering all households in the country with banking facilities and having bank accounts for each household.

II.2.18 Pradhan Mantri Fasal Bima Yojana: The Pradhan Mantri Fasal Bima Yojana or Prime Minister's Crop Insurance Scheme was launched by Prime Minister of India Shri Narendra Modi on 18 February, 2016. It has a uniform premium of only 2.0 per cent to be paid by farmers for Kharif crops, and 1.5 per cent for Rabi crops. The premiums for commercial and horticultural crops are 5.0 per cent. This scheme is dedicated to bring in more than 50 per cent of the farmers under the next 2-3 years. Around 25 per cent of the claims will be sent to the farmer's direct account. The government has proposed that there will only be one insurance company for the entire state. Mostly, the private as well as the national agricultural insurance companies will be approached to implement it.

II.3 CONCLUSION

Institutional credit and non-institutional credit agencies are two source of agricultural credit in India. Institutional source mainly consists cooperative banks, commercial banks, regional rural banks. Non-institutional source are such as moneylenders, landlords, traders, friends, and relatives. It is clear that these two sources of agricultural credit are providing credit for improving growth of agriculture sector and improving the conditions of the farmers. But, it is found that Indian agriculture is facing various institutional and non-institutional constraints. Therefore, various theories and approaches of agricultural credit have been developed to boost the growth of agriculture as well as improve the socio- economic conditions of farmers.

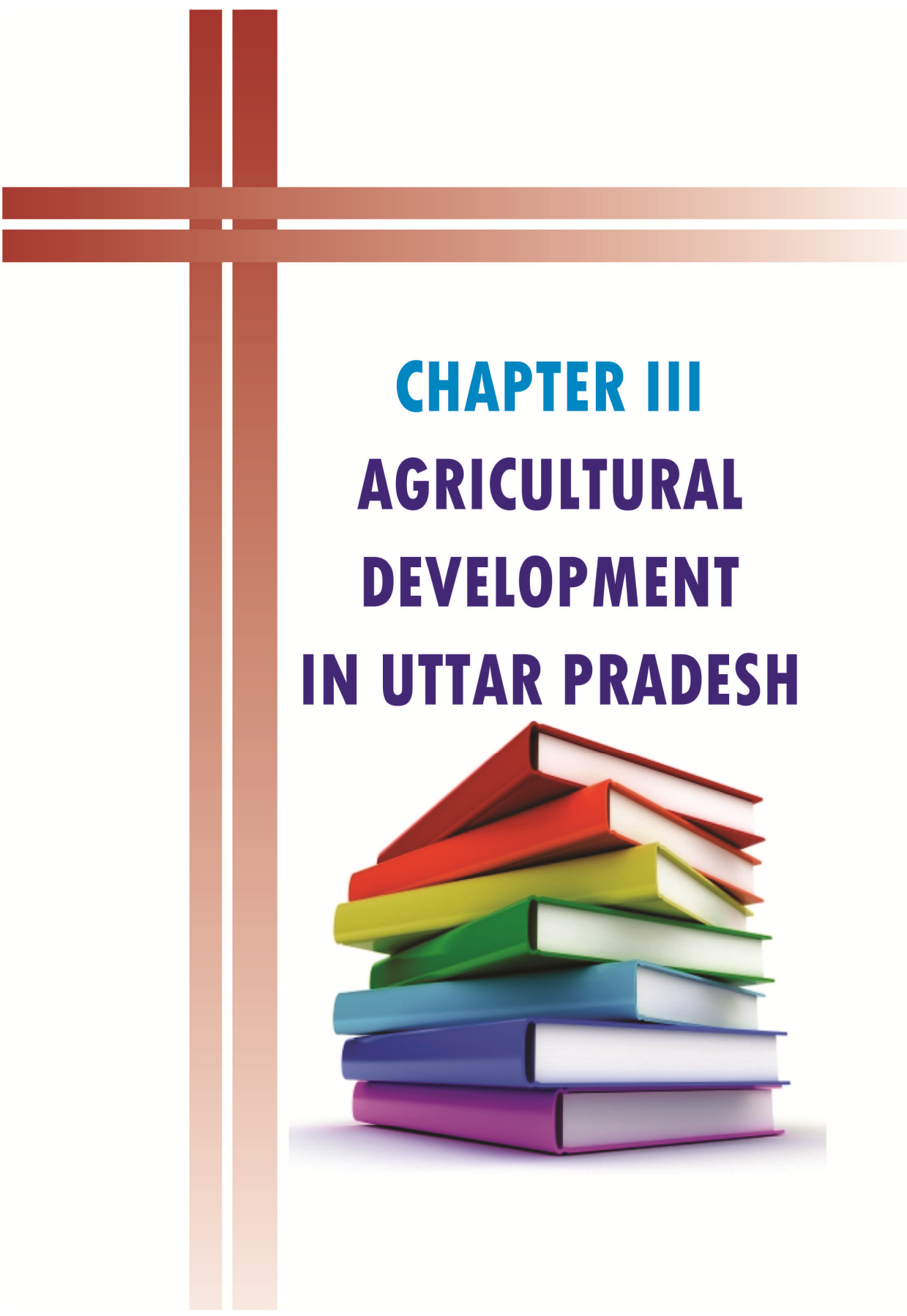
It is clear that farmers were exploited by the moneylenders. Therefore, the government has made several theoretical models, committees, commission, Acts,

policies and programmes to abolish the malpractices of the moneylenders and efficient supply of the agricultural credit till today. But, it is found that these efforts are not sufficient to prevent exploitative nature of the moneylenders in the state and country. On the other hand, it is observed that timely availability of agricultural credit is very important among the small and marginal farmers to increase the productivity, production, and income. Therefore, there is concern the recommendations of the committees, government policies and programmes and should be modeled such a way which can provide maximum social justice, equality and benefits of the farmers. There is also need to focus on small and marginal farmers with effective agricultural credit policies and programmes at regional level, state level at national level.

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CHAPTER III
AGRICULTURAL
DEVELOPMENT
IN UTTAR PRADESH



Uttar Pradesh is the most populous state of India. According to the 2011 census, the state population was more than 199 million accounting for 16.49 per cent of the country's population. The density of the population in the state was 828 persons per square kilometer which is more than twice of the national average of 324 in 2011. The percentage of the rural and urban population was 79.22 per cent and 20.09 per cent in 2001 in the state. The decade growth rate of population was 20.09 per cent in 2011 compared to 25.85 per cent in 2001 at state level. If the population growth rate in the state increase continues at the same rate, then U.P's population will be same as country's population was at the time of 1947 and then if Uttar Pradesh were to be a separate country, it would be fifth most population country in the world after China, India, United States and Indonesia.

Uttar Pradesh accounts 7.5 per cent of the country's geographical area and accounts fifth place after Rajasthan, Madhya Pradesh, Maharashtra, and Andhra Pradesh. The sex ratio of the male and female was 1000:908 in 2011. The total literacy rate was 69.72 per cent whereas male and female literacy rate was 79.24 per cent and 59.26 per cent in 2011. The state accounts 29th rank among all states and territories, but 22th rank among all 28 states. The State also accounts 80 members out of the total 543 members in Parliament (Lok Sabha) in India. It is not surprising that 15 Prime Minister's that India has had since independence; eight of them have come from Uttar Pradesh (Nirupam Bajpai and Nicole Volavka, 2005).

It is an important to know that how the name "Uttar Pradesh" came to existence. It received its name "Uttar Pradesh" on 26th January, 1950 after the commencement of the Indian constitution. From 1937 to 1950, it was known as 'United Province'. During the period of British regime, it was the part of the west Bengal Presidency and sometimes, it was called the 'Western Province'. At the time, Awath consisted of Lucknow, Barabanki, and faizabad. After 1857, Lord Canning made the entire North-Western province under a Lt. Governor in 1858. In 1877, two provinces became united as United Provinces of Agra and Awath. Today 'Lucknow' is the capital of Uttar Pradesh.

Uttar Pradesh is a rural economy basically agrarian economy. The industrialization development in the state is highly skewed with the western region of the state accounting for most of the industries of the state. The main agricultural crops in the

state are wheat, rice, sugarcane, pulses and vegetables. The main industries in the State are cement, vegetable oils, textiles, pulses, cotton yarn, sugar, jute, and carpet. The percentage of the agriculture, industry and service sector in the state income was 31.7 per cent, 22.2 percent and 46.1 per cent (Census-2011).

Agriculture plays an important role in the economy of Uttar Pradesh. Agriculture sector provide 65 per cent employment and accounted 29.6 per cent share in state economy. Therefore, agriculture sector is a backbone for the development of the state. The situation of the agriculture in the state was very poor and deplorable condition during 1950-60s. The condition of the farmers was not good. They were in heavy debt in the clutch of the village money lenders. They had having very few and scattered land holdings, no proper policy and programmes for the development of the land and poor access to modern technology. On the other hand, the state having very wide inter-regional and inter-district disparities. The Eastern, Central and Bundelkhand regions have been tackling very tough situation since independence till now. These regions have been facing several problems like as small size of land holdings, low productivity, farmer's indebtedness, migration and poor technology.

The present chapter is divided in five sections except introduction. Section I analyses the socio-economic development indicators. Section II describes the plan wise growth rate of agriculture and allied sector. Section III discusses land use pattern, trends of area, production, productivity of agricultural crops, source of irrigation, use of chemical fertilizers, credit, agriculture marketing and labour. Section IV analyses the regression results. The constraints, policies and programmes of agriculture are presented in section V. Final section VI describes conclusion and suggestions of the present chapter.

III.1 SOCIAL AND ECONOMIC DEVELOPMENT OF UTTAR PRADESH

Uttar Pradesh is one of the largest state of India. The total geographical area is 2, 40,928 sq. km which constitutes 7.33 per cent of the total geographical area of India (3287 thousand sq. km). In spite of constituting huge geographical area, the state has different religions, cultures, languages and civilizations. Hindi and Urdu is the recognized languages of the Uttar Pradesh. The state has constituted different religious and social groups people. According to the 2001 census, 80.61 per cent of the State populations are Hindu and 18.49 per cent of the State population is Muslims.

The remaining 0.9 per cent of the state population included of other religious people like Sikhs, Boudhs, Jains, and Christians. The percentage of the schedule casts (SC) has accounted 21.15 per cent and schedule tribes (ST) 0.6 per cent of the state's population.

Lucknow is the capital of the Uttar Pradesh. Uttarakhand, Himanchal Pradesh, Haryana, Rajasthan, Madhya Pradesh, Chhattisgarh, Bihar and Jharkhand are neighbor state of the Uttar Pradesh. Nepal is the neighbor country of the state. Ganga, Yamuna, Ramganga, Gomati, Ken and Ghaghara are famous rivers in the state. The state has accounted first place in the production of total food grains, milk, animal, sugarcane, sugar, potatos, railway line, bank branches, post offices and newspapers.

The state is basically known agrarian and rural economy. It has accounted 80 per cent rural people is living in 97,941 villages in Uttar Pradesh. The state has divided into 75 districts, 18 divisions, 312 tehsils and 51976 gram Panchayat. 825 community blocks have been constituted for the social and economic development. For the balanced economic development, the state is divided into four economic zones, viz Eastern, Western, Central and Bundelkhand and every economic zones have been struggling from various crises.

It is the most populous state of India. The state population was more than 199 million accounting for 16.49 per cent of the country's population (Census, 2011). Hence, the density of the population in U.P was 828 persons per square kilometer in 2011. The percentage of the rural and urban population in the state was 79.22 per cent and 20.09 per cent in 2001. The decade growth rate of population of the Uttar Pradesh is 20.09 per cent compared to 25.85 per cent in 2001. Uttar Pradesh is the third largest economy in India after Maharashtra and Tamilnadu. Uttar Pradesh gross domestic state product at current price (1993-94) was Rs, 15,554 crores in 1980 and become Rs. 241,196 crores in 2005. The state has attained 8.8 per cent GDP growth rate in 2010- 2011.

It is among the most backward state in India, with high level of the poverty and low levels of social and economic development. The population growth has been making a more difficult to grow the economic and social development in U.P. The percentage of the poverty in Uttar Pradesh was 57 per cent in 1973-74 and has become 47 per cent in 1983-84 and also decreased further, but was still at a high level

of 31 per cent in 1999-2000. But an estimation published by the planning commission for the year 2004-05 revealed that Uttar Pradesh had 59 million people below the poverty line (Nirupam Bajpai and Nicole Volavka, 2005).

The socio-economic conditions of the people among all religions and social groups are differing to each other within the State. The conditions of the Muslims, Schedule caste (SC) and other back ward classes (OBC) are highly depressed compared to the higher castes. The status of the Hindus is better compared to Muslims in the State. According to the NSSO data, the percentage of the Hindus and Muslims poverty was 29.8 per cent and 34.4 per cent in rural areas where as the percentage of Hindus and Muslims poverty was 21.3 per cent and 36.4 per cent in 2011-12 in urban Uttar Pradesh. The percentage of the SC and ST poverty in rural Uttar Pradesh was 41.1 per cent and 27.0 per cent in 2011-12. But in urban areas, the percentage of the SC and ST's poverty was 39.1 per cent and 16.3 per cent in 2011-12. From the data, it is observed that the socio-economic conditions of the people in urban Uttar Pradesh are better than rural Uttar Pradesh. It means that the people in the state are highly depressed due to failure functions of the state government.

Education is an important indicator for improving economic and social conditions of the people in rural and urban Uttar Pradesh. The total literacy rate in the state was 69.72 per cent in 2011 whereas it was 56.27 per cent in 2001. The literacy rate of Uttar Pradesh in rural and urban areas was 52.5 per cent and 56.30 per cent in 2001. The literacy rate of male in the state was 68.14 per cent in 2001 and it has become 79.24 per cent in 2011 whereas the literacy rate of the female was 42.22 per cent in 2001 and it has become 59.26 per cent in 2011. The literacy rate of male and female in Bihar was 73.9 per cent and 53.33 per cent and literacy rate of male and female in Madhya Pradesh was 80.53 per cent and 60.02 per cent. But the literacy rate of male and female in Kerala was 96.02 per cent and 91.98 per cent whereas the literacy rate of male and female in Tamilnadu was 86.81 per cent and 73.86 per cent. It is observed that there is also various disparities in literacy rate within the state and among major religious groups and social groups in the state of Uttar Pradesh. The percentage of literacy rate of the Hindus male and female was 71.24 per cent and 43.08 per cent whereas the literacy rate of Muslims male and female was 57.29 per cent and 37.38 per cent. The literacy rate of the Christian male and female was 78.14 per cent and 67.36 per cent and the literacy rate of the Sikhs was 72.19 per cent and

52.61 per cent. In the case of Buddhists male and female literacy rate was 70.34 per cent and 40.29 per cent and the literacy rate of the Jains male and female was 95.90 per cent and 90.29 per cent in the state of Uttar Pradesh (Census-2011).

The Government of Uttar Pradesh and Planning commission are focusing to improve the socio-economic conditions of the people, even then the State has been suffering from various problems. The path of the development in the State is too much far from the satisfactory point. Uttar Pradesh accounted 13th rank in term of Human Development Index (HDI) in 2001 where as the rank of Kerala, Punjab and Tamilnadu was 1st, 2nd and 3rd in 2001. On the other hand, Rajasthan, Orissa, Madhya Pradesh, and Bihar accounted 9th, 11th, 12th, and 15th ranked in term of HDI in 2001. Being resource full state, the socio-economic status of the people is very poor.

Uttar Pradesh has the highest maternal mortality ratio (MMR), highest fertility rate, the second highest infant mortality rate (IMR) and one of the lowest female to male ratios among 15 major states in India. The infant mortality rate (per 1000 live birth) of male and female was 64 and 70 in 2007 in the state. Birth rate and death rate (per1000) was 29.1 and 8.4 in 2007. The total infant fertility rate was 67 in 2007 in Uttar Pradesh. Kerala, Punjab, Maharashtra, Tamilnadu and West Bengal were better in term of infant mortality rate compared to Uttar Pradesh. The total infant mortality rate of was 12 in Kerala, followed by 41 in Punjab, 33 in Maharashtra, 31 in Tamil Nadu and 35 in West Bengal in 2007(Census-2011). The total infant mortality rate of Orissa and Madhya Pradesh was higher than Uttar Pradesh in 2007. The total infant mortality rate was 69 in Orissa and fallowed by 70 in Madhya Pradesh in 2007. It is found that in 2001, fertility rates in India was highest in Uttar Pradesh, at a level of 4.7, while the national average was 3.2 of the 15 major states. Bihar had the second-highest fertility rates at 4.5 and Kerala and Tamil Nadu had the lowest fertility rates at 1.8 and 2.0. In 1995-97, fertility rates in rural U.P. were higher than in urban areas, at 5.1 compared to 3.8 per cent. The total fertility rate was 4.9 in 1995-97 (Nirupam Bajpai and Nicole Volaka, 2005).

Along with a highest fertility rate, the average life expectancy in Uttar Pradesh in 1996-2001 was 61.20 years for males and 61.10 years for females. The life expectancy of female in Bihar and Orissa was lower than the male life expectancy. In Kerala, females could expect to live 4.3 years longer than males (75 years compared

to 70.7 years). The life expectancy at birth in the state in 2002-06 was 60.30 for male and 59.50 years for females. In 2002-06, the life expectancy of female in Bihar also was lower than the male life expectancy (62.20, male and female, 60.40). In Kerala, male life expectancy was 71.40 and female life expectancy was 76.30 years. It is seen that the life expectancy for females is higher than males.

The total length of the national highways in Uttar Pradesh is 6774 KM, which is largest in India. The largest national highway in Uttar Pradesh is NH-2 which goes Delhi to Kolkata. The total length of the surfaced road (Pakki Road) constructed by Public Works Department was 1, 47,255 km in 2008-09. The total net length of the national highways in Uttar Pradesh is 17,729 km that is 12.4 per cent. The total length of the railway lines was 8,575 km, which the length of the brand gaze was 6,995 km, meter gaze was 1,578 km and Narogaze was only 2.0 km in 2008-09 in Uttar Pradesh. Electricity consumption per capita in U.P. was only 175.80 kWh in 2002-03 and increased to 386.93 kWh in 2009-10 which was almost 80 per cent less than the per capita consumption in Punjab of 837 kWh in 2003 and increased to 1663.01 kWh in 2009-10 (Indian Infrastructure, 2003).

III.2 AGRICULTURAL DEVELOPMENT IN UTTAR PRADESH

Agriculture sector plays an important role for the economic growth of the Uttar Pradesh. It provides the basic ingredients necessary for the existence of mankind and also provides most of the raw materials which transformed in finished products serve as basic necessities of human race (Dr. Pranav K. Desai 2010). The state is contributing about one- fifth of the total food grains production at national level. It is contributing 21.55 per cent to the total national production of food grains, vegetables, fruits and milk production and 40 per cent to the total production of potato and sugarcane. However, the state has inter regions and inters districts variation in term of economic and human development. There are also huge wide spared variations in resource endowment, climate, institutional and socio-economic parameters (Rakesh Raman and Reena Kumari, 2012).

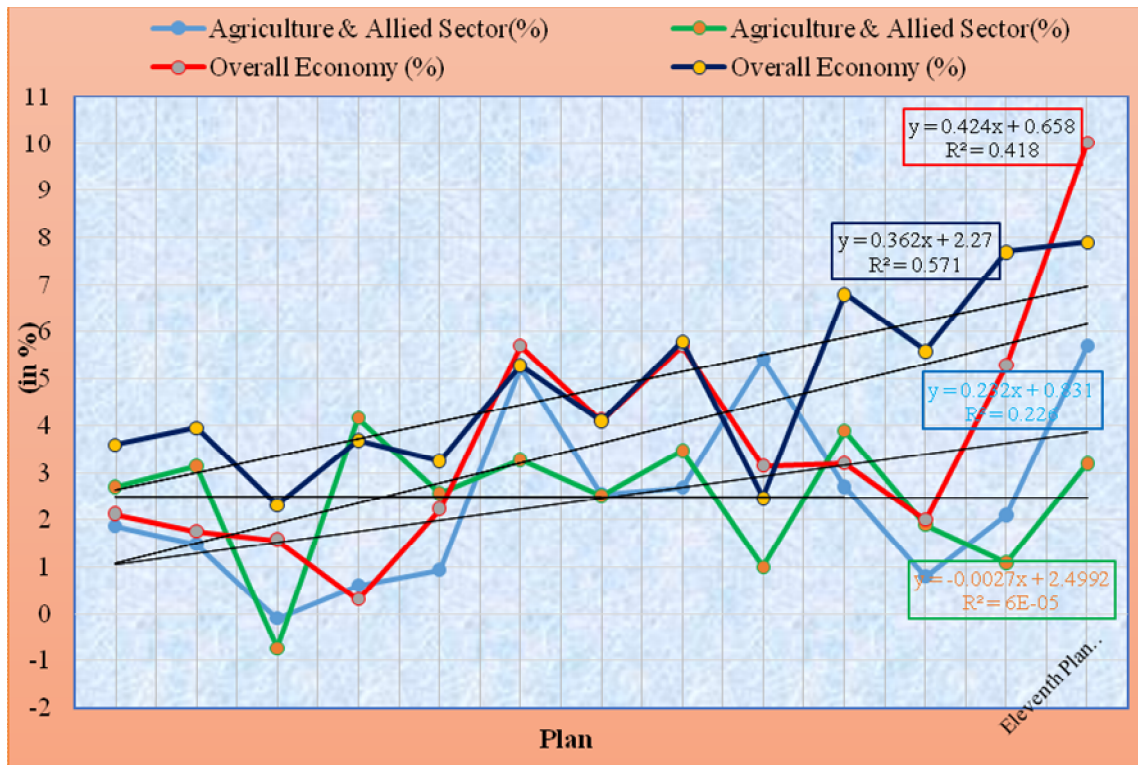
The performance of the agriculture sector at the time of independence was very poor and deplorable. Farmers were suffering from heavy debt burden of the money lenders. They were having very small and scattered holdings. Major parts of the lands were occupied by the Zamindars and big farmers. Therefore, the situation of the small and

marginal farmers was very miserable. It is seen that small and marginal farmers were illiterate to use proper technology, seeds and fertilizers. They were depends upon rainfall of the monsoon for the irrigation. In spite of the facts, agriculture sector provides a large number of employments and livelihood of the people. About 70 per cent of our working population is engaged in cultivation, yet our state is not self-sufficient in food grains and still depends on imports of food grains. In facts after independence, the government of Uttar Pradesh made several agricultural programmes and policies to increase the agricultural production and ensure job security to the poor farmer who was engaged in cultivation activities. The aim of the government was to solve the problems of the food crisis and given the highest priority of agriculture sector at state level and national level. But during this period, the state agriculture sector was suffering from various constraints such as lack of the capital, inadequate irrigation facilities, lack of agricultural machinery, lack of fertilizers and pesticides, lack of high yielding varieties of seeds, inadequate transportation facility, insufficient power supply, lack of marketing facility, lack of agricultural research institution, inadequate institutional credit and unequal distribution of land. Therefore, the state planning commission had focused to develop these factors to increase the agricultural productivity, generate employment and ensure food security at state level. It is found that agriculture sector grew at the rate of 2.9 per cent in 1994-95 and increased to 4.4 per cent in 2011-12 at state level. With regards to the growth rate of the industrial sector was 17.3 per cent in 1994-95 and decreased to 3.7 per cent in 2011-12. But in case of service sector, it grew at the rate of 3.6 per cent in 1994-95 and increased to 7.8 per cent in 2011-12 at state level. The overall growth rate was 5.8 per cent in 1994-95 and increased to 6.0 per cent in 2011-12 in the state of Uttar Pradesh. On the other hand, the share of agriculture and allied sector was 39 per cent in 1994-95 and become 29 per cent in 2011-12 in state gross domestic product. In case of the industrial sector, it was 19 per cent in 1994-95 and increased to 21.39 per cent in 2011-12. But the share of service sector was 42 per cent in 1994-95 and increased to 50 per cent in 2011-12 in Uttar Pradesh (Planning Commission, U.P).

The growth rate of agriculture and allied sector during plan period is presented in Table 3.0 and Figure 3.0. It is found that the growth rate of agriculture and allied sector was increasing trend during 1951-51 to 1990-91 due to government supports. The growth rate of agriculture and allied sector in second plan period was less than

the first plan period because second plan focused to develop industrial sector rather than agriculture and allied sector. The biggest change came in third plan period when the Government introduced “Intensive Agricultural District Programme (IADP) and High Yielding Varieties Programme (HYVP) to increase the agricultural productivity at state level.

Figure 3.0: Growth Rate of Agriculture and Allied Sector during the Plan Period at State level and National level



Sources: Planning Commission, Uttar Pradesh

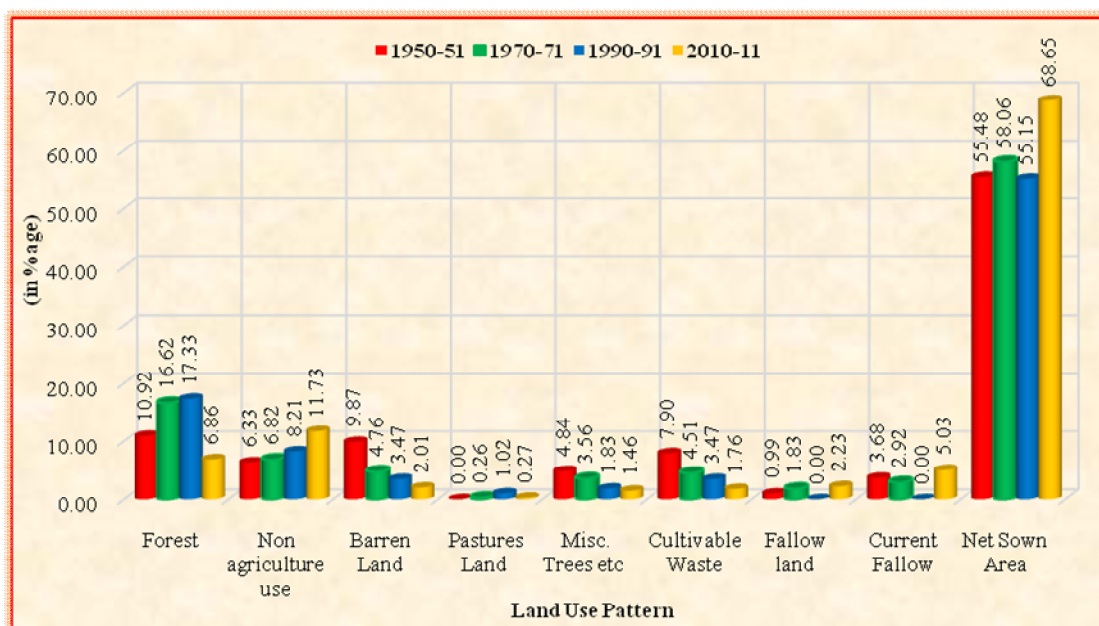
But the extensive and serious drought and famine condition in 1965-66 adversely effected the growth of the agriculture and allied sector and it's become negative at state level and national level. In this year the Government was forced to imports food grains and adopted “plan holiday” for three Years. Further, the Government emphasized on effective and favorable techniques for the promotion of agricultural productivity. Therefore, the condition of the agriculture sector started to improve in positive trends at state level. The fifth plan (1974-79) has achieved highest growth in agriculture sector in the state. This period accounted highest expenditure on agriculture sector at state level. This plan period, clearly solved the problems of inputs and implementation of the technology but unfortunately the inflationary situation (1973-74) and the declaration of emergency in 1975, decreased the growth of the agriculture sector in the state. In case of sixth plan, the growth rate of all sectors was

highest but after declined during seventh plans period at state level. Therefore, the government implemented new economic policy mainly to devalue currency, to finish the industrial licensing regime, allowing foreign direct investment, opening the door of public sector for private sector, abolition MRTP Act, removal of quantity restrictions on imports, reduction of exports and imports tariff, wide ranging and financial sector reforms (Gyanashwar Singh, 2013). The major focus of new economic reforms was to increase the growth of agriculture at state and national level. Consequently, the growth rate of agriculture and allied sector become 5.7 per cent and overall economic growth was 10 per cent during eleventh plan (2007-12). But it is clear that the new economic reform increased the growth of the service sector is more than industrial and agriculture sector due to growth of information technology, education, hospitals, cinema halls and multiplexes, shopping malls and entertainment driven by the various fiscal incentives and promotion of private sector. Uttar Pradesh has emerged a key hub for information technology and information technological industries, including software, capital business process out sourcing (BPO) and electronics. Today economy of the Uttar Pradesh is dominated by service sector. Industrial growth was slow down because there is inadequate and low infrastructure and lack of planned industrial development and low investment. The foreign direct investment (FDI) in agricultural sector but the export of the agricultural goods has been decreasing and import of the agriculture goods has been increasing.

III.3 LAND USE PATTERN

Land is the most vital resource as well as driving force for the economic development of the state. Land development is vital for acquiring higher growth rate and achieving maximum output in the state and country. Therefore, the programmes and policies on land development must be given highly attention. Obviously, land has the characteristics of fixity in supply and scarcity. So, land use pattern is directly concerned after the maximum use. From the Table 3.1 and Figure 3.1 shows land use pattern of Uttar Pradesh during 1950-51 to 2010-11. It found that almost 11 per cent area was under forest in 1950-51 and decreased to around 7.0 per cent in 2010-11 at state level. On the other hand, the area under non- agricultural use was 6.33 per cent in 1950-51 and increased to around to 12 per cent in 2010-11 in the state. With regards to barren land, the area was around 10 per cent in 1950-51 and sharply decreased to 2.0 per cent in 2010-11 at state level.

Figure 3.1: Land Use Pattern of Uttar Pradesh during 1950-51 to 2010-11

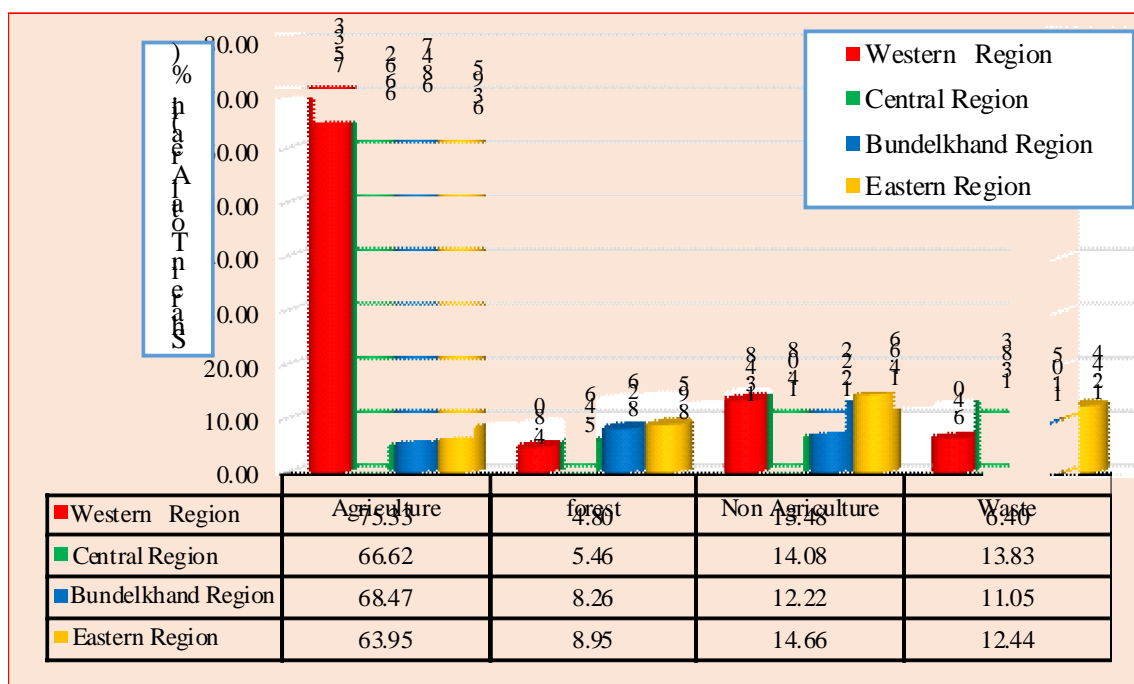


Source: Directorate of Economics and Statistics, Government of Uttar Pradesh

In case of pastures and other graze land, the area was almost negligible in 1950-51 and become 0.27 per cent in 2010-11 whereas the area under misc. trees etc was 4.85 per cent in 1950-51 and decreased to 1.46 per cent in 2010-11 in the state. Considering the area under cultivable land was around 8.0 per cent in 1950-51 and sharply decreased to 1.76 per cent in 2010-11 at state level. The area under fallow land and current fallow was around 1.0 per cent and 3.68 per cent in 1950-51 and increased to 2.23 per cent and 5.03 per cent in 2010-11. The percentage of net sown area was 55.48 per cent in 1950-51 and increased to 68.65 per cent in 2010-11 in the state. Overall from the analysis, it has been observed that around 69 per cent of the available land has been allocated under the area of agriculture at state level. Majority areas in the state are under single cropping, current fallow and other fallow. There is possibility of agricultural development through increase in net area sown and multiple cropping patterns in the state.

Agriculture is dominating in term of land use pattern in all the regions of Uttar Pradesh. Table 3.2 and Figure 3.2 shows that the land use pattern in different regions of Uttar Pradesh during the period 2010-11. It is found that western region is known as the food and sugar basket at national level. The main food grain crops of the region are rice, wheat and maize whereas sugarcane, potato, onion and oilseeds are the cash crops.

Figure 3.2: Land Use Pattern in different Regions of Uttar Pradesh during 2010-11



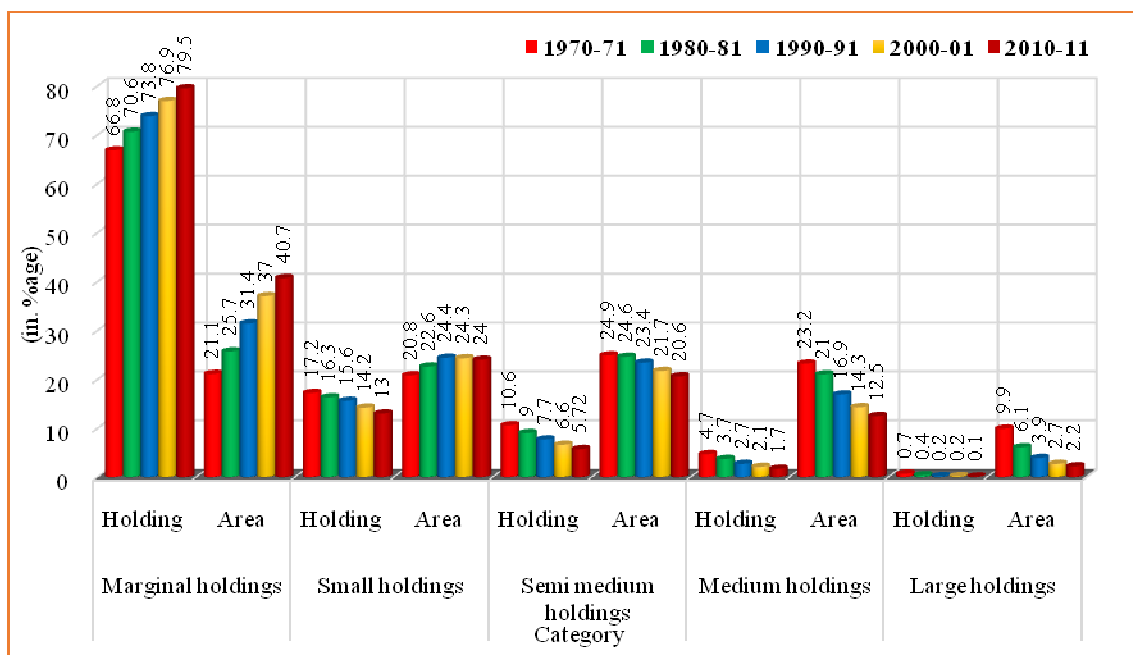
Source- Directorate of Economics and Statistics, Government of Uttar Pradesh

The share of agriculture in the total reporting area ranged from less than 70 per cent in central region, eastern region and Bundelkhand region to 75 per cent in the western region. The land use pattern did not demonstrate any significant area shift in favour of agriculture. With rapid urbanization and growing land degradation, future scope for area expansion in favour of agriculture would be restricted. Whatever, area may be brought under cultivation would be marginal and ecological fragile, which unambiguously cannot compensate for the land being removed from cultivation due to urbanization and land degradation. Therefore, future agricultural supplies and growth must be targeted primarily from raising biological yield and intensifying land use instead of area expansion at state level.

Uttar Pradesh observed fast increase in the number of small and marginal operational land holdings. In the state more than 80 per cent of the land holdings consist of small and marginal farmers. However, these small and marginal farmers have the poor socio- economic conditions. Consequently, it has an adverse effect on the growth of agriculture sector at state level. This is because the average cost of cultivating the crops on small land holdings is higher as compare to the cultivation of crops on large land holdings. However, the small and marginal farmers are more efficient in producing per hectare of land due to surplus labour and quick returns. Therefore, the

growth of agriculture sector can be encouraged in the state with active support of government to these small and marginal farmers in this direction. Table 3.3 and Figure 3.3 highlights that the number and area of operational holdings in Uttar Pradesh during 1970-71 to 2010-11.

Figure 3.3: Number and Area of Operational Holdings in Uttar Pradesh during 1970-71 to 2010-11

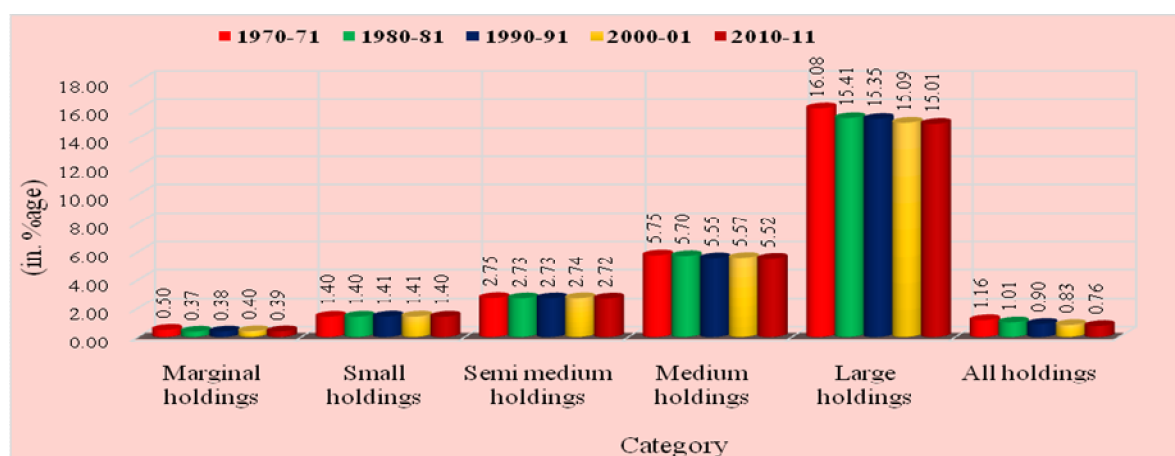


Source- Directorate of Economics and Statistics, Government of Uttar Pradesh

It is found that the percentage of number and area of marginal land holdings was 66.8 per cent and 21.10 per cent 1970-71 and increased to 79.5 per cent and 40.7 per cent in 2010-11 at state level. With regards to small holdings, the number and area was 17.2 per cent and 20.8 per cent in 1970-71 and become 13 per cent and 24 per cent in 2010-11 in the state. In case of semi-medium holdings, medium holdings and large holdings, the number and area has been continuously decreased during the period 1970-71 at state level. It is observed that the number and area of marginal farmers are increasing during the study period. In facts, the high division of land has been restricting and hindering the diffusion of modern technology in agriculture. Apart from characterized by the largest proportion of small and marginal land holdings among all size class, there is also high incidence of tenancy cultivation dominated largely by landlords which is decreasing the growth prospects because such small segments of land remained out of investment at state level.

Average size of land holdings in Uttar Pradesh during 1970-71 to 2010-11 are presented in Table 3.4 and Figure 3.4. It is found that the average size of small and marginal holdings was 1.40 and 0.50 in 1970-71 and become 1.40 and 0.39 in 2010-11 at state level. On the other hand, the average sizes of semi-medium holdings, medium holdings and large holdings have decreasing trends during the study period in the state. In case of ‘all holdings’, it was 1.16 in 1970-71 and sharply decreased to 0.76 in 2010-11 in the state of Uttar Pradesh. Overall from the analysis, it has been observed that the average size of land holdings in all categories have decreasing trends during the period 1970-71 to 2010-11 in Uttar Pradesh.

Figure 3.4: Average Size of Land Holdings in Uttar Pradesh during 1970-71 to 2010-11



Source- Directorate of Economics and Statistics, Government of Uttar Pradesh

III.4 TRENDS OF AREA, PRODUCTION AND PRODUCTIVITY (YIELD) OF AGRICULTURAL CROPS

Agriculture sector is playing an important role in the economic development of Uttar Pradesh. Uttar Pradesh is one of major Food grains producing states in the country. Wheat and paddy are the most important crops of the state. But agriculture sector in Uttar Pradesh is highly diversified and sufferings from fluctuations in agricultural production and productivity in inter regions and inter districts. The compound annual growth rate (CAGR) of area, production and productivity (yield) of major food grain crops and non-food grain crops in Uttar Pradesh during 1984-85 to 2013-14 are presented in Table 3.5. It is found that area, production and productivity of wheat grew at the rate of 0.50 per cent, followed by 2.13 per cent and 1.62 per cent during the study period. With regards to rice, the area, production and productivity grew at 0.29 per cent, followed by 1.85 per cent and 1.56 per cent during 1984-85 to 2013-14

in the state. The growth rate of area, production and productivity of Bajara, Jawar, Maize, Barley, Arhar, Gram and Rapeseed and Mustard had widespread variations during the study period at state level. Regarding cereals, the area, production and productivity grew at (-0.03) per cent, 1.76 per cent and 1.78 per cent whereas coarse cereals grew at the rate of (-2.42) per cent in area, followed by (-0.73) per cent in production and 1.73 per cent in term of productivity at state level. In case of pulses productivity, it is found that the area, production and productivity grew at the rate of (-2.12) per cent, (-2.17) per cent and (-0.06) per cent during the study period at state level. The area, production and productivity of food grains grew at the rate of (-0.35) per cent, 1.49 per cent and 1.84 per cent in the state.

Considering sugarcane productivity, the growth of area, production and productivity was 1.04 per cent, 1.53 per cent and 0.49 per cent, whereas the growth of area, production and productivity of potato was 1.98 per cent, 2.88 per cent and 0.89 per cent respectively during the study period at state level. The area, production and productivity of oilseeds grew at the rate of (-2.15) per cent, (-0.71) per cent and 1.48 per cent during the same period at state level. With regards to cotton, the growth rate of area, production and productivity was (-7.74) per cent, with (-8.62) per cent and (-0.96) per cent during 1984-85 to 2009-10 at state level. In case of potato, the area, production and productivity grew at the rate of 1.98 per cent, 2.88 per cent, and 0.89 per cent during 1996-97 to 2011-12. Overall, from the analysis, it has been observed that the growth rate of area, production and productivity of food grain crops and non-food grains crops has extensive variations during the study period at state level. It is noticed that cropping pattern is changing in Uttar Pradesh. The area of food grain crops are shifting towards traditional crops to commercial crops at state level.

Uttar Pradesh is major producing state of food grain crops. The growth rate of food grains was not satisfactory during 1950s. The government introduced high yielding varieties seeds of food grain crops to increase the productivity of food grains. Consequently, productivity of food grains increased during green revolution period. But further, growth rate of agriculture sector started declining trends which results the problem of food security at state level. Table 3.6 shows that the compound annual growth rate (CAGR) of area, production, and productivity of major food grain crops and non-food grain crops has been analysed in three phases such as; 1984-85 to 1993-94, 1994-95 to 2003-04, and 2004-05 to 2013-14 in Uttar Pradesh. From the analysis,

it is found that the area of wheat grew at the rate of 0.81 per cent during phase I, followed by 0.28 per cent after new economic reform period i.e. phase II, and become 1.03 per cent during phase III at state level. In case of production of wheat, grew at the rate of 3.15 per cent during phase I, followed by 1.44 per cent after new economic reform period i.e. phase II, and further increased to 3.42 per cent during the phase III at state level. Similarly, yield of wheat had a compound annual growth rate of 2.33 per cent from 1984-85 to 1993-94, 1.16 per cent after new economic reforms period 1994-95 to 2003-04, and become 2.36 per cent during 2004-05 to 2013-14. It is found that the area, production, and yield of wheat had contributed higher growth rate during 2004-05 to 2013-14 in Uttar Pradesh.

Regarding area of rice crop, it has stagnant growth rate during the phase I, with 0.45 per cent during phase II, and increased to 0.74 per cent during phase III. On the other hand, production of rice grew at the rate 4.22 per cent during phase I, decreased to 1.21 per cent after new economic reform period i.e. phase II, and become 4.12 per cent during the phase III at state level. In case of productivity of rice grew at the rate of 4.21 per cent during phase I, followed by 0.76 per cent during phase II, and become 3.36 per cent during phase III at state level. It is observed that growth rate of production as well as productivity of rice was impressive during phase I and further declined due to unfavorable conditions of monsoon and changing the cropping pattern at state level.

With regards to the area of cereals, it grew at the rate of (-0.10) per cent during the phase I, with (-0.27) per cent during phase II, and increased to 0.69 per cent during phase III at state level. On the other hand, production of cereals grew at the rate of 2.99 per cent during phase I, sharply decreased to 0.98 per cent during phase II, and increased to 3.51 per cent during the phase III at state level. In case of productivity of cereals grew at the rate of 3.09 per cent during phase I, and decreased to 1.25 per cent during phase II, and become 2.80 per cent during phase III at state level.

Considering the area of coarse cereals, it grew at the rate of (-2.55) per cent during the phase I, with (-3.65) per cent during phase II, and become (-0.95) per cent during phase III at state level. The production of coarse cereals grew at the rate of (-0.35) per cent during phase I, with (-2.95) per cent during phase II, and increased to 2.08 per cent during the phase III at state level. In case of productivity of coarse cereals grew

at the rate of 2.26 per cent during phase I, and decreased to 0.73 per cent during phase II, and further increased to 3.06 per cent during phase III at state level. In facts, it is clear that the area of coarse cereals grew at negative rate during all phases at state level whereas production and productivity of coarse cereals grew at mixed rate in the state of Uttar Pradesh.

Pulses are the major nutritious food items in Uttar Pradesh. However, the growth rate of area, production and productivity of pulses had widespread fluctuations during the study period at state level. It is found that the area of pulses grew at positive rate i.e. 3.56 per cent during the phase I, further become negative i.e. (-4.30) per cent during phase II, and become (-1.74) per cent during phase III at state level. On the other hand, production of pulses grew at the rate of 3.11 per cent during phase I, followed by (-3.83) per cent during phase II, and become (-0.61) per cent during the phase III in the state. In case of productivity of pulses grew at the rate of (-0.43) per cent during phase I, followed by 0.49 per cent during phase II, and become 1.14 per cent during phase III at state level.

At state level, the area of food grains grew at the rate of 0.51 per cent during phase I, become negative i.e. (-0.93) per cent in phase II, and become 0.37 per cent during phase III. On the other hand, the production of food grains grew at the rate of 3 per cent during phase I, decreased to 0.64 per cent and increased to 3.31 per cent during the phase III. In case of productivity of food grains, it grew at the rate of 2.47 per cent in phase I, decreased to 1.59 per cent in phase II, and further increased to 2.93 per cent during phase III.

In case of non-food grain crops, it is found that the area of oilseeds crops grew at the rate of (-1.35) per cent during phase I, (-4.96) per cent and further become negative i.e. (-0.47) per cent in phase III at state level. In case of oilseeds production, it grew at the rate of 4.21 per cent in phase I, decreased to (-4.94) per cent in phase II, and become (-1.39) per cent during phase III in the state. On the other hand, productivity of oilseeds grew at the rate of 5.63 per cent in phase I, decreased to 0.02 per cent in phase II and further become negative i.e. (-0.93) per cent during phase III at state level. The area of sugarcane grew at the rate of 2.16 per cent during phase I, decreased to 0.76 per cent after new economic reform period i.e. phase II and become 0.63 per cent during phase III. In case of production of sugarcane, it grew at the rate

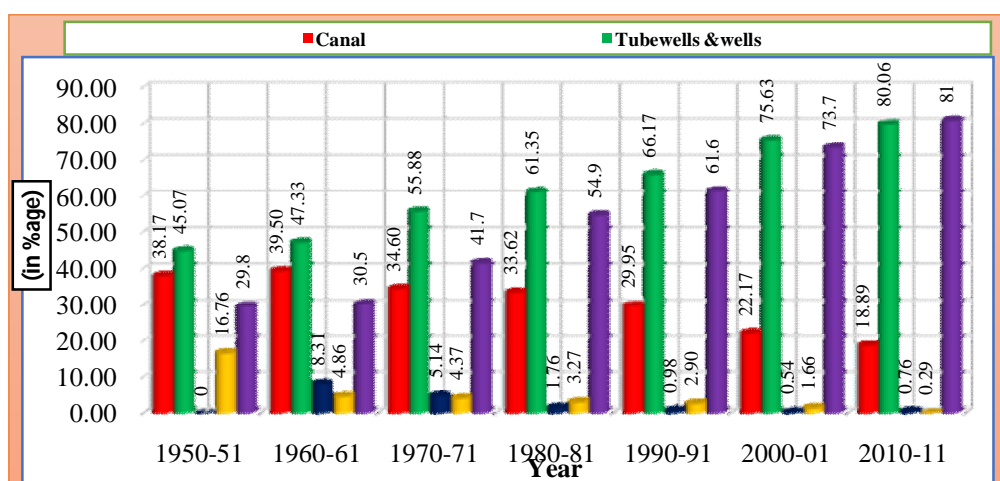
of rate of 4.73 per cent in phase I, become (-0.39) per cent during phase II, and become 0.78 per cent in phase III. Similarly, productivity of sugarcane grew at the rate of 2.52 per cent during phase I, with (-1.14) per cent after new economic reform i.e. phase II, and become 0.15 per cent during phase III at state level. On the other hand, the growth rate of area, production, and productivity of potato was 2.88 per cent, 3.51 per cent, and 0.62 per cent during 2002-03 to 2011-12 in Uttar Pradesh. Overall, from the analysis, it is observed that the growth rate of area, production and productivity food grain crops and of non-food grain crops has widespread variations as well as fluctuating trends during all phases in Uttar Pradesh.

Agriculture sector of Uttar Pradesh is highly diversified. It produces many crops due to its comparative advantage of wide area of agro-climate variability. The state is one of the major food grains producing state at national level. However, cropping pattern is changing which means that a change in the proportion of area under different crops. The average productivity (Qtl/Hect) of the major crops during 1950-51 to 2010-11 in Uttar Pradesh has been presented in Table 3.7. It is found that the productivity rice crop was 5.19 Qtl/hect in 1950-51 and increased to 21.22 Qtl/hect in 2010-11 at state level. On the other hand, the productivity of the wheat crop was 8.21 Qtls/hect in 1950-51 and increased to 31.11 Qtl/hect in 2010-11 in the state. With regards to productivity of pulses, it was 27.68 Qtl/hect in 1950-51 and further sharply decreased to 8.24 Qtl/hect in 2010-11, whereas the productivity of food grains was 6.89 Qtl/hect in 1950-51 and increased to 23.91 per cent in 2010-11 at state level. In case of non-food grain crops, the productivity of oilseeds was 5.24 Qtl/hect in 1950-51 and increased to 8.36 per cent in 2010-11, whereas the productivity of sugarcane was 291.04 Qtl/hect in 1950-51 and become 567.72 Qtl/hect in 2010-11. Considering the productivity of potato was 78.08 Qtl/hect in 1950-51 and increased to 241.49 Qtl/hect in 2010-11 at state level. Overall from the analysis, it is observed that the productivity of non-food grain crops is increasing at a faster rate compared to the productivity of food grain crops the study period at state level. In facts, it is clear that the shift towards food grain crops to non-food grain crops mainly due to the higher profitability in Uttar Pradesh.

Irrigation plays very vital role in the growth of agriculture and allied sector in Uttar Pradesh. The percentage of net area irrigated by different sources in Uttar Pradesh during 1950-51 to 2010-11 has been shown by Table 3.8 and Figure 3.5. It is found

that the irrigated area by tubewells and wells has been increased during the study period at state level. With regards to canals which are used for irrigation in the second place and are declining trend during the same period at state level. In case of tanks and lakes which are also declining trends during the study period at state level. Currently, it has been observed that about 80 per cent of irrigation work is being done by tubewells and wells and 19 per cent by canals and remaining 1.0 per cent is done by tanks, lakes and other sources at state level. On the other hand, the percentage of net area irrigated to net area sown was 29.8 per cent in 1950-51 and increased to 81 per cent in 2010-11 at state level. Overall, it is noticed that more than 50 per cent of gross cropped area seems to be rainfed area and it depends on the gamble of monsoon which is the matter of concern before the policy maker and increase expenditure on irrigation in drought prone area in the state of Uttar Pradesh.

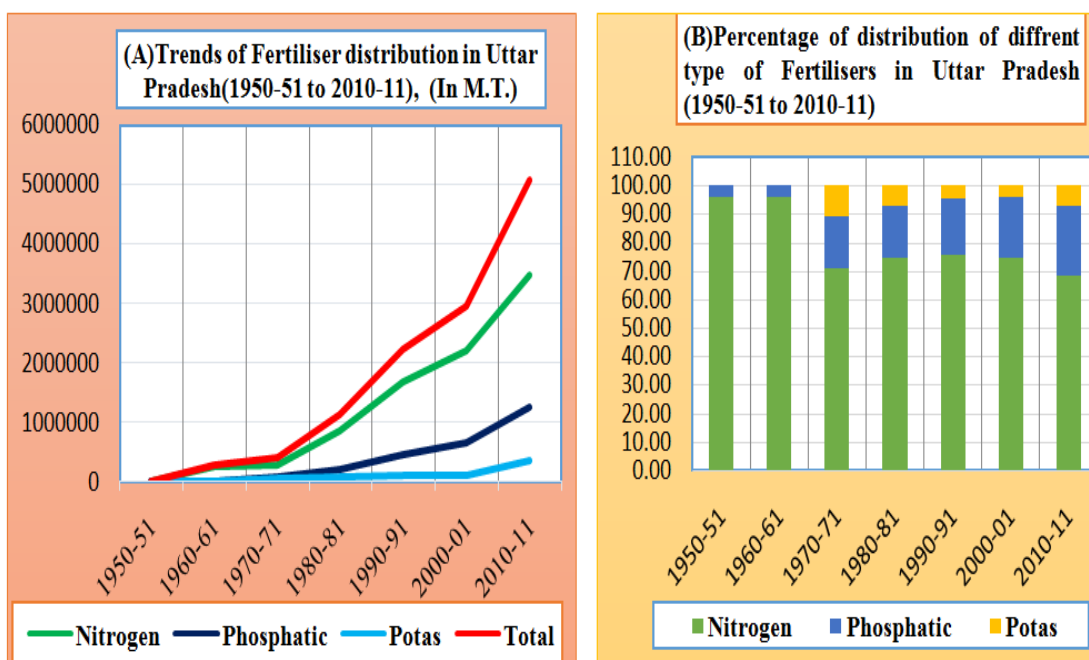
Figure 3.5: Net Area Irrigated by different sources in Uttar Pradesh during 1950-51 to 2010-11



Source: Directorate of Agriculture and Statistics, U.P.

Fertilizers are very important input for increasing land fertility and increasing agricultural productivity in Uttar Pradesh. Table 3.9 and Figure 3.6 (A) shows that the distribution of chemical fertilizers in Uttar Pradesh during 1950-51 to 2010-11. The distribution of nitrogen fertiliser was 20,000 million tonnes in 1950-51 and increased to 3,47,6864 million tonnes in 2010-11.

Figure 3.6: Distribution of Chemical Fertilizers in Uttar Pradesh during 1950-51 to 2010-11



Source: Statistical Abstract, 2013, U.P.

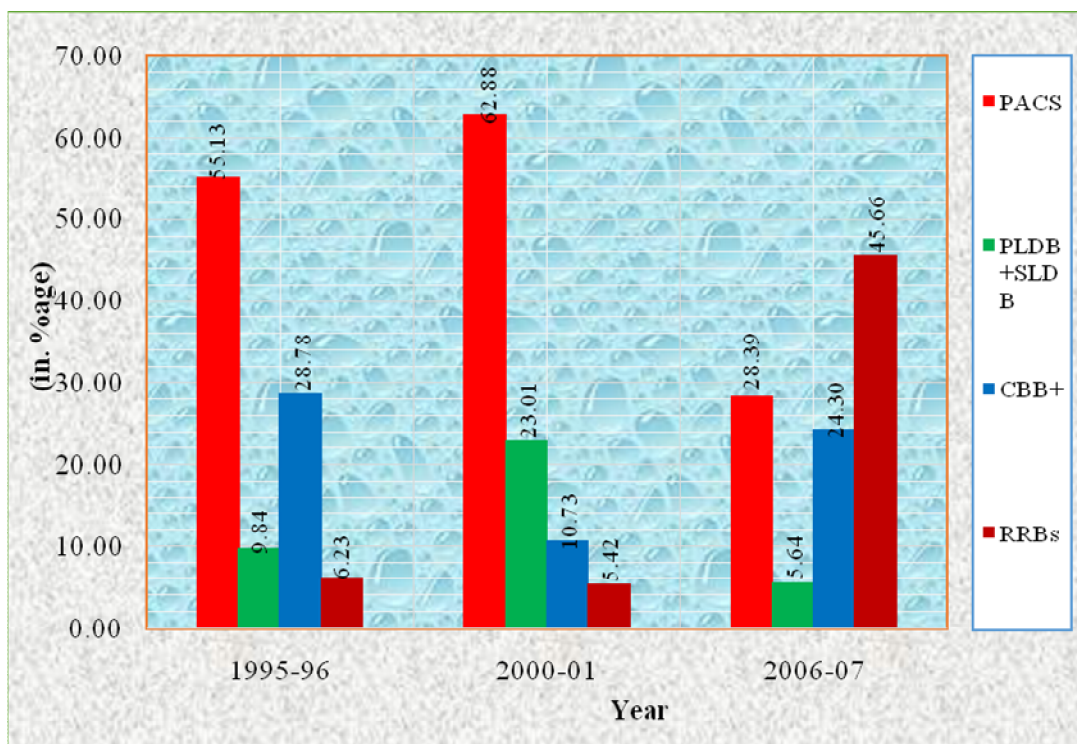
On the other hand, the use of phosphate fertiliser was 500 million tonnes in 1950-51 and increased to 1,25,3453 million tonnes in 2010-11. The distribution of potas fertilisers stood at 45,000 million tonnes in 1970-71 and increased to the amount of 3, 58,092 million tonnes in 2010-11 at state level. The total distribution of chemical fertilizers was 20,500 million tonnes during 1950-51 and increased to the amount 50, 88,409 million tonnes in 2010-11 in Uttar Pradesh. Figure 3.6 (B) reveals that the percentage of distribution of different type of chemical fertilisers to the total chemical fertilizers in Uttar Pradesh. It is found that the percentage of distribution of nitrogen fertilizer was 97.5 per cent in 1950-51 and decreased to 68.3 per cent in 2010-11 at state level. On the other hand, the percentage of phosphate fertiliser was 2.4 per cent in 1950-51 and increased to 24.6 per cent in 2010-11 while the percentage of potassic fertilizer was 10.9 per cent in 1950-51 and become 7.0 per cent in 2010-11. It is observed that the percentage of nitrogenous fertiliser and potassic fertiliser has gone down and phosphatic fertilizer has been increased respectively during the study period in the state.

III.5 AGRICULTURAL CREDIT

Credit is one of the vital requirements of the farmers which help them to meet the investment as well working capital requirements. Poor credit services for investment are an important hindrance for expansion of area under HYV seeds and use of optimal measured quantity of inputs. The availability of credit for agriculture sector must be easy, adequate and timely. Despite of a large network of rural financial institutions (RFIs), a large portion of the rural population is continuously neglected by the formal banking sector at state level and national level. On the other hand, inflexible credit flows and security-based lending system is widespread in formal Indian banking sector. Lack of trained technical staff, poor eligibility and security problems are some of the other reasons behind insufficient credit flow to agriculture sector at state level. It must be corrected for speedy and easy flow of the credit to the agriculture sector at state level. It is found that credit flow to agriculture was Rs. 6, 15,245 crores in 2009-10 up to November 2009 and the numbers of accounts were Rs.31, 89,941 crores at state level. On the other hand, the amount of credit disbursement to agriculture by nationalized banks was Rs.3, 568.45 crores in 2003-04, followed by Rs. 5,674.29 crores in 2004-05 and increased to Rs.7, 895.8 crores 2006-07 at state level. With regards to public and private banks, it was Rs.10922.69 crores and Rs. 1610. 23 crores in 2006-07 in the state. Considering, credit flowed by SCB/CCBs, LDBs and RRBs was Rs. 1878.69 crores, followed by Rs. 407.23 crores and Rs. 4007.41 crores in 2006-07 at state level.

The percentage of institutional credit taken from different agencies for agricultural purpose in Uttar Pradesh during 1996-97 to 2006-07 are presented by Table 3.10 and Figure 3.7. It is found that the percentage of credit flowed by primary agricultural credit societies PACS to the total institutional credit for agricultural purposes has decreased from 55.10 per cent in 1996-97 to 28.30 per cent in 2006-07. On the other hand, the contribution of PLDBs was 9.80 per cent in 1996-97 and become 5.6 per cent in 2006-07 at state level. On the other hand, the percentage of CBBs and RRBs in total institutional credit for agricultural purposes have decreased from 28.70 per cent in 1996-97 to 24.30 per cent in 2006-07 and 6.20 per cent in 1996-97 to 45.60 per cent in 2006-07 respectively at state level.

Figure 3.7 : Percentage of Institutional Credit taken from different Agencies for Agricultural purpose in Uttar Pradesh during 1995-96 to 2006-07



Source: Agriculture Census, Uttar Pradesh Where, PACS: Primary Agricultural Credit Society, PLDB+SLDB: Primary Land Development Bank/ Branch of State Land Development Bank, CBBs: Commercial Bank Branches, RRBs: Regional Rural Bank.

It has been observed that inspite of various success, institutional credit agencies are facing several problems in the state. Consequently, the credit agencies have failed to meet the demand of agricultural credit among small and marginal farmers at state level. Co-operatives banks, commercial banks and regional rural banks have been facing high cost and risky rural lending. As results, these banks are avoiding to meet their target for agriculture credit. To provide timely and adequate credit to small and marginal farmers is a problem for institutional credit agencies at state level. Hence, the farmers are dependent on non-institutional source of the agricultural credit and are committing suicide in several part of the state due to increasing indebtedness and malpractices of the non-institutional credit agencies in state of Uttar Pradesh.

III.6 AGRICULTURE MARKETING

Marketing is the key instrument in the development of the agriculture sector in the state of Uttar Pradesh. Agriculture marketing includes the movement of agricultural produce from farms where it is produced to the consumers or manufacturers. It also includes the marketing of production inputs like fertilizers, pesticides and other agricultural chemicals, livestock feed, farm machinery, tools and equipment and services to the farmers (Patnaik, 2003). The basic feature of agricultural efficient marketing system is not only to provide the opportunities to purchase the consumer goods but also to provide incentives to the farmers to produce more. It should also encourage true competition among the traders and stop the exploitation of farmers' particularly small and marginal farmers in the state. It is clear that in the market system, farmers sell their agricultural produce directly or indirectly to the consumers and other rural associations.

Agriculture marketing systems are classified into three broad categories in the state and national level such as (i) Rural Primary Markets (ii) Secondary/Assembly Markets (iii) Wholesale Markets. The rural primary markets cater to the local demand and it is located in nearby village as a haats. The secondary markets are located nearby the centers of wholesale or nearby production centers which cater to the distant demands, whereas, wholesale markets accumulate large quantity of agricultural produce from different sources and it caters into small collection to meet the needs of retailers in the country. According to the 10th Plan documents for state of markets in India, "the current market system is dominated by traders. There is appropriate and effective linkages between the producers and sellers continue to be weak. The absence of rural road connectivity and other infrastructure, improper management, lack of market intelligence has resulted in a system that is unfavorable to the farmers. The adverse impact of all these is more pronounced in the case of small and marginal farmers who constitute about 75 per cent of the entire farming community. The primary rural markets are the first contact point for the rural producers and sellers. There are over 27 thousand primary rural markets, scattered across the country. These are, however, not equipped with basic facilities such as platforms for sale and auction, electricity, drinking water, link roads, trader's premises, and facilities for post-harvest management. The private sector and joint ventures for setting up markets need to be encouraged with suitable policies and

incentives for free and competitive trade (Chakraborty, 2003). The marketing infrastructure deserves special attention in case of horticultural crops like fruits and vegetables. Because due to fragile nature of horticulture produce, farmers sell their produce immediately after harvest which until reaches the final consumers passes through the various types of intermediaries. This large chain of intermediaries results into high marketing costs which in turn makes the small profit margins of small farm growers (Prasad, 2008).

It has been observed that marketing efficiency depends on the storage capacity of the agricultural produced. Therefore, storage infrastructure is very important for better growth of agriculture and allied sectors. Table 3.11 highlights that the agency wise number and capacity of storage units during 1985-86 to 2010-11 in Uttar Pradesh. It is found that the number of Food Corporation of India (FCI) was 47 (19.10 per cent) and capacity was 16.16 lakh million tonnes (45.0 per cent) in 1985-86 in the state. The number of FCI has become 118 (38.9 per cent) and capacity become 28.05 lakh (40.7 per cent) in 2010-11. With regards to the number of U.P. State Warehousing Corporation (UPSWC) was 144 (58.5 per cent) and capacity was 12.52 lakh million tonnes i.e. (22.4 per cent) in 1985-86. The number of UPSWC has become 140 (46.2 per cent) and capacity becomes 31.56 lakh million tonnes (45.8 per cent) in 2010-11 in Uttar Pradesh. The number of Central Warehousing Corporation (CWC) was 55 (22.4 per cent) and capacity was 7.2 lakh million tonnes (20.1 per cent) in 1985-86. The number of CWC has become 45 (14.9 per cent) and capacity becomes 9.3 lakh million tonnes (13.6 per cent) in 2010-11 in the state. The total number of storage agencies in Uttar Pradesh was 246 and total storage capacity was 35.92 lakh million tonnes in 1985-86 and the total number of storage agencies has become 303 and total storage capacities of all agencies has become 68.97 lakh million tonnes in 2010-11 in the state. But it is facts that the agencies are not sufficient to provide huge storage capacity. In facts, the situation of small and marginal farmers are very miserable in term of accessing marketing facilities which results farmers are either compelled to sell their production on lower prices or leaving farming business in the state of Uttar Pradesh.

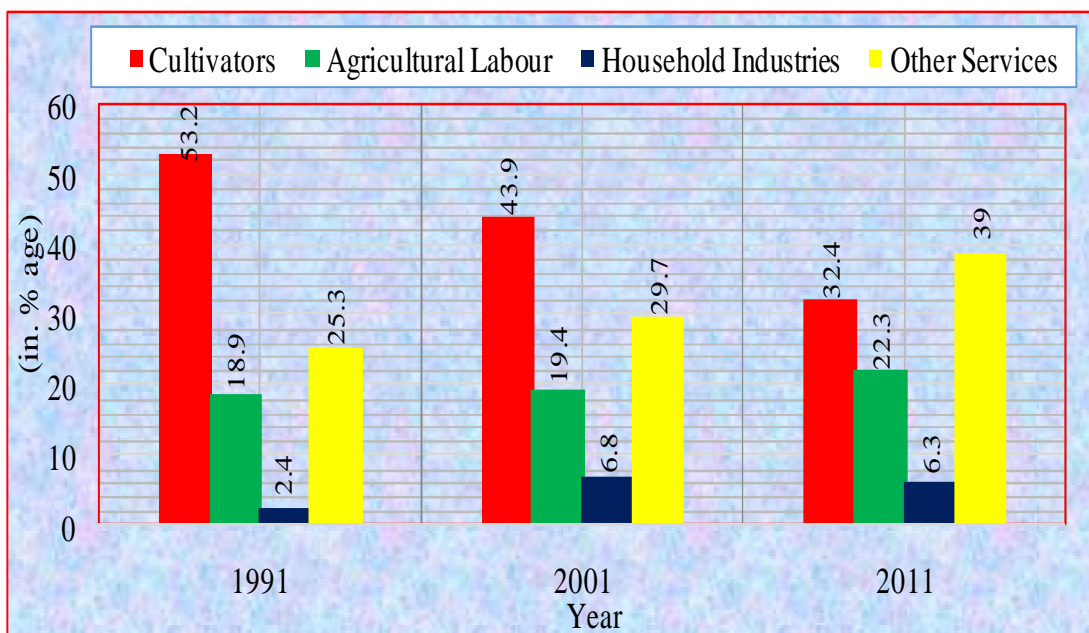
Agricultural labours are increasing in Uttar Pradesh. They belong to the economically depressed and socially backward sectors of the rural economy who have always remained neglected. Their social and economic conditions are deteriorating day by

day. They have been struggling from low income and low wages. There are many factors responsible for growing agricultural labour in the state. According to Dr. Mukherjee, “Every circumstance which has weakened the position of the small land holders has increased the number of agricultural labour, viz., the loss of common rights in the rural economy, the diseases of collective enterprise, the sub division of holdings, the multiplication of rent receivers, free mortgaging and transfer of land followed by a decline in cottage industries”. However, there are many causes of growth of agricultural labours such as (i) The growth rate of the population in the state is very high and growth of indebtedness due to low productivity of the land as well as transfer of land from the small owners to the creditors. It results that farmers becoming agricultural labourers, (ii) searching for subsidiary occupations and unequal distribution of money in rural economy, creating agricultural labourers, (iii) the growth of landlordism and decreasing of domestic industries and handicrafts resulting people becoming agricultural labourers in Uttar Pradesh, (iv) Increasing criminal activities and robbery resulting farmers becoming agricultural labourers, (v) Disintegration of the village communities and peasantry in rural areas of the state. The mobility of labour – occupational and inter-regional and other social, religion transition resulting people becoming agricultural labour. In spite of various causes of growth of the agricultural labourers. On the other hand, agricultural labourers are facing several problems in the state such as (i) Agricultural labourers have been struggling from low wages and low standard of living; (ii) There is lack of organization among labourers. They are illiterate, poor, ignorant and unorganized.

Due to lack of Unity, they are struggling to form union in a bid to protect their interests; (iii) there is lack of skills among the laborers in the state. They have been facing to use new technology. In modern era, the new technology has been increasing unemployment, (iv) It is seen that the most of the agricultural laborers belong to the scheduled caste. Therefore, they are unable to fight for their better working conditions, (v) the agricultural labour in the state has been facing seasonal employment. They remain unemployed for a large part of the year. This is the crucial period that they forced to barrow and fall in debt. This debt is permanent feature of their life which goes from generation to generation, (vi) agricultural labours do hard work. The hardness of the work depends on the natural factors. Their working conditions are fixed by nature. They work both in sun and rain. As results, they have

to work day and night which adversely affects their health, (vii) the housing problems are crucial before the agricultural labourers. They do not have their own houses. Their houses are made by soil and mud. These houses are not sufficient to provide peace full livelihood for agricultural labourers. These houses create other problems in their path of development, (viii) it is seen that there is lack of subsidiary professions in rural areas in the state. If there is no work in the field of agricultural land, they do not find subsidiary profession. As results, they are forced to work on agriculture. Which generate disguised unemployment (ix) they are compulsory forced to work under the supervision of moneylenders and mahajans without getting wages in rural areas. On the other hand, agricultural labourers in Uttar Pradesh are highly indebted. As results, they are committing suicide in major part of the state. The classification of workers in Uttar Pradesh is presented in Table 3.12 and Figure 3.8. It is found that the percentage of cultivators was 53.2 per cent in 1991 and decreased 32 per cent in 2011 at state level. On the other hand, the percentage of the agricultural labour was 18.9 per cent in 1991 and increased 22.3 per cent in 2011 at state level. Regarding household industries workers, it grew at the rate of 2.4 per cent in 1991 and increased to 6.3 per cent in 2011. In the case of other services workers, it grew at the rate of 25.3 per cent in 1991 and increased to 39 per cent in 2011 at state level.

Figure 3.8: Classification of Workers in Uttar Pradesh during 1991 to 2011



Source: Various Reports of Statistical Abstract, Lucknow, Uttar Pradesh

Classification of workers during 1991 to 2011 in Uttar Pradesh is shown in Table

3.13. It is found that the percentage of male and female cultivators was 53.9 per cent and 48.1 per cent in 1991 and decreased 31.1 per cent and 22.2 per cent in 2011 at state level. On the other hand, the percentage of male and female agricultural labours was 16.6 per cent and 35.8 per cent in 1991 and become 27.6 per cent and 38.4 per cent in 2011. With regards to the percentage of male and female household industries workers was 2.2 per cent and 3.5 per cent in 1991 and increased 4.7 per cent and 9.6 per cent in 2011. Considering, the percentage of male and female other service workers was 27.1 per cent and 12.4 per cent in 1991 and increased to 36.4 per cent and 29.6 per cent in 2011 at state level. Table 3.14 shows the classification of workers in Uttar Pradesh. It is observed that the percentage of self-employed workers was 71.6 per cent 1993-94 and decreased to 66.28 per cent in 2009-10. On the other hand, the percentage of regular wage workers was 8.6 per cent in 1993-94 and increased to 9.7 per cent in 2009-10. With regards to the casual labour, it grew at the rate of 19.6 per cent in 1993-94 and increased to 24.0 per cent in 2009-10 at state level. It is obvious that the casualization of the labour is increasing in the state of Uttar Pradesh.

The Government has taken several steps to improve the condition of agricultural labourers at state level. Some of the steps are such as (i) The Government has launched minimum wage act(MWA) in 1948 to empower the legislation to fix the minimum wages for the agricultural labourers, (ii) Several programmes have been adopted such as Antodya and NERGA to improve the conditions of poor agricultural labourers, (iii) The insurance scheme has been introduced to cover all landless agricultural labourers, (iv) In 1976, the Government passed the Bonded labour Abolition Act to improve the livelihood and uplift from the poverty line in the state of Uttar Pradesh, (v) Some rural employment programmes was launched in 1980 to organize labour for intensive works on a scale. These programmes have been operating such as projects road building, minor irrigation, drainage, water conservation, (vi) The Government has been making effort to establish cottage industries in the rural areas of the state, (vii) The government has been improving the administrative power and creating job opportunities in rural areas, (viii) Regional rural banks have been establishing in the villages. The branches of these banks are providing facilities to agricultural labourers to start tiny business, (ix) the maximum limit of agricultural land holdings to be cultivated by a single farmer have fixed. The excess land of this limit is distributed among the landless labourers at state level.

III.7 REGRESSION RESULTS

The growth of agriculture sector is influenced by several factors such as agricultural inputs, accessibility of credit, irrigation facility, weather conditions and government programmes and policies. It is observed that to analyse the effect of all the factors in simple framework may be the complex since the mechanism through which these variables affect crop output growth varies. To analyse the impact of all factors, we have developed two models in simple regression framework. First model explained the impact of productivity (Yield) of the food grains on net state domestic product and the impact of production of food grains on productivity of food grains are presented in model (ii). The following regression models are given below;

$$NSDP = \beta_0 + \beta_1 YOF + u_i \text{-----} (i)$$

$$YOF = \beta_0 + \beta_1 POF + u_i \text{-----} (ii)$$

Whereas: NSDP is the net state domestic product at constant prices and YOF is the productivity of food grain, POF is production of food grains. β_0 is constant coefficient and β_1 is the regression coefficient for respective variables, U_i is error term in the model. To remove the problem of multicollinearity, all variables such as dependent and independent variables are taken in log form. Two model were estimated because of multicollinearity. The results of the equation (i) and (ii) have been presented by model (i) and model (ii) in the Table 3.15. It is found from the model (i) the impact of productivity of food grain was positive and significant on net state domestic product during the study period at state level. On the other hand, Model (ii) also shows that the impact of food grains productivity was positive and significant impact on food grains production during the same period. The value of R-square was around 0.831 in model (i); which implies that 83 per cent variation in NSDP is explained by the variation in productivity (Yield) of food grains while from the model (ii) it is found that around 86 per cent variation in production of food grains is explained by the variation in productivity of food grains during the study period at state level.

Table 3.15: Regression Results of Agricultural Growth Model during 1993-94 - 2013-14 in Uttar Pradesh

Model (i)				Model (ii)			
Independent Variable	Dependent Variable: Net State Domestic Product (NSDP)			Independent Variable	Dependent Variable: Production of food grains		
	Coefficient	t- value	P-value		Coefficient	t- value	P-value
Yield of food grains	1.360	9.672	.000	Yield of food grains	.807	10.899	.000
Constant	0.733	.680	0.505	Constant	4.489	7.916	.000
R – squared	0.831			R – squared	0.862		

Source: Authors Calculation

Similarly, it is found that the variables like net irrigated area, cropping intensity and expenditure of agriculture are also influencing the growth of net state domestic product and production of food grain at state level. Hence, the following multiple regression equations are as follows;

$$NSDP = \beta_0 + \beta_1 NIA + \beta_2 CI + \beta_3 Ex + u_i \dots \dots \dots (iii)$$

$$POF = \beta_0 + \beta_1 NIA + \beta_2 CI + \beta_3 Ex + u_i \dots \dots \dots (iv)$$

Whereas: NIA is net irrigated area, CI is cropping intensity, and Ex. is Expenditure of agriculture. The model was estimated through the multi-regression methods and results of the equation (iii) and (iv) are presented by model (iii) and model (iv) in Table 3.16. All variables are in term of annual growth rate form. From the model (iii), it has been observed that the net area irrigated and cropping intensity had positive and significant impact on NSDP whereas agricultural expenditure had very negligible positive impact on NSDP. Similarly, from the model (iv) it is found that the net area irrigated and cropping intensity had positive and significant impact on production of food grains whereas agricultural expenditure had negative and insignificant impact on production of food grains during the study period at state level. The values of R-square shows that the third model explained much of the variation i.e. 96 per cent as compared to the fourth model where R- squared was 50 per cent during the study period at state level.

Table 3.16: Multiple Regression Results of Agricultural Growth Model during 1993-94 -2013-14 in Uttar Pradesh

Model (iii)				Model (iv)			
Independent Variables	Dependent Variable: Net State Domestic Product(NSDP)			Independent Variables	Dependent Variable: Production of food grains		
	Coefficient	t- value	P-value		Coefficient	t- value	P-value
NIA	1.231	3.736	.002	NIA	1.827	2.203	.043
CI	2.155	2.777	.013	CI	2.818	2.177	.045
Ex.	.067	2.053	.056	Ex.	-.142	-1.624	.124
Constant	-12.547	-3.043	.007	Constant	0.670	-0.382	.707
R – squared	0.966			R – squared	0.504		

Source: Authors Calculation

Overall from the results, it is noticed that agricultural expenditure at the farmer’s level and government level are very low; which would affect the growth of agricultural production and productivity at state level. Majority of the farmers are small and marginal farmers with poor socio- economic conditions. They cannot afford the expenses at farm level. At state level, cultivated land more or less fixed but increasing intensification of land use could be increased agricultural production and productivity in the state. On the other hand, better irrigation facilities as well as improved financial services would increase the growth of net state domestic product, agricultural production and productivity in the state of

III.8 CONSTRAINTS OF AGRICULTURAL SECTOR

There are several constraints of agricultural sector in Uttar Pradesh. It is visible that the past efforts towards the agriculture sector were very casual. There were no concerted and integrated efforts to raise the agricultural growth. The state is full of natural resource in term of soil, water, and climate, but the performance of the agriculture sector is far from satisfactory. There are many constraints in the development of agricultural sector has been given below;

The most and very critical constraints are low investment in the area of agriculture. The per capita plan outlay in the state is the lowest among all the states (Shankar, 2001). It is observing that the public investment in agriculture in different five year

plan has declined at state level. The attitude of the government is to discourage the private sector to invest in agriculture sector. In this condition, the state cannot increase the growth of agriculture. Unfortunately, a major percentage of the public investment in agriculture is digested by subsidies on irrigation, fertilizers, power, seed and credit. These subsidies either reduced the public investment or increase the excess and wasteful use of the resources. Therefore, the foremost priority of the government should be mobilize resources for investment in those areas that attract private sector participation and promote agriculture growth at state level.

Agricultural land for cultivation in the state remained constraint during last two decades. The vertical utilization of the land was also at a snail's pace. Besides providing the food requirements of the growing population, the pressure on agricultural land also comes from industry and housing. The small land holding and land tenancy laws are decreasing investment and increasing inefficiencies in agriculture sector. The growing concern is on: (i) decreasing holding size, (ii) increasing fragments of land, and (iii) increasing number of small and marginal farmers. The land tenancy laws restrain private investment in the state. Although, the previous efforts towards land reforms increased private investment in agriculture that witnessed better agricultural performance. The reforms in the state were carried out in following sequence (i) abolition of zamindari and intermediary systems, (ii) protection of tenant rights and regulation of rents, (iii) consolidation of landholdings (iv) the ceiling on landholdings, and (v) distribution of surplus land among marginal farmers and landless labourers. The government has to take steps to revive the concept of consortium of small and marginal farmers to efficiently utilize agricultural land for augmenting income and accelerating agricultural growth at state level.

The state has been facing institutional constraints since many years. The improved quality seeds, low seed replacement rate and non-availability of seeds are the most vital constraints in rising agricultural productivity and production. There is need to concern the balanced approach for seed production, storage and marketing of principle crops. The infrastructure facilities for seed production, storage, transportation and marketing are inadequate in term of both quality and quantity in the state. The seed testing facilities, human resources and required skills are lacking and need to improvement.

The agriculture sector is suffering from financial assistance at state level. As reveals earlier, that the investment in agriculture has been declined. The government has established co-operative banks, commercial banks, regional rural banks and national banks for agricultural rural development for providing credit facilities to agricultural farmers. But, the lending performance of the banks is much below than the desired level. The credit-deposit ratio in the state is low. Commercial banks, RRBs and NABARD are associated with them are not advancing the required credit to the farmers. On the other hand, institutional constraints are also responsible for agricultural diversification i.e. in favour of high value crops and agro-processing system which are also capital-intensive in the state. A strong credit sector can facilitate promotion of agricultural diversification towards high value crops as well as agro-processing.

The state is suffering from drought and irrigation facility is not good. The use of the water efficiency in the surface irrigation system is very low at state level. The main reason behind it is extensive seepage, uneven and unreliable distribution of water over the entire canal command area, and inadequate maintenance and modernization of outdated irrigation structure. There is inefficient use of water and low cost recovery in irrigation areas. These constraints are responsible for undeveloped irrigation facilities in the state of Uttar Pradesh.

The rural road is not well developed at state level. Road density per lakh population in the state is 142 km, which is very low as compared to the national level i.e. 246 km. This density is much lower than Maharashtra (303 km) and followed by Kerala (462 km). The total length of rural roads is 1.84 lakh km in the state. The status of the village connectivity in the state is 50 per cent, which is below the all-India average of 56 per cent and far below that of Gujrat 85 per cent, Tamilnadu 69 per cent and Kerala 100 per cent. The poor rural network restricts inputs delivery systems and marketing of inputs. Lack of good road connectivity is an obstacle for achieving higher agricultural growth and diversification of agricultural towards high value crops, live stocks and agro processing at state level.

Natural resources are very important for growing agriculture sector in the state. However, proper utilization of the natural resources not only protects agriculture sector but also human beings. Degradation of soil and water resources is a serious

problem for agriculture sector of the state. The several important problems are such as (i) Land degradation, (ii) Soil sodicity or alkalinity, (iii) Water logging (iv) Declining water table, and (v) Nutrient mining. However, it has been observed that there are many causes of land degradation like faulty land use, wrong management of cropping pattern, devastation by frequent fires, shifting cultivation, unscientific mining, overgrazing and degradation of the forest cover and non-involvement of the local people. The floods and droughts in different part of the state made improper use of the land. Soil degradation caused by erosion, salinization and alkalization has become very common all over the world. Around more than 2.5 lakh hectares of the world's best land is affected only because of salinization and water logging problems every year. To reduce the salinization problems, the Central Soil Salinity Research Institute (CSSRI) was established in 1969 (Mridula Singh 2006).

Water-logging is very prominent problems at state level. It is very big challenge for the development of agriculture. It is estimated that total 8.5 million hectare water-logged area in the country, about one-fourth is confined to Uttar Pradesh. The problems of water-logging arise because of seepage from the canals, heavy rainfall in low lying areas, constructions of roads and embankments. The excessive use of groundwater is adversely affecting the groundwater table. This problem is more prominent in the western and central region of the state. The main reason of decreasing water table is due to highly subsidized electricity to extract groundwater, scarcity of canal water, and expansion of high water requirement crops like rice and sugarcane. The energy cost of water extraction is increasing due to adverse effects of the declining water table. Implementation of water saving devices, like micro-irrigation system, diversification of agriculture towards low water requirements crops and withdrawal of subsidies on power may control the fall in the water table. Nutrient mining is also a major constraint in agricultural production in Uttar Pradesh. The nutrient of soil is becoming deficient with respect to nitrogenous and other macronutrients, like phosphorous and potash. The status of macronutrients (N, P, and K) is deteriorating in all regions of the state.

The state has huge potential for value addition of agricultural commodities through agro-processing. Following constraints have been identified in regarding of agro-processing sector to enlarge its scope at state level such as lack of cooling chambers and cooling chains, non-availability of appropriate varieties for processing, supply –

driven processing units in the past have become unviable due to lack of suitable backward and forward linkages, inadequate investment funds, rudimentary knowledge of post-harvest management techniques among farmers and traders, weak research and educational in post-harvest technologies.

The state is facing many constraints in livestock sector. Releasing the exiting constraints would enormously boost this sector quantitatively and qualitatively. Many constraints in livestock sector are such as; lack of sufficient infrastructure for artificial insemination facilities, inadequate veterinary and health services, short supply of vaccines, lack of adequate nutrient feed and fodder, lack of knowledge about improved health, nutrition and better management facilities, absence of infrastructure and institutional facilities which otherwise interface production and marketing at state level.

The extension of the research and development is an important factor for growing state economy. However, the share of all India public investment in agricultural research in the state has been sharply declined. The major constraints in agricultural research system are lack of resources of public funds for research. The larger share of agricultural gross domestic product should be allocated for enhancing the research. It is also vital to ensure that the optimum use of required research resources is made through improved management of research institutions. Effective mechanisms for research priority setting need to be evolved in the state. The Uttar Pradesh Council of Agricultural Research (UPCAR), Agricultural Universities, Colleges, ICAR institutions and Indian Institute of Management will have to play crucial role. There should be greater networking and sharing of information with national and international institutions in the state. The mechanism of Local Research Station (ZRS) and Krishi Vigyan Kendras (KVKs) are essential to link with location – specific research with extension agents and farmers have not performed satisfactorily.

III.9 AGRICULTURAL POLICY

The appropriate policies initiatives are required for the development of agriculture in the State of Uttar Pradesh. Therefore, the state government launched many policies during 1990s. The aim of the government behind the policies was to support the agro-processing sector for diversification agriculture, value addition of important agricultural products, larger participation of the industry in agriculture and better

management of the input sector. The state government launched Industrial Policy (1994) and Agro-Industrial Policy (1995) for reducing regulatory barriers to entry and operation of private sector, simplification and decentralization of producers, providing a package of investment incentives and creation of funds for improved access to investment capital. The major enabling provisions of Industrial Policy and Agro-Industrial policy were such as land ceiling limits relaxed for purchase of land for industrial use, purchase procedure decentralized and simplified, sale tax replaced by simpler tax regime, single window system established for rapid clearance of application from entrepreneurs, trade tax concessions, state equity fund augmented for promotion of agro-industries, provision for a separate agri-business venture capital fund and privatization of uneconomical public sector enterprises. The state government relaxed in Essential Commodities Act (1955). This Act was the major obstacle in the growth of private trade of agricultural commodities. All the restrictions on food grains movement have been removed. Similarly, Uttar Pradesh Cold Storage Act (1975) has been finished. The wheat trade completely delicensed in 1995 at state level.

The industrial policy 1998, brought changes in industries but removes the attention to improve agriculture sector. This policy focused on improving agricultural growth through promoting agricultural trade and setting up food and agro based process industries, resulted in decline in agriculture sector. The state government implemented the State Water Policy (SWP) in 1999. This policy was in terms of the National Water Policy in 1987. The State Water Policy was the reforms in the area of irrigation sector involving institutional structures, legislations and management aspects. The purpose of the policy was to ensure self-sufficiency in water resource development through improved water management and community participation. The initiatives need supports in term of irrigation and drainage investments in physical infrastructure rehabilitation, modernization and development. On the other hand, the government has taken various measurements to reform the seed sector with the important objectives of supplying good quality seeds to the farmers. The important reforms are such as; seed perspective plan, seed replacement rate and seed Act. Further, a ten years seed perspective plan has been prepared to take care the growing demands for seeds particularly of hybrids, oilseeds and pulses. Due to the low seed replacement, the performance of high yielding varieties is deteriorating. The

government has decided to increase the seed replacement rate and seed infrastructure through the macro-mode of assistance. Several changes have been made in the seed act to make it more effective and encourage the private sector participation in seed production and marketing at the state and national level.

Uttar Pradesh is one of the first states who launched the 'Agricultural Policy' in 1999, even before the 'National Agricultural Policy' announced in 2000. The main objective of the policy was such as; to encourage scientific agriculture, to achieve an annual growth rate of 5.1 per cent, maintain ecological balance, develop appropriate eco-friendly farming systems, diversify exiting agricultural towards high value crops, develop appropriate infrastructure facilities, employment generation, poverty reduction and to ensure food security through adopting better farming system at state level. Further, National Agriculture policy was implemented in 2000 to improve the condition of the agriculture, increasing employment, eradication of the poverty and ensuring food security among poor section of the people. Due to declining the growth of the public investment on agriculture sector, private sector came to invest in agricultural sector. For this, two major policy measures adopted allowing foreign direct investment (FDI) in agricultural growth and development and amendment in the agriculture produce marketing committees for opening door of the contract farming and setting up multi-stock holders committee.

Agricultural policy (2005) improved the agricultural growth and development. This policy focused in seven key areas to grow the agriculture sector. Due to declining of public investment, private sectors investment have been promoted to invest in agro-based and food processing industries for increasing investment in agriculture sector. The recent years, the increasing growth of the agriculture sector is seen due to growth in its sub-sectors, dairy, horticulture, fisheries, vegetables, sugar and animal meets. It resulted that Uttar Pradesh has become a leading producer of agriculture products (wheat, rice and sugarcane) and exporting state at national level. However in recent year, the growth of the agriculture food grains production is an issue of concern at state level.

Agriculture Department of Uttar Pradesh has announced Agriculture Policy in 2013 to achieve the multidimensional potential of agricultural development at state level. The aims of the policy were to encourage private sector participation in agricultural research, development, extension, input management and distribution and agricultural

marketing. The main objectives of the policy were to achieve a growth rate of 5.1 per cent in the agriculture sector, to develop and popularize appropriate eco-friendly farming systems which would improve the soil health as well as farm income, to develop and conserve natural resources for maintaining ecological balance, to increase the income of farmers through agricultural diversification towards high value activities, while retaining the core-competence in area of food and nutritional security and to develop infrastructure facilities in sectors of seeds, fertilizers, pesticides, agriculture implements, extension services, food processing and marketing by promoting private sector involvement across the agricultural supply chain in the state of Uttar Pradesh.

III.10 CONCLUSION AND SUGGESTIONS

Agriculture sector is the major source of income, employment and food security in Uttar Pradesh. But the growth of agricultural crops sector has become a major challenge for the farmers at state level. It is facing the several problems such as decreasing holding size, increasing number of small and marginal farmers, low productivity, adequate credit facilities, lack of irrigation facility, lack of improved fertilisers, lack marketing facility and lack of effective programmes and policies. On the other hand, it is experienced that new economic policies were implemented in 1991 to improve the growth of agriculture sector at state level. But it had made adverse impact on the green revolution technology as well as agricultural expenses also. The cost of the cultivation is increasing due to inadequate agricultural credit and investment, exploitation of multinational companies control over agriculture inputs and ineffective crop insurance have made agriculture backfoot in the state. Due to inappropriate price policy, wage policy and financial policy in rural areas have forced agricultural workers to move towards non-agriculture sector in urban areas. The agricultural workers are facing various problems like low productivity, low income, unemployment, debt, food crisis, nutrition, hunger, poor housing and sanitation facility, poor health, poor access to government programmes and schemes and lack of information about modern technology.

It is found that the growth of agriculture and allied sector during the plan period is not impressive at state level. On the other hand, the growth rate of food grain crops and non-food grain crops has widespread variations and fluctuations during the study period at state level. But non-food grain crops grew at faster rate compared to the food

grain crops during the study period in the state of Uttar Pradesh. The regression results shows that the impact of productivity of food grains was positive and significant on net state domestic product, whereas productivity of food grains had positive and significant impact on production of food grains during the study period at state level. On the other hand, the net area irrigated and cropping intensity had positive and significant impact on NSDP, whereas agricultural expenditure had very negligible positive impact on NSDP during the same period in the state. Similarly, net area irrigated and cropping intensity had positive and significant impact on production of food grains, whereas agricultural expenditure had negative and insignificant impact on production of food grains during the study period at state level.

The growth of the agriculture sector is slow in Uttar Pradesh. There is need to adopt multi-prone strategies and integrated approach through improved institutional arrangements and better infrastructure to boost sustainable agricultural development at state level. The future agricultural development efforts must be focus on innovations which will improve productivity of land as well as farm labour. On the other hand, a strong steps need to take to improve land market, seed, credit, investment, soil health, irrigation facility, marketing, watershed development, agro-processing, climatic variability, research and technological development in the state. It is essential to raise the growth of commercial crops such as vegetables, fruits, livestock produce, poultry and rural entrepreneurship in the rural areas at state level.

Table 3.0: Growth Rate of Agriculture and Allied Sector during Plan Period

Sr. No	Plan	Agriculture and Allied Sector (in % age)		Overall Economy (in % age)	
		UP	India	UP	India
1	First Plan (1951-56)	1.86	2.71	2.12	3.60
2	Second Plan (1956-61)	1.48	3.15	1.75	3.95
3	Third Plan (1961-66)	-0.09	-0.73	1.58	2.32
4	Three Annual Plan (1966-69)	0.62	4.16	0.32	3.69
5	Fourth Plan (1969-74)	0.94	2.57	2.23	3.25
6	Fifth Plan (1974-79)	5.23	3.28	5.70	5.30
7	Sixth Plan (1981-85)	2.54	2.52	4.11	4.10
8	Seventh Plan (1985-90)	2.69	3.47	5.70	5.80
9	Two Annual Plan (1990-92)	5.42	1.01	3.14	2.47
10	Eighth Plan (1992-97)	2.70	3.90	3.20	6.80
11	Ninth Plan (1997-02)	0.80	1.90	2.00	5.60
12	Tenth Plan (2002-07)	2.10	1.10	5.30	7.70
13	Eleventh Plan(2007-12)	5.7	3.2	10.00	7.94

Source: Planning Commission, Uttar Pradesh

Table 3.1: Land Use Pattern in Uttar Pradesh during 1950-51 to 2010-11

Year/ Category	Forest	Non agriculture use	Barren Land	Pastures and other Graze Land	Misc. Trees etc	Cultivable Waste	Fallow land	Current Fallow	Net Sown Area
1950-51	3194 (10.92)	1852 (6.33)	2887 (9.87)	- (0.00)	1415 (4.84)	2311 (7.90)	290 (0.99)	1078 (3.68)	16231 (55.48)
1960-61	3710 (12.62)	1930 (6.57)	2574 (8.76)	48 (0.16)	854 (2.91)	1605 (5.46)	1213 (4.13)	154 (0.52)	17290 (58.82)
1970-71	4953 (16.62)	2034 (6.82)	1418 (4.76)	77 (0.26)	1060 (3.56)	1345 (4.51)	545 (1.83)	869 (2.92)	17305 (58.06)
1980-81	5129 (17.25)	2280 (7.67)	1141 (3.84)	296 (1.00)	639 (2.15)	1148 (3.86)	716 (2.41)	1170 (3.93)	17221 (57.91)
1990-91	5162 (17.33)	2447 (8.21)	1035 (3.47)	303 (1.02)	545 (1.83)	1034 (3.47)	- (0.00)	- (0.00)	16430 (55.15)
2000-01	1689 (6.98)	2436 (10.07)	617 (2.55)	70 (0.29)	340 (1.40)	534 (2.21)	641 (2.65)	1047 (4.33)	16825 (69.52)
2010-11	1658 (6.86)	2835 (11.73)	486 (2.01)	65 (0.27)	354 (1.46)	426 (1.76)	538 (2.23)	1215 (5.03)	16593 (68.65)

Source: Directorate of economics and Statistics, Government of Uttar Pradesh

Table 3.2: Region wise Land Use Pattern in Uttar Pradesh during 2010-11

Regions	Agriculture	Forest Area	Non Agriculture Use	Waste Land
Western Region	75.33	4.80	13.48	6.40
Central Region	66.62	5.46	14.08	13.83
Bundelkhand Region	68.47	8.26	12.22	11.05
Eastern Region	63.95	8.95	14.66	12.44

Source: Directorate of economics and Statistics, Government of Uttar Pradesh

Table 3.3: Percentage of Operational Holdings and Area by Size Groups in Uttar Pradesh during 1970-71 to 2010-11

Year/category	Marginal holdings		Small holdings		Semi medium holdings		Medium holdings		Large holdings	
	Holding	Area	Holding	Area	Holding	Area	Holding	Area	Holding	Area
1970-71	66.8	21.1	17.2	20.8	10.6	24.9	4.7	23.2	0.7	9.9
1980-81	70.6	25.7	16.3	22.6	9	24.6	3.7	21	0.4	6.1
1990-91	73.8	31.4	15.6	24.4	7.7	23.4	2.7	16.9	0.2	3.9
2000-01	76.9	37	14.2	24.3	6.6	21.7	2.1	14.3	0.2	2.7
2010-11	79.5	40.7	13	24	5.72	20.6	1.7	12.5	0.1	2.2

Source: Directorate of economics and Statistics, Government of Uttar Pradesh

Table 3.4: Average Size of Land Holdings in Uttar Pradesh during 1970-71 to 2010-11

	1970-71	1980-81	1990-91	2000-01	2010-11
Marginal holdings	0.50	0.37	0.38	0.40	0.39
Small holdings	1.40	1.40	1.41	1.41	1.40
Semi medium holdings	2.75	2.73	2.73	2.74	2.72
Medium holdings	5.75	5.70	5.55	5.57	5.52
Large holdings	16.08	15.41	15.35	15.09	15.01
All holdings	1.16	1.01	0.90	0.83	0.76

Source: Directorate of economics and Statistics, Government of Uttar Pradesh

Table 3.5: Trends of Area, Production and Productivity (Yield) of major Food grain Crops and Non-Food grain crops in Uttar Pradesh during 1984-85 to 2013-14

Crops	Area	Production	Productivity
Wheat	0.50	2.13	1.62
Rice	0.29	1.85	1.56
Bajara	0.21	2.87	2.65
Jawar	-4.73	-3.80	0.98
Maize	-1.78	-0.76	1.04
Barley	-4.87	-3.16	1.80
Tur or Arhar	-2.03	-3.51	-1.51
Gram	-3.56	-3.13	0.47
Rapeseed and Mustard	-2.00	-0.20	1.85
Coarse Cereals	-2.42	-0.73	1.73
Pulses	-2.12	-2.17	-0.06
Cereals	-0.03	1.76	1.78
Foodgrains	-0.35	1.49	1.84
Oilseeds	-2.15	-0.71	1.48
Groundnut	-1.87	-1.67	0.21
Soyabean	-7.64	-8.31	-0.73
Sunflower	-0.87	2.33	3.16
Sugarcane	1.04	1.53	0.49
Cotton**	-7.74	-8.62	-0.96
Potato***	1.98	2.88	0.89

*Source: Directorate of economics and Statistics, Government of Uttar Pradesh, ** shows the compound growth rate of cotton during 1984-85 to 2009-10, *** indicates that the compound growth rate during 1996-97 to 2011-12*

Table 3.6: Phase wise trends of Area, Production, and Productivity (Yield) of major Food grain crops and Non-Food Grain crops in Uttar Pradesh during 1984-85 to 2013-14

Crops	Phase I			Phase II			Phase III		
	1984-85to 1993-94			1994-95to 2003-04			2004-05 to 2013-14		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
Wheat	0.81	3.15	2.33	0.28	1.44	1.16	1.03	3.42	2.36
Rice	0.00	4.22	4.21	0.45	1.21	0.76	0.74	4.12	3.36
Total Coarse Cereals	-2.55	-0.35	2.26	-3.65	-2.95	0.73	-0.95	2.08	3.06
Total Pulses	3.56	3.11	-0.43	-4.30	-3.83	0.49	-1.74	-0.61	1.14
Total Cereals	-0.10	2.99	3.09	-0.27	0.98	1.25	0.69	3.51	2.80
Total Food grains	0.51	3.00	2.47	-0.93	0.64	1.59	0.37	3.31	2.93
Total Oilseeds	-1.35	4.21	5.63	-4.96	-4.94	0.02	-0.47	-1.39	-0.93
Sugarcane	2.16	4.73	2.52	0.76	-0.39	-1.14	0.63	0.78	0.15
Potato*	-	-	-	-	-	-	2.88	3.51	0.62

Source: Directorate of economics and Statistics, Government of Uttar Pradesh, *, reveals the compound annual growth rate of Potato during 2002-03 to 2011-12 periods

Table 3.7: Trends of Productivity (Yield) of Food Grain crops and Non-Food grain crops in Uttar Pradesh during 1950-51 - 2010-11

Crops	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11
Rice	5.19	7.53	8.16	10.53	18.53	19.77	21.22
Wheat	8.21	10.21	13.01	16.50	21.71	27.71	31.11
Jawar	6.86	5.53	6.62	5.99	9.36	9.48	10.30
Bazra	6.44	3.97	7.87	7.37	11.15	14.50	16.61
Maize	7.81	24.56	17.10	16.69	13.06	7.21	15.04
Gram	5.96	7.17	7.43	8.69	8.79	8.44	9.22
Rapeseeds and Mustard	3.69	4.85	5.96	5.40	9.73	10.00	11.85
Linseed	4.15	2.11	2.63	2.49	3.93	3.60	4.44
Other Pulses	8.24	9.99	9.26	9.08	9.35	8.46	7.93
Sugarcane	291.04	410.21	406.42	470.90	558.10	549.19	567.72
Potatos	78.08	70.37	92.00	156.66	190.29	213.14	241.49
Groundnet	11.54	8.32	6.50	7.01	7.42	8.35	9.93
Till(pure)	1.67	2.89	3.46	3.43	6.97	11.21	1.98
Total Pulses	27.68	22.82	24.42	23.09	18.42	13.53	8.24
Total Oil Seeds	5.24	5.65	5.45	5.27	8.35	8.25	8.36
Total Food grains	6.89	7.90	10.00	12.19	17.39	23.04	23.91

Source: Directorate of economics and Statistics, Government of Uttar Pradesh

Table 3.8: Percentage of Net Irrigated Area (NIA) by different sources in Uttar Pradesh during 1950-51 to 2010-11

Year	Canal	Tubewells and Wells	Tankes and Lakes	Other sources	Percentage of Net Irrigated Area to Net Sown Area
1950-51	38.17	45.07	-	16.76	29.80
1960-61	39.50	47.33	8.31	4.86	30.50
1970-71	34.60	55.88	5.14	4.37	41.70
1980-81	33.62	61.35	1.76	3.27	54.90
1990-91	29.95	66.17	0.98	2.90	61.60
2000-01	22.17	75.63	0.54	1.66	73.70
2010-11	18.89	80.06	0.76	0.29	81.00

Source: Directorate of economics and Statistics, Government of Uttar Pradesh

Table 3.9: Distributions of Chemical Fertilizers in Uttar Pradesh during 1950-51 to 2010-11

(In. Million Tonnes)

Year	Nitrogen	Phosphate	Potash	Total
1950-51	20000 (97.5)	500 (2.4)	-	20500(100)
1960-61	281000(99.2)	2000(0.7)	-	283000(100)
1970-71	291000(70.8)	75000(18.2)	45000(10.9)	411000(100)
1980-81	860642(74.8)	209338(18.1)	80613(7.0)	1150593(100)
1990-91	1691883(75.3)	455488(20.2)	98348(4.3)	2245719(100)
2000-01	2206497(74.5)	662083(22.3)	93249(3.1)	2961829(100)
2010-11	3476864(68.3)	1253453(24.6)	358092(7.0)	5088409(100)

Source: Directorate of agriculture and statistics U.P., and Parentheses indicates percentage share in total.

Table 3.10: Percentage of Institutional Credit taken from different agencies for Agricultural purpose in Uttar Pradesh during 1996-97 to 2006-07

Year	Primary Agriculture Credit Society (PACS)	Primary Land Development Bank(PLDB)	Commercial Banks Branches(CBB)	Regional Rural Banks (RRB)
1996-97	55.10	9.80	28.70	6.20
2001-02	62.80	23.00	10.70	5.40
2006-07	28.30	5.60	24.30	45.60

Source: Agricultural Census, Uttar Pradesh (www.Agricoop.nic.in)

Table 3.11: Agency Wise Number and Capacity of Storage Units in Uttar Pradesh during 1985-86 to 2010-11, (Capacity in Million .Tonnes.)

Year	Food Corporation of India(FCI)		U.P. State Warehousing Corporation(UPSWC)		Central Warehousing Corporation(CWC)		Total	
	Number	Capacity	Number	Capacity	Number	Capacity	Number	Capacity
1985-86	47 (19.1)	1616070 (45.0)	144 (58.5)	1252535 (34.9)	55 (22.4)	722093 (20.1)	246 (100)	3592698 (100)
1990-91	73 (25.6)	1585540 (41.2)	151 (53.0)	1318552 (34.2)	61 (21.4)	948406 (24.6)	285 (100)	3852498 (100)
1995-96	74 (32.9)	151580 (6.5)	100 (44.4)	1299000 (55.4)	51 (22.7)	894000 (38.1)	225 (100)	2344580 (100)
2000-01	74 (35.4)	2797000 (92.4)	154 (73.7)	2145000 (70.8)	55 (26.3)	882886 (29.2)	209 (100)	3027886 (100)
2005-06	76 (27.3)	1914826 (33.9)	156 (56.1)	2866000 (50.7)	46 (16.5)	871412 (15.4)	278 (100)	5652238 (100)
2010-11	118 (38.9)	2805089 (40.7)	140 (46.2)	3156552 (45.8)	45 (14.9)	936314 (13.6)	303 (100)	6897955 (100)

Source: Food Corporation of India/Central/State Warehousing Corporation U.P.

Table 3.12: Classification of the Workers in Uttar Pradesh during 1991-2011

	Cultivators	Agricultural Labor	Household Industries	Other Services
1991	53.2	18.9	2.4	25.3
2001	43.9	19.4	6.8	29.7
2011	32.4	22.3	6.3	39.0

Source: Various reports of Statistical Abstract Uttar Pradesh, Lucknow

Table 3.13: Gender wise classification of Workers in Uttar Pradesh during 1991-2011

Year	Cultivators		Agricultural Labor		Household Industries		Other Services	
	Male	Female	Male	Female	Male	Female	Male	Female
1991	53.90	48.10	16.60	35.80	2.20	3.50	27.10	12.40
2001	42.90	34.30	20.10	41.20	4.30	8.3	32.5	16.16
2011	31.10	22.20	27.60	38.40	4.70	9.60	36.40	29.60

Source: Various Reports of Statistical Abstract, Uttar Pradesh, Lucknow

Table 3.14: Category wise classification of workers in Uttar Pradesh during 1993-2010

Year	Self employed	Regular wage	Casual labour	All
1993-94	71.60	8.60	19.60	100
2004-05	74.11	9.00	16.80	100
2009-10	66.28	9.70	24.00	100

Source: State Planning Commission, Government of U.P

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CHAPTER IV

SMALL AND MARGINAL FARMERS IN UTTAR PRADESH



Agriculture sector is the backbone for the development of state economy. The state has accounted 12 per cent of the country's area and 16.17 per cent of the population. The state is pre-dominantly a land of poor farmers living on marginal and uneconomical holding of less than 3.0 hectare. It is clear that the bottom 70 per cent of the rural households are constituting mostly marginal and sub marginal cultivators, own less than 20 per cent of the total land under cultivation. The bottom 50 per cent of rural household in Uttar Pradesh operates only on 12.7 per cent of the total available land (National Sample Survey Organization, 37th round). The state is the fifth largest state of the country after Rajasthan, Madhya Pradesh, Maharashtra and Andhra Pradesh. The total area of the state is 2.36 Lakh Sq.km which is 7.3 per cent of the total area of the country. The state is contributing 21.55 per cent to the total national production of food grains, vegetables, fruits and milk production and 40 per cent to the total production of potato and sugarcane. The growth of some commercial crops has significant potential for promoting exports of agricultural commodities and bringing about faster development of agro-based industries. Thus, agriculture not only contributes to overall growth of the economy but also reduces poverty by providing employment and food security to the majority of the population in Uttar Pradesh.

Small and marginal farmers are the backbone of the agriculture sector in the state. The share of small and marginal farmers in the state is three quarters of the farming population. These farmers are not getting minimum support prices of their produce. The consolidation of land has benefited the big farmers. On the other hand, the control of international companies over seeds is increasing. As per the agreement of WTO quantitative restrictions are removed and imports of agriculture products are open. As results, external agriculture products are available at cheaper prices in the market and the interest of small domestic producers is being crushed in the name of liberalization and globalization. The most unfortunate dimension of the problems of small and marginal farmers are that in spite of being major portion of the population, they are neglected at state level and national level policy and programs. The farmers of eastern Uttar Pradesh are adversely affected with flood. The farmers of central region are struggling with scarcity of water. The state is full of diversity but the problems of farmers are almost the same at state level. The problems of small and marginal farmers are also related to low productivity, utilization of resources, availability of fertilizers, seeds, credit, marketing, access to information and services

in the state. The other main problems are non-availability of health and education services, employment opportunities or availability of developmental schemes in rural areas of the entire State.

The present chapter is divided in four sections except introduction. Section I analyses importance, problems and constraints of small and marginal farmers. Section II describes land use pattern, irrigation, value of output, income, consumption, agricultural machinery, credit and indebtedness among small and marginal farmers at state level. Issues and Challenges are analyzed in Section III. Final section IV describes conclusion and suggestions.

Small and marginal farmers are very important for raising agriculture growth and food security in Uttar Pradesh. *The definition of small and marginal farmers is like farmers that own up to 1.0 hectare of land are marginal farmers and farmers that own up to 1.0-2.0 hectares of land are small farmers.* The state agriculture is the home of small and marginal farmers. Therefore, the future of sustainable agriculture growth and food security at state level depends on the performance of small and marginal farmers. The operational holdings and area by size groups have been changing in the state.

One of the paradoxes of the state economy i.e. the decline in the share of agricultural workers in total workers has been slower than the decline in the share of agriculture in the GDP. The performance of agriculture in the post-Independence era has been impressive as compared to the pre-Independence period. The growth rate of agriculture and allied activities was 1.86 per cent during 1951-56 at state level. The highest growth rate of agriculture and allied activities was 5.23 per cent in 1974-75. Further, the growth rate of agriculture and allied sector was decreased between the first half of the 1990s and later period is increased. The growth of agriculture and allied sector was 2.10 per cent in 2002-07 and become 5.7 per cent during 2007-12 in the state. The fluctuation in growth of agriculture is a matter of concern in the state.

There has been significant increase in the use of modern inputs in state agriculture during post-green revolution period. The percentage of net irrigated area to net cultivated area increased, fertilizer consumption showed a significant rise and the per cent age of area under high yielding varieties (HYVs) to cereals cropped area has risen. The share of agriculture in electricity consumption also rose. All this led to a

significant increase in agricultural production over time. It is noted that agriculture is a 'state subject' under the constitution of India. However, the central government plays a crucial role in shaping agricultural policies. Broadly, agricultural development policies over time are divided into four sets of policy packages: (i) institutional reforms (ii) public investment policies (iii) incentive policies and globalization policies. The relative importance of the first three sets has varied over time. Thus, during the first three Five Year Plans (1950-65), the institutional reforms and public investment packages dominated. The central and state governments enacted a number of laws regarding land reforms. These laws mainly relate to three aspects: abolition of Zamindari system, land ceiling and redistribution of land, and tenancy reforms. The government was successful in abolishing the Zamindari or intermediary system after paying compensation to the Zamindars. The land ceiling laws were not effective although there was redistribution of some land to the beneficiaries. The tenancy reforms were more successful in two states, West Bengal in the east and Kerala in the south, than in others. West Bengal succeeded in giving ownership rights to tenants, particularly sharecroppers. There was significant public investment in agriculture during 1950-65. To achieve the objective of self-sufficiency in food grains, there was massive investment particularly in constructing irrigation reservoirs and distribution systems. Another important policy during this period was the expansion of institutional credit which helped reduce informal sources that had been exploitative in respect of interest rates and terms and conditions in Uttar Pradesh. During the 1967-90 periods, there were incentive policies for adoption of new technology and public investment policies dominated government strategy in agriculture. After the humiliating experience with import of food grains in the mid-1960s, there was a vigorous drive for achieving self-sufficiency in food grains by stepping up public investment in irrigation and introduction of new technology through incentives. There was a need to increase domestic food production at a faster rate by much higher productivity without upsetting the agrarian structure. Luckily at that time new high-yielding dwarf varieties of wheat and rice were available in Mexico and the Philippines respectively. Productivity increased significantly for wheat initially and later for rice. This is popularly known as the 'green revolution'. The productivity improvement associated with the green revolution is best described as forest or land-saving agriculture. It is noted that without the green revolution it would not have been possible to lift the production potential of state agriculture. Incentive policies focused

on both inputs and output. Subsidies for inputs like irrigation, credit, fertilizers, and power increased significantly in the 1970s and 1980s. The objective of the subsidies is to provide inputs at low prices to protect small and marginal farmer's interests and encourage diffusion of new technology. Similarly, on the output side, there has been a comprehensive long-term procurement-cum-distribution policy in the post-green revolution period. The government announces the support prices at sowing time and agrees to buy all the grains offered for sale at this price. To support these operations, institutions like the Food Corporation of India (FCI) and the Agricultural Prices Commission (APC) were established in the mid-1960s.

The new economic reforms in 1991 have improved the incentive framework and agriculture has benefited from reduction in protection to industry. The terms of trade for agriculture have improved and private investment has increased. Export of commodities, particularly cereals, has risen and there has been some progress on market reforms in terms of removing domestic and external controls. However, there were also concerns about agriculture and food security in the 1990s. There has been emphasis on price factors at the cost of non-price factors like research and extension, irrigation, and credit. It is found that economic reforms have largely neglected the agricultural sector and only in the last few years have domestic and external trade reforms in the sector started. Trade policies were highly interventionist and discriminating against agriculture. There has been pessimism regarding international trade in agriculture. Trade liberalization in agriculture has been faster towards the end of the 1990s in tune with WTO agreements. There has been considerable progress in the liberalization of export controls, and quantitative controls on imports and on decontrol of domestic trade. Further, the 11th five year plan (FYP) focused on 'faster and inclusive growth'. An important aspect of 'inclusive growth' in the 11th plan was its target of 4 per cent per annum growth in GDP from agriculture and allied sectors. The plan also focused on water, supply of good quality seeds, replenishment of soil nutrients, agricultural research and extension, reforms in land tenancy and agricultural marketing at state level and national level. The 12th FYP focused on small and marginal farmers and poor resource regions.

Small and marginal farmers across the state and country have certain common characteristics. According to the FAO (1990) have described small and marginal farmers such as seasonal producers, fragmented buyers and suppliers unable to exploit

economies of scale and dominated by household economics where functions such as consumption, investment, work and social activities are undifferentiated and unspecialized. In contrast, buyers and service providers who operate in the market tend to be large-scale operators commercially driven, specialized by commodity, process, productive assets or services offered; able to exploit economies of scale; and aiming to even-out operations through the seasons.

Effective linkages need to be developed between farmers and service providers and purchasers of agricultural produce to strengthen support services for small and marginal farmers in Uttar Pradesh. At present such linkages are either missing or very weak in the state. A number of factors govern the development of these linkages such as the external environment in which farmers and service providers operate as well as the nature of product and processing involved, viz., poor transport which limits trade and for some products, lack of telecommunication facilities which place spatial limits on business and raise risks and costs, availability of utilities which determine the type of processing is possible if contracts are unenforceable and property rights unprotected, transactions may be restricted to kin and long standing relationships of trust, excluding majority of business opportunities and shifting innovative initiative.

Small and marginal farmer's constraints generate mainly from their limited land area, low farm output, income, few net surplus, and limited possibility for farm investment out of their own resources. Fragmentation of landholdings in the state has accentuated the above problems. The rural markets are also functioning in a way unfavorable to small and marginal farmers in the state. They do not receive timely market information and experience considerable difficulties in obtaining access to government services. Constraints faced by small and marginal farmer in the state may be broadly classified in the area of production, input supply, credit, marketing and value addition.

The small and marginal size of landholding makes it difficult for small farms to become viable economic units in rainfed conditions. Small and marginal farmers are compelled to augment their operational area through tenancy or leasing-in land. Most tenants are landless or small and marginal landholders in Uttar Pradesh. The large farmers enter into such arrangements to cut down on management costs of hired labour. The terms and conditions faced by the tenants are unfavorable in the state. The

informal Tenurial system has been the cause of less-intensive use of labour and other inputs, slower adoption of technology, low levels of investment for land improvement and other fixed capital inputs, leading to low levels of output. With no documentary proof, tenants are also unable to access institutional credit depends on private moneylenders for purchase of inputs in the state.

Irrigation infrastructure is the single largest investment expenditure in agriculture in the state. However, irrigation systems in state suffer from inefficiency, deteriorating equipment and infrastructure, lack of operation and maintenance and misallocation. Many of the problems are traceable to the policy environments in which the investments were made and operated and their management by government. Water charges do not even cover the cost of operation and maintenance of the irrigation system, much less servicing the capital costs to build it. There is inefficient overuse of the water in the state of the Uttar Pradesh. This overuse of water in the fields as well as large quantities that leak from silted-up, damaged or obstructed canals in transit result in water logging (causing loss of productive land) and salination. The absence of a realistic user demand is also leading to indiscriminate mining of underground water resulting in declining water table. These have to perverse equity implications in all the regions of the state. It is found that big farmers have powerful water pump lowers the water table drying up the small farmer's shallow well. The dominant and resourceful user as well as managers of the government delivery systems having the authority to ration the resource, to earn renter incomes through the appropriation of disproportionate share of benefits. In the process, small and marginal farmers of the canal systems remain at a disadvantage at state level.

Availability of inputs has always been a major constraint with small and marginal holders in the state. Input supply constraints observed across major inputs such as lack of access to inputs, inadequate availability of quality of inputs, lack of timely support and lack of small and marginal farmer's friendly technologies/inputs. The government is providing subsidies to use of new agricultural technologies and modern inputs. But, the major benefits of the subsidies on agricultural inputs go to big farmers and small and marginal farmer's remains to take the advantage of the subsidies at state level. It is felt that subsidies on the inputs have led to misallocation of resources, imposed a burden on government budgets and to the extent they

increased the use of chemicals, caused environment damage. At the micro level, under pricing of fertilizer causes distortions and leads to overuse of subsidized nutrients and imbalance in NPK ratios. The issue of input subsidies is being critically examined for further rationalization in the state. On the other hand, private sector is affecting economies as well as promoting marketing efficiencies in the state. The role of the private sector is increasing. The government's Seed Policy in 1988 opened the gates to importation of high-tech genetic material and technology and much greater participation of domestic and foreign companies in the Indian seed market. There is need to ensure that substandard quality of seed is not sold to farmers by private companies at state level.

Cropping pattern is also constraint among small and marginal farmers at state level. As compared to large farmers, small farmers follow mono-crop practice. This makes them risk-prone and restrict production and income potential with limited options available for diversification. Small and marginal farmers are resource-poor and mechanically unequipped. Location inaccessibility is also a constraint among small and marginal farmers. Small and marginal holdings in distant locations are lacking connectivity by road as results difficulties in practicing technologies and selling their produce in suitable markets. Small and marginal farmers are also be deprived to take the advantage of the public extension services or input supplies and commercial services in the state.

IV.1 CREDIT CONSTRAINTS

Small and marginal farmers are at a disadvantage in accessing credit. On the other hand, large farmers have the greater access and enjoy far better credit support provided by various credit institutions. On the other hand, small and marginal farmers depend on private moneylenders to take credit for carrying out current farm operations. They charge very high rate of interest and engrossed in debt trap at state level. Small and marginal farmers require a credit package covering production, investment, consumption and redemption of prior debts.

The small and marginal farmers are handicapped to access the market facilities. It is generally perceived that agricultural marketing begins with post-harvest operations. Marketing affects field operations in term of influence harvest timings, minimizing damages, maintaining market preferred quality, value addition, packaging

preferences, quality standards, minimizing transport cost, cold storage facilities, marketing mechanism and rural regulated markets. Knowledge and adoption of these practices are very important for small and marginal farmers to market their produce to earn reasonable profit. Therefore, there is a great need to make concerted efforts to make market-related environment conducive to small and marginal farmers in Uttar Pradesh.

The demand for high value agricultural commodities like fruit, vegetables, milk, meat, eggs, fish, and sugar is rising much faster than wheat and rice. The rising demand for processed food in the state is mostly processed by the unorganized sector. As a result of their low retention capacity, small and marginal farmers are often forced to sell their surpluses at low prices or under distress sale. Post-harvest processing and value addition at farm level would provide relief to the producers. There is need for small-scale farm level processing and value addition for agricultural produce particularly at primary level such as fruit and pulp making, pickle making, preservation of vegetables, jam and marmalade at state level.

Value-adding techniques provide higher income to the small and marginal farmers at state level. This is needed to be supported by access to market information and linkage with potential markets where the processed produce could be sold. Agro-processing units in semi-urban centers would create employment generation. Agro processing units will create further demand for agricultural produce. This will ensure reasonable reward and increase in the income of small and marginal farmers. Lesson learnt from the white revolution is itself a guiding become for commercialization in areas of dairying and animal husbandry. “Operation Flood” (OF) provided the example of large-scale modern milk processing fed by a well-organized milk shed, procuring milk from a large number of small and marginal producers in small amounts at state level.

Agriculture sector has millions of scattered land holdings which are remains unorganized and is not helpful to collective bargaining. This is even more applicable to small and marginal farmers who lack bargaining capacity. Small and marginal farmers are generally less educated and often serviced by agencies which exploit their lack of knowledge. There is need for small and marginal farmers to get organized at state level.

Uttar Pradesh is one of the largest states of the country. The state is full of geographic diversity. The diversity in geographic conditions is mainly responsible for different environmental conditions in different regions. Some places water is excess at other some places water is scare. Some places the soil is black cotton and fertile and at others soil is dry and hard. Every region has its own characteristics and potentiality. The state is full of diversity but the problems of farmers are almost the same in the entire state. The problems of small and marginal farmers are as utilization of resources, availability of fertilizers, seeds, marketing of their produces and access to information and services. Certain physical constraints and wide spread failures and ignorance of natural resource management also contribute to the problem of low productivity among small and marginal farmers at state level. The main problems of the small and marginal farmers are non-availability of health and education services, employment opportunities, or availability of developmental schemes in rural areas of the entire state. The state is divided in seven regions such as Trans-Saryu Eastern Region, Far East, Ganga-Vindhya, and Central Plain, Sonebhadra, Bundelkhand region and Western region.

Trans Saryu Eastern Region has two specific problems of the region affecting the life of people are related to flood and sugarcane production. The entire region is highly flood affected and every year one or the other area faces the calamity of the flood. There is a network of rivers in the region in the north-east of Ganga where Ghagra and Gandak flow. Rapti and other rivers also traverse in region. The soil of the area is soft and soil erosion by the rivers silt accumulation during rains and shifting of path by reverse is common. Therefore, this region is prone to floods. The flood has affected the economy of the region due to increasing losses year after year. The life of flood-affected areas is very miserable and has a long term effect on the small and marginal farmers. Small marginal farmers are getting only a single crop in a year in the flood affected area. Water logging in flood affected areas has emerged as one of the most severe problems in the region. The water logging continues for months after the flood has receded resulting increase of the non-cultivable land in the state.

The farmers of flood affected areas are hardly employed for six months and unemployed for the rest six months. The adverse conditions for agriculture are generating disinterest among the small and marginal farmers towards farming. They

are reducing opportunities in rural areas and are enforcing them for migration in search of employment. The scope of industries is less in the eastern region and agriculture is the main source of employment. The potential of workforce in the region has decreased and left the burden on the remaining people and causing farming become more difficult. The production of sugarcane is also a major problem among small and marginal farmers in the region. The availability of natural soil and water in the region is such that the sugarcane crop is possible even without irrigation facilities. The production of sugarcane is a normal cash crop of farmers. The sugar industry of the region has become sick due to mass corruption, mismanagement and politicization. The sugar industry is unable to consume the available quantity of sugarcane in the region. The conditions of private sugar mills are not better and they are also unable to consume the total sugarcane production in the area. So, the demand of sugarcane has been reduced and payments of dues have made the problem so difficult that sugarcane producers are compelled to burn the unconsumed sugarcane. Small and marginal farmers are major sufferer in the region.

Regarding Ganga vindhya region, small and marginal farmers are facing some very peculiar problems. The cultivation of cereals and oil seeds is declining several tree species are also disappearing due to construction of dams. Ground water table is increasing due to water logging. This is resulting in alkalization of land making new plantation impossible. Tribes of the region are facing more severe problems because of variances in land distribution as they cannot do farming. In case of Sonebhadra region, it is related to tribes and their land ownership. Indigenous communities of the region are being displaced in the name of development since independence. They are struggling for rehabilitation and satisfactory land entitlement and possession. Land disputes between the forest and revenue departments are frequent. Lack of basic facilities for small and marginal farmers and severe scarcity of water are other problems in the rural areas.

Bundelkhand region is characterized as low rainfall and dry with vast marginal land. Around, sixty per cent of the population of the region is living below the poverty line. Majority of the area is dominated by schedule castes. Small and marginal farmers are struggling with problems related to land lease. Water scarcity is also one among the other main problems of the region. These difficulties are made the small and marginal farmers to grow a single crop in a year and for the rest of the time

the farms remain unused. Irrigation facilities are another major problem of this region. Bundelkhand region is also highly affected with soil erosion by the rivers. With regards to central region, it is facing scarcity of water. Water cannot reach the tail ends because of the poor maintenance of canals. Ground water table is receding due to excessive use of tube-wells. Land reclamation programs in the region are hardly benefiting the small and marginal farmers.

Western region is far ahead in adoption of the improved technology as compared to other regions in Uttar Pradesh. The region has benefited more from the green revolution. But now adverse impacts of green revolution are seeing. Chemical fertilizers and Pesticides are being used extensively and their consumption has been increasing year after year. Because of this, now the agriculture expenses are going out of control for small and marginal farmers. The worse impact of this is that the soil is becoming poisonous and its fertility is decreasing. Further, types and quantity of insects are increasing which are affecting the productivity of the region. Green revolution farming has been more water consuming and this has resulted in rapid decline in ground water table. Urbanization is increasing which resulted in transfer of cultivable land to non-cultivable use.

IV.2 LAND USE PATTERN

The land use pattern in all regions of the Uttar Pradesh has been changing. It is estimated that small and marginal farmers are increasing in the country and in the state. It is estimated 98 million small and marginal holdings out of around 120 million total land households in the country (Agricultural census 2001-02). The share of the small and marginal farmers accounted for around 81 per cent of operational holding in 2002-03 as compared to 62 per cent in 1960-61. Similarly, the area operated by small and marginal farmers has increased from 19 per cent to 44 per cent during 1960-61 to 2002-03. The share of small and marginal farmers has increased and become 83 per cent in 2005-06 in the country (Chand et al, 2011). Hence, the small and marginal farmers holding are playing vital role for agricultural development today than even before. The average size of the holdings in India declined from 2.3 hectare in 1970-71 to 1.33 hectare in 2000-01. It is observed that 63 per cent of the land holdings belong to marginal farmers with less than 1.0 hectare. The average size of the marginal holdings is only 0.24 at all India level. The average size of small holdings is 1.42

hectare. The average size of marginal holdings varies from 0.14 ha to 0.63 hectare in Punjab. But in case of the Uttar Pradesh, the number and area of marginal holdings (Less than 1 hectare) were 66.83 per cent and 21.08 per cent in 1970-71. But after the number and area of marginal holdings have been continuously increasing and become 79.23 and 39.27 per cent in 2010-11 in the state. The number and area of small holdings (0 to 2.0 hectare) were 17.19 per cent and 20.79 per cent in 1970-71. But after that, the number and area of small holdings become 13.14 per cent and 24.57 per cent in 2010-11 at state level (Table 4.0). The number of small holdings has decreased during 1970 to 2011, but the area of small holdings has increased during 1970 to 2011 at state level. The average size of land holdings was 1.16 hectare in 1970-71 and become 0.75 hectare in 2010-11 in the state. It is significant to note that the average size of the land holdings has been continuously decreasing during 1970-71 to 2010-11 at state level. It is observed that due to urbanization, industrialization, family size, and increasing population is the main cause of increasing marginal land holdings in the state.

There are various disparities in numbers and area holdings among the divisions in Uttar Pradesh. Table 4.1 shows the number and area holdings by size group during 2010-11 in Uttar Pradesh. It is found that Lucknow division has highest number and area of marginal holdings and Saharanpur division has lowest number and area of marginal holdings in 2010-11 in the state. But in case of small holdings, Lucknow division also has the highest number and area and Vindhyachal has the lowest number and area in 2010-11 in the state. The average size of the land holdings was highest in Chitrakoot division and Gorakhpur division has the lowest average size of land holdings in 2010-11 at state level.

Regional disparities in operational holdings and area by size groups are also found in Uttar Pradesh. The operational holdings and area by size groups in Uttar Pradesh during 2013 are presented in Table 4.2. It is found that the percentage of number and area of marginal holdings in western region was 72.16 per cent and 32.91 per cent in 2013 at state level. The percentage of number and area of marginal holdings in central regions was 79.14 per cent and 43.61 per cent in 2013. On the other hand, the percentage of number and area of marginal holdings in Bundelkhand region was 54.54 per cent and 16.74 per cent in 2013 at state level. The percentage of number and area of marginal holdings in Eastern region was 84.95 per cent and 50.55

per cent during the study period in the state. In case of small holdings, the percentage of number and area in western region was 16.92 per cent and 25.88 per cent whereas number and area in central region was 14.02 per cent and 25.93 per cent in 2013 at state level. Considering Bundelkhand region, the percentage of number and area of small holdings was 23.25 per cent and 21.38 per cent in 2013 while the percentage of number and area of small holdings in Eastern region was 10.14 per cent and 22.60 per cent in 2013 in the state. The average size of land holdings (hect) is 0.93 in western, 0.76 in central, 1.49 in Bundelkhand and 0.62 per cent in eastern regions of the state. It is observed that the percentage of number and area of marginal holdings in eastern region was highest compared to all regions in 2013 at state level. But in case of small holdings, the percentage of number was highest in Bundelkhand region and area was highest in central region in 2013 at state level. The average size of land holdings was highest in Bundelkhand regions and least in eastern region in 2013 in Uttar Pradesh.

Social groups have also various differences in number and area operational holdings during 1995-2011 in Uttar Pradesh. Table 4.3 shows that the percentage of number and area operational holdings by size class among all social groups in Uttar Pradesh during 1995-96 to 2010-11. It is found that the numbers of marginal holdings was 85.7 per cent in Schedule Caste (SC), followed by 56.8 per cent in Schedule Tribes (ST) during 1995-96 and become 88.7 per cent in SC, followed by 67.1 per cent in ST during 2010-11 whereas the area of marginal operational holdings of SC and ST was 52.1 per cent and 11.9 per cent in 1995-96 and increased to 59.1 per cent and 24.1 per cent during 2010-11 at state level. On the other hand, the number of 'Others' and 'all social group's marginal holdings was 73.4 per cent and 75.4 per cent in 1995-96 and further increased to 77.6 per cent and 79.5 per cent in 2010-11, while the area of marginal operational holdings of 'Others' and 'all social groups' was 31.6 per cent and 33.7 per cent in 1995-96 and increased to 38.6 per cent and 40.7 per cent in 2010-11 in the state. Considering small holdings, the number of SC and ST was 10.4 per cent and 16.2 per cent in 1995-96 and become 8.6 per cent and 20.0 per cent respectively in 2010-11, whereas the area operational holdings of SC and ST was 25.5 per cent and 13.6 per cent in 1995-96 and become 23.7 per cent and 24.1 per cent in 2010-11 at state level. In case of 'Others' and 'all social groups' small holdings, the number was 15.4 per cent and 14.6 per cent in 1995-96 and become 13.9 per cent and 13.0 per cent in 2010-11 while the area operational holdings of 'Others' and 'all

social groups' was 23.7 per cent and 23.8 per cent in 1995-96 which has increased to 24.2 per cent and 24.1 per cent respectively in 2010-11 in the state.

The average size of land holdings (in. hect) of SC and ST was 0.6 hectare and 1.6 hectare in 1995-96 and decreased to 0.5 hectare and 1.1 hectare in 2010-11 at state level. On the other hand, the average size of land holdings of 'Others' and 'all social groups' was 0.9 hectare and 0.9 in 1995-96 and decreased to 0.8 and 0.8 respectively in 2010-11 in the state. It is observed that the numbers and area of large operational holdings by schedule caste was very less compared to other social groups. It is noticed that the average size of land holdings is decreasing among all social groups during 1995-96 to 2010-11 at state level.

Irrigation plays very significant role improving the socio-economic conditions of small and marginal farmers in Uttar Pradesh. The percentage of numbers and area operational holdings irrigated by size class among all social groups in Uttar Pradesh during 1995-96 to 2010-11 has been shown by Table 4.4. It is found that about 74.4 per cent operational holdings of SC was irrigated in 1995-96 and increased to 83.5 per cent in 2010-11 while 45.9 per cent operational holdings of ST was irrigated in 1995-96 and increased to 54.3 per cent in 2010-11 at state level. On the other hand, the percentage of number of operational holdings of 'Others' was irrigated i.e. 78.5 per cent in 1995-96 and decreased to 76.1 per cent in 2010-11 whereas the number of operational holdings of 'all social groups' irrigated was 77.9 per cent in 1995-96 and decreased to 77.4 per cent in the year 2010-11 in the state. On the other hand, 68.8 per cent area of SC was irrigated in 1995-96 and increased to 79.1 per cent in 2010-11 whereas area of ST was irrigated i.e. 47.5 per cent in 1995-96 and increased to 48.1 per cent in 2010-11 at state level. The area of 'Others' was irrigated to the magnitude of 64.9 per cent in 1995-96 and become 75.9 per cent in 2010-11 while 'all social groups' irrigated area was 64.4 per cent in 1995-96 and increased to 76.2 per cent in 2010-11 in the state. It is observed that the irrigated number and area of marginal holdings in SC, ST, 'Others' and 'all social groups' has been continuously increasing while number of SC, 'Others' and 'all social group's small irrigated holdings has been continuously decreasing except ST during study period at state level. In case of area, SC, ST, 'Others' and 'all social group's small irrigated holdings are increasing during same periods in the state.

The value of output per hectare among size groups in Uttar Pradesh has presented in Table 4.5. It is found that small farms continue to be produce more in value terms per hectare than the medium and large farmers at state level. On the other hand, there are large regional variations in term of value of output per hectare in the state. In case of marginal farmers, it varies from Rs. 29,448 in Punjab to Rs. 7177 in Rajasthan while the value of output per hectare in Uttar Pradesh was Rs. 14,442 for marginal farmers, followed by Rs. 14,441 for small farmers and Rs. 15,611 for medium and large farmers during 2003. With regards to medium and large farmers which are from Rs. 28,983 in Punjab to Rs. 4,213 in Rajasthan. Overall, from the analysis it is found that small holdings have higher value of output per hectare than large farmers in many states. However, in the case of states such as Madhya Pradesh, Uttar Pradesh, and Tamil Nadu, the large farmers have higher productivity than marginal farmers. There is need to remove the widespread variations in term of value of output at state and national level.

The net farm income per hectare of cropped area from cultivation in Uttar Pradesh has been presented in Table 4.6. It is clear that the cost of cultivation per hectare is high in small and marginal farmers than medium and large farmers at national level (Mahendra dev, 2012). It is found that the net farm income per hectare of small and marginal farmers is lower than large holdings farmers at state level. The net farm income per hectare of marginal holdings was Rs. 6, 700, followed by Rs. 7,399 of small holdings farmers, Rs. 6,998 of marginal and small holdings farmers and Rs. 8,281 of medium and large farmers in 2003 in the state. It is noticed that the net farm income per hectare of small and marginal holdings farmers was larger than medium and large holdings farmers during the study period at state level.

The monthly income and consumption across different size class of land during 2003 in Uttar Pradesh are shown in Table 4.7. It is found that marginal and small farmers have dis-saving compared to medium and large farmers at state level. They earn income from wages, cultivation, farming of animals and income from non-farm business in the state. On the other hand, the average monthly consumption of farmer is comprised of total food expenditure and non-food expenditure. The Table shows that the monthly consumption of marginal farmers was Rs. 2,526 while monthly income was Rs. 1,198 during 2003 at state level. It is observed that they have dis-savings of Rs.1, 328 at state level. On the other hand, the dis-savings of small

farmers were Rs. 1,300 during same year at state level. Regarding large farmers, the monthly income and consumption was Rs.7, 850 and Rs. 6,776 while savings was Rs. 1,074 in the state. It is obvious that consumption expenditure of marginal and small farmers exceeds their estimated income by substantial margin and presumably the deficits have to be plugged by borrowing or other means” (NCEUS, 2008). It is also obvious that the poverty for small holding farmers is much higher than other farmers. There is need to increase in productivity and incomes of small holdings and promotion of non-farm activities for these farmers at state level.

Agricultural machinery plays very significant role in the development of agriculture sector as well as improving the conditions of small and marginal farmers. Table 4.8 shows the number of operational holdings using some of important agricultural machineries during 2006-07 in Uttar Pradesh. It is found that the percentage of the all holdings using different kinds of agriculture implements/machinery were ploughs (wooden/steel) 63.9 per cent, tractor drawn mould board plough 3.1 per cent, pump sets (diesel/electric) 31.1 per cent, power tiller 1.1 per cent, power tractor 69.1 per cent, and sprinklers 0.2 per cent during 2006-07 at state level. It is observed that the proportion of holdings using tractor was highest i.e. 97 per cent in large holdings followed by medium 96.3 per cent, semi-medium 95.2 per cent, small 80.8 per cent and marginal 64.2 per cent during 2006-07 at state level.

Credit plays very important role for improving socio-economic conditions of small and marginal farmers in Uttar Pradesh. The percentage of the operational holdings took credit from institutional agencies for agriculture purpose by size classes during 1996-97 to 2006-07 in Uttar Pradesh are presented in Table 4.9. It is found that the percentage of marginal holding took credit from Primary Agricultural Credit Society (PACS) was 57.1 per cent in 1996-97 and decreased to 30.5 per cent during 2006-07 at state level. On the other hand, the percentage of small holding took credit from PACS was 55.71 per cent in 1996-97 and decreased to 26.08 per cent during 2006-07 in the state. The percentage of marginal and small holdings received credit from Primary Land Development Bank (PLDB) was 12.0 per cent, 7.70 per cent in 1996-97 and become 4.45 per cent and 7.0 per cent in 2006-07 at state level. In case of commercial Bank Branches (CBBs), the percentage of marginal and small holdings took credit was 23.74 per cent and 29.93 per cent in 1996-97 and further become

23.25 per cent and 25.38 per cent in 2006-07 in the state. Considering Regional Rural Bank (RRBs), the percentage of marginal and small holdings took credit from for agriculture purpose was 7.13 per cent and 6.65 per cent in 1996-97 and increased to 43.70 per cent and 47.45 per cent during 2006-07 at state level.

The average amount of outstanding loan per agricultural household by size class of land possessed for major states during 2013 has been presented in Table 4.10. It is found that about 52 per cent of the agricultural households in the country were estimated to be indebted. The average amount of outstanding loan per agricultural household was Rs.47, 000 in 2013. Among major states, Andhra Pradesh had the highest share of indebted agricultural households in the country i.e. 92.9 per cent, followed by 89.1 per cent in Telangana and 82.5 per cent in Tamil Nadu. On the other hand, the state like Assam 17.5 per cent, 28.9 per cent in Jharkhand and 37.2 per cent in Chhattisgarh were lowest share of indebted agricultural households in the country. It is observed that the average amount of outstanding loan was highest in Kerala i.e. Rs.2, 13,600, followed by Rs.1, 23,400 in Andhra Pradesh and Rs.1, 19,500 in Punjab during 2013. In case of Assam was Rs.3, 400, followed by Rs.5, 700 in Jharkhand and Chhattisgarh was Rs.10, 200 with lowest amount of average outstanding loan. With regards to Uttar Pradesh, the share of indebted agricultural households was 43.8 per cent while the average amount of outstanding loan among all classes was Rs.27, 300 during 2013.

IV.3 ISSUES AND CHALLENGES OF SMALL AND MARGINAL FARMERS

There are many issues and challenges of small and marginal farmers in Uttar Pradesh. The issues that confront small and marginal farmers as agriculturalists are such as imperfect markets absence of access to credit markets, poor human resource, smaller access to suitable extension services and poor access to public goods in term of public irrigation, command area development, electricity grids, poor quality of land and water management (NCEUS 2008). There are some of the key issues and challenges relating to small and marginal farmers in Uttar Pradesh have been discuss below:

The importance of women in agriculture has been increasing at state level. Agriculture is becoming increasingly feminized as men are migrating to rural non-farm sector. They work in land preparation, sowing, in applying manure, fertilizer,

pesticides, weeding, transplanting, threshing, seed selection, seed production, harvesting, animal husbandry, dairying, fish processing, back yard poultry, collection of fuel wood, collection of non-timber forest produces (NTFPs), fodder and other products for family needs in the state. Despite their importance, women are continually denied their property rights and access to other productive resources. There is need to protect women's rights in land, enhancing infrastructure support to women farmers and giving legal support on existing laws, will facilitate recognition for women as farmers and enable them to access credit, inputs, and marketing outlets.

In Uttar Pradesh, SCs and STs are most socially disadvantage small and marginal farmers than the medium and large farmers. They are suffering from low productivity, lack of information, credit, marketing and services. However, small and marginal farmers cultivate some land but it is a limiting factor for getting resources in the state. Therefore, tenancy security is important for small and marginal holding farmers at state level. Land relations are extremely complicated and this complexity has contributed significantly to the problems facing actual cultivators. Unregistered cultivators, tenants, and tribal cultivators all face difficulties in accessing institutional credit and other facilities available to farmers with land titles. As part of the reforms, lease market should be freed and some sort of security for tenants has to be guaranteed. This will ensure availability of land for cultivation on farmers at state level. The land rights of tribal in the agency areas must be protected. There is considerable scope for further land redistribution, particularly when waste and cultivable lands are taken into account. On the other hand, small and marginal farmers should be helped to buy land through the provision of institutional credit, on a long term basis, at a low rate of interest and low stamp duty in the state.

Education and skills are important for improving farming practices, investment and productivity. In Uttar Pradesh, literacy and mean years of education are lower for small and marginal farmers compared to medium and large farmers. The low level of farmers' education limits public dissemination of knowledge. On the other hand, small and marginal holdings farmers need credit for both consumption and investment purposes. Increasing indebtedness is one of the reasons for indebtedness among these farmers at state level. The indebtedness for the small and marginal farmers from formal institutional sources is lower than large farmers and the reverse is

true in the case of informal sources. The dependence on money lenders is the highest for sub-marginal and marginal farmers in the state.

Globalization has increased the problems of small and marginal farmers at state level. The policies of huge subsidies and protection policies by developed countries have negative effects on small and marginal holding farmers in the state. Liberalization has adverse impact on agricultural economy of the region's growing crops such as plantation, cotton and oil seeds whereas it made domestic productions costly and efficiency of the domestic production has decreased at state level. To compete in the global market, there is need to reduce various post-harvest costs and undertake suitable reforms to improve efficiency of domestic markets and delivery systems in Uttar Pradesh.

Climate change is a major challenge for agriculture, food security and rural livelihoods for millions of people including the poor at state level. It is found that the adverse impact is more on small and marginal farmers in the state. Climate change is expected to have adverse impact on the living conditions of farmers, fishers and forest-dependent people who are already vulnerable and food insecure. To make climate change sensitive and pro-poor policies, there is a need to focus on small and marginal farmers. Agriculture adaptation and mitigation could provide benefits for small farmers. Research and practice have shown that collective actions and institutions are very important for technology transfer in agriculture and natural resource management among small and marginal holders and resource dependent communities at state level.

Water is the leading input in agriculture in Uttar Pradesh. Development of irrigation and water management are crucial for raising levels of living in rural areas. Agriculture has to compete for water with urbanization, drinking water and industrialization. It is found that small and marginal holding agriculture depend more on ground water compared to large farmers who has more access on canal water. Ground water is decreasing at state level. Small and marginal farmers would not face more problems regarding water in future. Therefore, water management and appropriate water policies should be implemented for these farmers in the state.

Diversification of food grains to high value products like milk, meat products, vegetables and fruits is a challenge at state level. The increasing middleclass due to

rapid urbanization, increasing per-capita income, increased education, increased participation of women in urban jobs and impact of globalization has been major responsible for the food diversification in the state. However, diversification to high value crops and allied activities is one of the important source for raising agricultural growth at state level. Since risk is high for diversification and necessary support in infrastructure as well as marketing are needed. Diversification may be increase the income of small and marginal farmers. But, there are risks in shifting to diversification in term of food grains and food security and supporting systems should be developed among small farmers to overcome from problems of diversification at state level.

Small and marginal farmers are facing several kind of risks which are devastating effect on their livelihoods and well-being such as health shocks, labour market risk and harvest risk i.e. droughts, floods, cyclones and structural adjustment policies. It is found that small and marginal farmers are vulnerable to all these risks. There are various coping mechanisms followed by farmers such as borrowing, sale of assets, spending from savings, assistance from relatives and govt, expanded labour supply, child labour, bonded labour, reducing consumption and migration at state level. There is need to implement social protection programmes to address the negative effects due to risks and vulnerabilities. The present major schemes are like; public distribution system (PDS), supplementary nutrition, self-employment, wage employment and social security programmes for unorganized workers. The effectiveness of these programmes has to be improved so that small and marginal farmers can also benefit. Crop insurance programmes and future markets have to be strengthened to reduce risks in price and productivity in the state.

Technological and institutional innovations which support small and marginal farmers to raise agricultural productivity as well as increase income through diversification and high value agriculture at state level. It is found that growth of productivity of many crops has declined in the state. However, there is a technology fatigue in state agriculture. On the other hand, the progress of agricultural research is not satisfactory at state level. The 10th Plan revealed several weaknesses of Indian Council of Agricultural Research (ICAR). Some of these are such as inadequate emphasis on the needs of rainfed areas, crop bias with major focus on rice and wheat, lack of focus in areas of relevance and opportunity, inadequate concern on post-

harvest, marketing and environmental conservation, lack of accountability, less emphasis on multidisciplinary research, weak interaction among researchers, farmers and excessive centralization of planning and monitoring. To resolve these problems ICAR should take strong steps at state level. There is a need to shift away from individual crop-oriented research focused essentially on irrigated areas towards research on crops and cropping systems in the dry lands, hills, tribal and other marginal areas. In view of high variability in agro-climatic conditions research has to be location-specific with greater participation or interaction with farmers. Horticulture crops that are land-saving as well as water-saving should be encouraged in dry land areas in the state.

The progress post-harvest technology is essential to promote value addition through the growth of agro-processing industry. Public and Private sector participation in agricultural research, extension and marketing are important especially with the advent of biotechnology. On the other hand, effective research is needed to have biotechnologies suitable to different locations at state level. The limit of the private agencies in supplying inputs and services should be limited because these agencies motives to exploit the farmers. Due to absence of the public agencies, farmers are becoming the victims of exploitation by traders and money lenders. Therefore, there is immediate need for reforming and revitalizing the existing agricultural extension system in the state. The main ingredient of reforms should be such as active involvement of farmers, participation by the private sector and the NGOs and increasing information technology i.e. on output and input prices at state level.

IV.4 TECHNOLOGICAL INNOVATIONS APPROACH

Technological innovations are very important for improving the conditions of small and marginal farmers in the state. Therefore, research extension should give the importance to cost reduction without reduction in productivity among small and marginal farmers. The new technological innovations are needed for low external input and sustainable agriculture approaches based on ecological principles without the use of artificial chemical fertilizers, pesticides or agro-ecological principles (Thapa and Gaiha, 2011).

The evergreen revolution is very crucial at state level. There are two major pathways to fostering an evergreen revolution. The first is organic farming. Productive organic farming needs considerable research support, particularly in the areas of soil fertility renewal and plant protection. Secondly, an evergreen revolution is green agriculture sector. In this context, ecologically practices like conservation farming, integrated pest management, integrated nutrient supply and natural resources conservation are promoted. Green agriculture techniques should also include the cultivation of crop varieties through use of recombinant DNA technology if they are good in resisting to biotic and abiotic stresses or have other attributes like improving nutritive quality at state level.

Cultivation practices in term of injecting seeds directly into the soil instead of sowing on ploughed fields are important for proper fertilizer use which can help to preserve soil moisture, maximize water infiltration, increase carbon storage, minimize nutrient runoff, and raise productivity. On the others hand, public sector technologies such as raising productivity technologies, input saving technologies, nutrient balancing technologies, value adding technologies are helping small and marginal farmers. With regards to the ownership of livestock, it is distributed with landless laborers, and marginal farmers which will result in a more balanced development of the rural economy, particularly in the reduction of poverty and malnutrition at state level.

The proper utilization of nitrogen in fertilizers, manures, and bio solids is very important. Management strategies and policies to improve the nitrogen use efficiency of crops which reduce fertilizer requirements focus on fertilizer best management practices. The best practices should look at application type, rates, timing and placement. Balancing application rates of nitrogen with other required nutrients including phosphorus, potassium and sulphur is a major way of improving nitrogen use efficiency and productivity Flynn (2009). On the other hand, organic components are very crucial for increasing production and reducing excess fertilizer use. It is clear that productivity have to be maintained with organic farming as compared to cultivation with chemical fertilizers in the state. The biotechnology techniques i.e. genomics and bioinformatics, marketed-assisted selection, diagnostic procedures, micro propagation, tissue culture, cloning is useful to boost the productivity of crops,

livestock, fisheries and forests (Rao and Dev, 2010). This techniques also benefitted to small farmers and SC and ST farmers at state level.

Information technology helps to improve agri-business and incomes of small and marginal farmers at state level. They get free information in their language about local and global market prices, weather forecasts, farming practices and crop insurance. On the other hand, declining costs of ICTs are giving small and marginal farmers much greater access to information. Mobile phone coverage in Uttar Pradesh is expanding at breakneck speed. Computers are now being linked through mobile phone networks to greatly expand the scope of information. By linking communication technologies to market exchanges in commercial centers, even small and marginal farmers can overcome the enormous information that limit their bargaining power in traditional supply chains. The revolution of mobile phones is helping the small and marginal farmers to get information about crop prices and input prices and other related information on agriculture.

IV.5 INSTITUTIONAL INNOVATIONS

Small and marginal farmers are facing many challenges in Uttar Pradesh. But, a number of innovative institutional models are emerging which generates many opportunities for small and marginal farmers. The Institutions relating to, land and water management, group or cooperative approach for inputs and marketing, value chains and super markets can enhance productivity, sustainability and incomes of small and marginal holding agriculture. On the other hand, development of irrigation and water management are crucial for raising levels of living in rural areas (Vaidyanathan, 2006). There are major areas of concern in irrigation are such as decline in real investment, low recovery of costs, decline in water table, wastages and inefficiencies in water use. The major reforms of irrigation are required in the area of public investment, raising profitability of groundwater exploitation, augmenting ground water resources, rational pricing of irrigation water and electricity, involvement of user farmers in the management of irrigation systems and making groundwater markets equitable (Rao, 2005). The Parthasarathy Committee's recommendations to water conservation and watershed development and suggested that NREGS may help in improving land and water management at state level.

Environmental concerns are among the policy priorities in the area of land degradation and water in Uttar Pradesh. The groundwater tables are depleting because of *de facto* privatization of groundwater and subsidized power supply. An integrated approach is needed for water resources management and should integrate institutional approaches with market principles. It is time now to implement volumetric pricing and need to de-link water rights from land rights in order to ensure equity and sustainability. In the case of land and forestry, watershed approach and Joint Forest Management are crucial for protecting the environment at state level. On the other hand, An Integrated Pest Management (IPM), Integrated Nutrient Management (INM), Integrated Pest Management Approach (IPM) approach has been adopted to protect plant and crop production in the state. Women's cooperatives, producer women's groups and other forms of group efforts should be promoted to overcome constraints of small and uneconomic land holdings, for the dissemination of agricultural technology and other inputs, as well as for marketing of produce (Agarwal, 2010).

IV.6 MARKETING INSTITUTIONS

Marketing of products is main problem among small and marginal farmers in Uttar Pradesh. In recent years, there has been some form of contract arrangements in several agricultural crops such as tomatoes, potatoes, banana, carrot, chilies, rose, onions, cotton, wheat, basmati rice, groundnut, flowers, and medicinal plants. There should be silent revolution in institutions regarding non-cereal foods. New production –market linkages in the food supply chain are: spot or open market transactions, agricultural co-operatives and contract farming (Joshi and Gulati, 2003).

Contract farming has a potential to help the small and marginal farmers to overcome constraints in accessing inputs, credit, extension and marketing. In recent years, there has been some form of contract arrangements in several agricultural crops such as tomatoes, potatoes, banana, carrot, chilies, rose, onions, cotton, wheat, basmati rice, groundnut, flowers, and medicinal plants at state level and national level. The leading contract farming companies may be unreliable, may exploit a monopoly position, and have inefficient management and marketing problems. Contract farming in the state is an efficient legal system and can be improved with legislative measures like the model contract and code of practice, registration of contracts with marketing

committees and tribunals for efficient, speedy and corrupt-free dispute resolutions. On the other hand, there is a need to reform agro processing and APMC Act. These steps should be speedily completed to provide a boost to promotion of direct marketing, contract farming, and setting up of markets in private and cooperative sectors.

Most important problem for the small and marginal farmers in the state is output price fluctuations. There is a big gap between producer prices and consumer prices. There are different models for marketing collectively by the small and marginal farmers. These are like self-help group model, co-operative model, small producer co-operatives and contract farming. The real challenge lies in organizing the small and marginal farmers for marketing and linking them to high value agriculture. Thus, group approach is needed for getting benefits from marketing.

Small and marginal farmers can benefit from the emerging super markets and value chains. The presence of super markets as retail trade is rapidly expanding in the emerging economies. According to Reardon and Gulati (2008), Supermarkets now enjoy a retail share of 50-60 per cent in South America, 30-50 percent in Mexico, Central America and much of South East Asia. While in China, India and Vietnam their market is still low. The expansion of modern retailing has the potential to spark investment in marketing efficiency and processing that productivity benefits to both producers and consumers. In those cases where small and marginal producers have been able to integrate into the supplying chains, supermarkets have offered enhanced security and considerably higher margins than the traditional clients, such as wholesales and groceries. However, there is scope for exploitation in contract farming and super markets if rules are not framed properly in the state.

IV.6 CONCLUSION AND SUGGESTIONS

Uttar Pradesh is most populous state of India. Majority of the people are dependent on agriculture sector for their livelihood. It is found that the growth of agriculture sector was not impressive during independence at state level. Green revolution brought a new direction in the state agriculture sector. The cultivation of high yielding varieties of seeds at recommended dosages of fertilizers increased the productivity of agricultural crops in the state. However, the number and area of small and marginal farmers are increasing. They are suffering from low productivity, low value of output,

low income, low consumption, lack of inputs, inadequate credit, and lack of irrigation facility. The small and marginal holdings has become very complex for agriculture in the state. The productivity of small and marginal holdings are decreasing at state level.

The programmes and policies in the state should be farmer centered. People participation should be ensured in formulating policies and programs. On the other hand, the government should concern on dry land farming, organic farming, farming system, irrigation facilities, use of organic fertilizers, subsidy in agriculture, adequate credit facilities, storage and marketing facility, climatic variability, skill development and agricultural research institutions. The focus of agriculture research should be viability of agriculture, especially for small and marginal farmers. There is a need to promote mixed farming among small and marginal farmers to increase standard of living and income in Uttar Pradesh.

Table 4.0: Operational Holdings and Area by Size Groups in Uttar Pradesh from 1970-71 to 2010-11, No. in (000) & Area in (000) hect.

Year	Marginal (Less than 1 hec)		Small holdings (0. To 2.0 hect)		Semi-Medium Holdings (2.0 to 4.0 hect)	
	Number	Area	Number	Area	Number	Area
1970-71	66.83	21.08	17.19	20.79	10.56	25.00
1976-77	69.37	22.60	16.38	20.43	9.58	23.52
1980-81	70.56	25.68	16.26	22.61	9.05	24.55
1985-86	72.59	27.38	15.61	23.61	8.33	24.74
1990-91	73.87	31.78	15.53	24.68	7.60	23.65
1995-96	75.67	34.02	14.48	23.80	7.30	23.16
2000-01	76.88	36.96	14.24	24.27	6.58	21.71
2005-06	77.95	38.93	13.81	24.24	6.13	21.19
2010-11	79.23	39.27	13.14	24.57	5.70	21.09

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SMALL AND MARGINAL FARMERS IN UTTAR PRADESH

Year	Medium holdings (4 to 10 hect)		Large Holdings (more than 10 hect)		All Holdings		Average size of Holdings(hect)
	Number	Area	Number	Area	Number	Area	
1970-71	4.68	23.19	0.71	10.00	15639.0	18158.5	1.16
1976-77	4.14	26.42	0.50	6.00	16971.2	18860.4	1.10
1980-81	3.71	21.00	0.40	6.18	17817.3	17970.7	1.00
1985-86	3.17	19.37	0.29	4.87	18985.2	17428.3	0.98
1990-91	3.23	17.10	0.22	3.00	20074.0	17786.7	0.90
1995-96	2.35	15.81	0.18	3.17	20592.9	17701.2	0.88
2000-01	2.10	14.34	0.14	2.69	21668.2	17983.3	0.83
2005-06	1.90	13.25	0.12	2.36	22457.6	17906.0	0.80
2010-11	1.70	12.82	0.10	2.23	22929.00	17089.00	0.75

Source: Economics and Statistics Division, State Planning Institute, Planning Department, Uttar Pradesh

Table 4.1: Operational Holdings and Area by Size Groups in U.P divisions in the year 2013, (No. in (000) & Area in (000) hect).

Divisions	Marginal (Less than 1 hec)		Small holdings (0. To 2.0 hect)		Semi-Medium Holdings (2.0 to 4.0 hect)	
	Number	Area	Number	Area	Number	Area
Saharanpur div	363.23	153.39	103.82	156.46	67.13	189.74
Moradabad Div.	828.93	346.64	194.81	274.40	97.80	267.41
Meerut Div.	664.14	290.06	164.04	236.24	82.74	232.14
Agra Div.	610.96	259.95	167.66	238.43	89.25	246.49
Aligarh Div.	600.40	256.69	164.72	223.56	74.77	203.40
Bareilly Div.	1189.65	503.46	255.11	365.10	112.42	305.58
Lucknow Div.	2391.17	1040.56	411.27	567.39	157.81	425.82
Kanpur Div.	1117.94	450.66	198.82	280.52	83.93	226.88
Jhansi Div.	362.92	177.26	180.83	240.59	102.06	278.09
Chitrakoot Div.	420.13	182.18	152.97	218.36	100.11	279.39
Allahabad Div.	1333.95	493.49	198.67	279.76	74.61	202.84
Faizabad Div.	1449.59	515.86	155.35	213.45	55.18	144.53
Devipatan Div.	1163.66	476.18	187.12	252.56	72.18	194.22
Basti Div.	785.45	310.45	102.26	148.86	35.69	96.17
Gorakhpur Div.	1447.00	495.91	152.58	208.49	52.56	142.73
Azamgarh Div.	997.95	376.08	107.34	153.49	45.45	123.28
Varanasi Div.	1284.63	471.32	124.61	169.81	47.88	127.47
Vindhyachal Div.	495.41	171.42	81.21	113.54	40.00	109.41

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SMALL AND MARGINAL FARMERS IN UTTAR PRADESH

Divisions	Medium holdings (4 to 10 hect)		Large Holdings (more than 10 hect)		All Holdings		Average size of holdings(hect)
	Number	Area	Number	Area	Number	Area	
Saharanpur div	23.12	124.93	0.70	10.81	558.00	635.33	1.14
Moradabad Div.	27.22	145.86	0.99	17.86	1149.76	1052.18	0.92
Meerut Div.	24.41	134.73	0.87	12.98	936.20	906.14	0.97
Agra Div.	32.30	184.82	1.76	27.07	901.93	956.76	1.06
Aligarh Div.	21.92	117.50	0.87	11.99	862.68	813.15	0.94
Bareilly Div.	30.79	162.61	1.75	27.61	1589.71	1364.36	0.86
Lucknow Div.	37.77	200.84	1.74	27.03	3000	2261.63	0.75
Kanpur Div.	24.81	136.53	0.98	15.03	1426	1109.61	0.78
Jhansi Div.	48.72	280.43	4.25	56.45	699	1032.81	1.48
Chitrakoot Div.	57.12	340.23	6.40	93.04	737	1113.19	1.51
Allahabad Div.	21.98	121.82	1.70	23.83	1631	1121.74	0.69
Faizabad Div.	9.38	49.83	0.32	5.57	1670	929.23	0.56
Devipatan Div.	14.99	80.09	0.65	10.18	1438.58	1013.22	0.70
Basti Div.	6.52	35.37	0.29	3.88	930.21	594.72	0.64
Gorakhpur Div.	10.33	55.16	0.57	10.62	1663.04	912.92	0.55
Azamgarh Div.	10.80	58.62	0.51	7.26	1162.04	718.73	0.62
Varanasi Div.	9.81	53.57	0.50	6.87	1467.42	829.05	0.56
Vindhyachal Div.	15.90	91.28	3.02	55.57	635.54	541.21	0.85

Source: Economics and Statistics Division, State Planning Institute, Planning Department, Uttar Pradesh

Table 4.2: Operational Holdings and Area by Size Groups in U.P. Regions in the year 2013, No. in (000) & Area in (000) hect

Operational holdings, area/ regions	Western Region		Central Region	Bundelkhand Regions	Eastern Region
	Number	Area			
Marginal (Less than 1 hec)	Number	72.16	79.14	54.54	84.95
	Area	32.91	43.61	16.74	50.55
Small holdings (0. To 2.0 hect)	Number	16.92	14.02	23.25	10.14
	Area	25.88	25.93	21.38	22.60
Semi-Medium Holdings(2.0 to 4.0 hect)	Number	8.29	5.36	14.08	3.92
	Area	24.64	19.20	25.97	16.97
Medium holdings(4 to 10 hect)	Number	2.50	1.38	7.37	0.90
	Area	14.73	9.91	28.92	7.99
Large Holdings (more than 10 hect)	Number	0.10	0.06	0.74	0.07
	Area	1.81	1.33	6.96	1.88
All Holdings	Number	6883.90	4383.36	1435.50	9754.83
	Area	6379.52	3311.60	2146.00	6068.86
Average size of Holdings(hect)		0.93	0.76	1.49	0.62

Source: Board of Revenue, U.P

Table 4.3: Percentage of Numbers and Area Operational holdings all Social Groups in Uttar Pradesh during 1995-96 to 2010-11

Year	Social Groups	Number (%)					Area (%)					Average Size holdings(hect)
		Marginal	Small	Semi-Medium	Medium	Large	Marginal	Small	Semi-Medium	Medium	Large	
1995-96	SC	85.7	10.4	3.3	0.6	0.03	52.1	25.5	15.8	5.8	0.0	0.6
2000-01		86.9	9.7	2.8	0.5	0.03	54.7	24.8	14.1	5.5	0.0	0.5
2005-06		88.3	8.9	2.4	0.4	0.03	59.0	23.9	12.4	4.2	0.0	0.5
2010-11		88.7	8.6	2.3	0.4	0.02	59.1	23.7	12.5	4.2	0.8	0.5
1995-96	ST	56.8	16.2	16.2	10.8	0.00	11.9	13.6	27.1	40.7	27.1	1.6
2000-01		62.5	25.0	12.5	0.0	0.00	20.0	30.0	30.0	20.0	100.0	1.3
2005-06		61.8	21.8	10.9	5.5	0.00	20.0	24.3	24.3	22.9	12.9	1.3
2010-11		67.1	20.0	8.6	4.3	0.00	24.1	24.1	22.8	21.5	5.1	1.1
1995-96	Others	73.4	15.4	8.2	2.8	0.21	31.6	23.7	24.1	17.0	0.0	0.9
2000-01		74.9	15.2	7.3	2.5	0.17	34.9	24.3	22.7	15.4	0.0	0.9
2005-06		75.9	14.8	7.0	2.2	0.14	36.7	24.3	22.3	14.3	0.0	0.9
2010-11		77.6	13.9	6.4	2.0	0.12	38.6	24.2	21.6	13.4	3.8	0.8
1995-96	All Social Groups	75.4	14.6	7.4	2.5	0.18	33.7	23.8	23.3	15.9	2.4	0.9
2000-01		76.9	14.2	6.6	2.1	0.15	37.0	24.3	21.7	14.3	2.1	0.8
2005-06		78.0	13.8	6.2	1.9	0.12	38.9	24.2	21.2	13.3	1.9	0.8
2010-11		79.5	13.0	5.7	1.7	0.11	40.7	24.1	20.6	12.5	3.4	0.8

Source: Agriculture Census, U.P.

Table 4.4: Percentage of Numbers and Area Operational Holdings Irrigated by Size Class among All Social Groups in U.P. during 2011

Year	Social Groups	Holdings (%)						Area (%)					
		Marginal	Small	Semi-Medium	Medium	Large	All Class	Marginal	Small	Semi-Medium	Medium	Large	All Class
1995-96	SC	63.8	8.0	2.5	0.4	0.0	74.7	34.9	15.0	8.3	2.5	0.2	60.8
2000-01		70.1	7.9	2.3	0.4	0.0	80.8	42.7	18.2	10.0	3.4	0.4	74.7
2005-06		76.6	7.7	2.0	0.3	0.0	86.6	49.9	18.8	9.4	2.8	0.3	81.2
2010-11		73.8	7.4	2.0	0.3	0.0	83.5	47.6	18.7	9.5	2.9	0.3	79.1
1995-96	ST	21.6	8.1	8.1	8.1	0.0	45.9	3.4	5.1	10.2	23.7	5.1	47.5
2000-01		37.5	25.0	12.5	0.0	0.0	75.0	10.0	20.0	20.0	10.0	0.0	70.0
2005-06		18.2	7.3	3.6	1.8	0.0	30.9	5.7	8.6	5.7	4.3	1.4	25.7
2010-11		32.9	12.9	5.7	2.9	0.0	54.3	11.4	13.9	11.4	8.9	2.5	48.1
1995-96	Others	56.1	12.9	7.0	2.4	0.2	78.5	22.3	15.9	15.4	9.7	1.5	64.9
2000-01		62.3	13.5	6.6	2.2	0.1	84.8	28.9	20.1	18.6	11.9	1.8	81.3
2005-06		66.8	13.4	6.3	1.9	0.1	88.5	31.9	20.7	18.4	10.8	1.5	83.3
2010-11		57.4	11.4	5.6	1.6	0.1	76.1	28.3	18.8	17.5	10.1	1.3	75.9
1995-96	All Social Groups	57.4	12.1	6.2	2.1	0.1	77.9	23.6	15.8	14.6	9.0	1.4	64.4
2000-01		63.6	12.6	5.9	1.9	0.1	84.1	30.3	19.8	17.6	11.0	1.8	80.5
2005-06		68.4	12.4	5.5	1.7	0.1	88.1	33.7	20.4	17.4	10.0	1.4	82.8
2010-11		60.2	10.7	4.9	1.4	0.1	77.4	30.3	18.7	16.6	9.3	1.3	76.2

Source: Agriculture Census, GOI

Table 4.5: Value of Output per Hectare among Size Class in the selected States

(in. Rs)

State	Marginal	Small	Marginal and Small	Medium and Large	All
Punjab	29448	26120	27213	28983	28623
West Bengal	21065	20429	20874	19004	20594
Assam	18484	17370	17975	18296	18068
Haryana	17769	16872	17304	17541	17470
Andhra Pradesh	14777	14849	14813	12886	13720
Uttar Pradesh	14442	14441	14442	15611	14826
Tamil Nadu	15629	11353	13926	15799	14771
Bihar	14230	13184	13833	13847	13837
Maharashtra	13212	11350	12064	7140	8339
Gujarat	12001	11656	11807	11504	11609
Madhya Pradesh	8543	7546	7927	8783	8526
Orissa	7207	6374	6870	6731	6831
Rajasthan	7177	5629	6330	4213	4739

Source: NSSO 59th Round on Situation Assessment Survey of Farmers, 2003

Table 4.6: Net Farm Income per Hectare of Cropped Area from Cultivation (in. Rs)

State	Marginal	Small	Marginal and Small	Medium and Large	All
Punjab	18582	15780	16701	16615	16632
West Bengal	9528	9444	9503	9512	9503
Assam	15765	14682	15269	15238	15260
Haryana	9922	9151	9523	8155	8567
Andhra Pradesh	4224	5043	4637	5359	5047
Uttar Pradesh	6700	7399	6998	8281	7421
Tamil Nadu	6088	3658	5120	7723	6295
Bihar	7997	7566	7834	8479	8032
Maharashtra	6547	5712	6032	3653	4232
Gujarat	5717	5875	5806	5536	5630
Madhya Pradesh	5294	4060	4531	5203	5001
Orissa	3448	3096	3306	2939	3204
Rajasthan	2651	1392	1962	1345	1499

Source: NSSO 59th Round on Situation Assessment Survey of Farmers, 2003

Table 4.7: Income and Consumption per Farmer Households by Size Category of Farmers (Rs per month),

State	Marginal			Small			Semi-medium		
	Y	C	D	Y	C	D	Y	C	D
Punjab	2840	3900	-1016	4462	5452	-990	6605	5860	745
West Bengal	1862	2517	-655	3643	3877	-234	5993	4754	1239
Haryana	2155	3820	-1665	2919	5233	-2314	4289	5122	-833
Andhra Pradesh	1235	2159	-924	1837	2549	-712	2590	3045	-455
Tamil Nadu	1739	2285	-546	2244	3187	-943	3658	3691	-33
Bihar	1439	2254	-815	2667	3246	-579	4460	3599	861
Maharashtra	1761	2467	-706	2183	2583	-400	3525	3026	499
Gujarat	1931	2725	-794	2815	3386	-571	3757	3698	59
Madhya Pradesh	1099	1973	-874	1193	2241	-1048	1439	2720	-1281
Orissa	901	1578	-677	1425	2034	-609	2456	2688	-232
Rajasthan	1427	2809	-1382	1650	3668	-2018	1678	3875	-2197
Uttar Pradesh	1198	2526	-1328	2428	3728	-1300	3978	4948	-970
State	Medium			Large			All		
	Y	C	D	Y	C	D	Y	C	D
Punjab	13770	7836	5934	34340	13078	21262	4960	4840	120
West Bengal	3864	5234	-1370	-	-	-	2079	2668	-589
Haryana	5353	6463	-1110	16110	8234	7876	2882	4414	-1532
Andhra Pradesh	5479	4133	1346	9418	5724	3694	1634	2386	-752
Tamil Nadu	9061	3793	5268	26984	9030	17954	2072	2506	-434
Bihar	9526	5678	3848	27766	8174	19592	1810	2459	-649
Maharashtra	6244	3877	2367	15653	7241	8412	2463	2689	-226
Gujarat	6355	4687	1668	5084	4391	693	2684	3127	-443
Madhya Pradesh	3066	3667	-601	8000	6108	1892	1430	2339	-909
Orissa	3724	2771	953	11451	5314	6137	1062	1697	-635
Rajasthan	1682	4368	-2686	706	4939	-4233	1498	3288	-1790
Uttar Pradesh	7974	6732	1242	7850	6776	1074	1633	2899	-1266

Source: NSSO 59th Round on Situation Assessment Survey of Farmers, 2003

Table 4.8: Operational Holding Wise Use of Agricultural Implements and Machinery in Uttar Pradesh in the year 2006-07 (In, 00)

Size Groups	Total Number of Operation Holdings	Number of Operational Holdings Using					
		Ploughs(Wooden/ Steel)	Mould Board Plough	Pump sets (Diesel/ Electric)	Power Tiller	Tractor	Sprinkler
Marginal: (Below 1.0 ha.)	174938	102486(58.6)	373(0.8)	8859(22.2)	22(0.3)	12400(64.2)	01(0.1)
Small (1.0-1.99 ha.)	30986	25011(80.7)	304(4.2)	6984(54.8)	99(1.9)	5047(80.8)	42(0.5)
Semi-medium (2.0 -3.99 ha.)	13882	11638(83.8)	298 (16.6)	817(70.7)	32(5.9)	3212(95.2)	6(0.4)
Medium (4.0 - 9.99 ha.)	4255	3991 (93.8)	844 (43.3)	831(90.0)	19(9.8)	098(96.3)	7(0.9)
Large (10.0 ha. And above)	271	219 (80.8)	6(28.0)	78(65.7)	7(6.2)	63(97.0)	3(1.5)
All Size Groups	224333	143346(63.9)	896(3.1)	669(31.1)	388(1.1)	55020(69.1)	41 (0.2)

Source: Statistical Abstract-2011. U.P.

Table 4.9: Percentage of Operational Holdings that took Credit from Institutional Agencies for Agricultural Purpose in Uttar Pradesh from 1996-97 to 2006-07

Size Classes	1996-97				2000 -01				2006-07			
	PACS	PLDB +SLDB	CBB+	RRBs	PACS	PLDB +SLDB	CBB+	RRBs	PACS	PLDB +SLDB	CBB+	RRBs
MARGINAL (BELOW 1.0)	57.14	12.00	23.74	7.13	66.70	67.70	68.70	4.07	30.54	4.45	23.25	43.70
SMALL (1.0 - 1.99)	55.71	7.70	29.93	6.65	59.66	24.96	11.73	6.08	26.08	7.00	25.38	47.45
SEMI-MEDIUM (2.0 - 3.99)	49.97	8.12	37.82	4.08	56.29	28.61	11.94	8.08	24.09	8.21	26.07	50.67
MEDIUM (4.0 - 9.99)	50.41	5.36	40.90	3.30	51.58	32.47	10.83	10.41	18.76	10.43	30.43	52.59
LARGE (10 AND ABOVE)	47.68	5.96	44.17	2.18	47.71	39.00	8.72	18.21	16.53	4.47	33.84	62.72
ALL GROUPS	55.13	9.84	28.78	6.23	62.88	23.01	10.73	5.42	28.39	5.64	24.30	45.66

Source: Agricultural Census Reports, Government of Uttar Pradesh

Where: PACS= Primary Agricultural Credit Societies

PLDB= Primary Land Development Bank/Branch of State

Land Development Banks (SLDB), CBB= Commercial Bank

Branch, RRBs= Regional Rural Bank.

Table 4.10: Average Amount of Outstanding Loan (Rs'00) per Agricultural Household by Size Class for major States in 2013

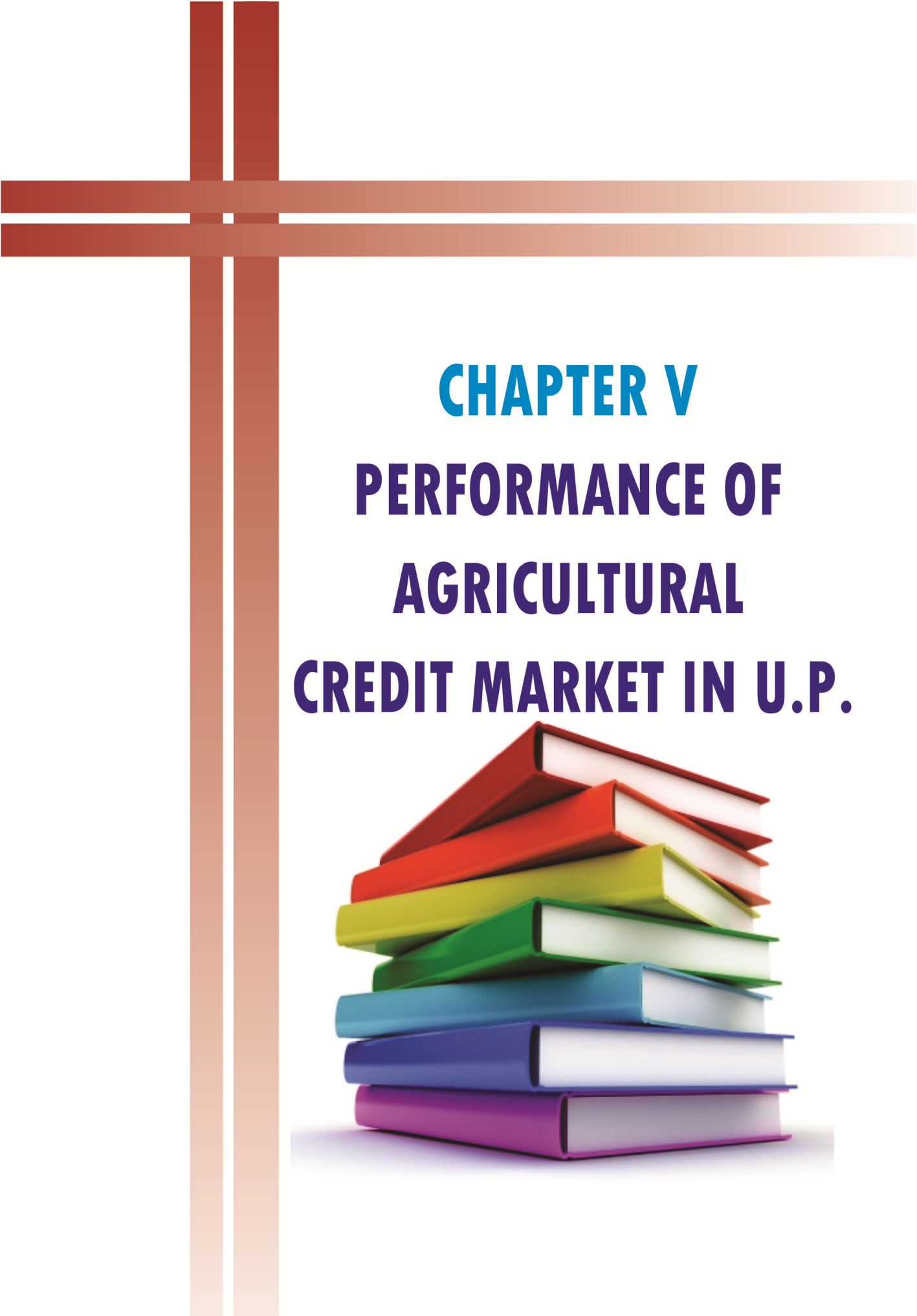
States	Near landless	Sub Marginal	Marginal	Small	Semi medium	Medium	large	all classes	Proportion of Indebted agri hhs (0.0%)
	<0.01	0.01-0.40	0.41-1.00	1.01-2.00	2.01-4.00	4.01-10.00	10.00+		
Andhra Pradesh	2409	739	893	1049	1623	3500	2494	1234	92.9
Assam	4	8	24	67	71	173	0	34	17.5
Bihar	73	138	132	341	279	424	1494	163	42.5
Chhattisgarh	0	48	93	79	202	239	0	102	37.2
Gujarat	69	120	247	311	826	1624	1148	381	42.6
Haryana	95	192	737	900	1537	1162	4681	790	42.3
Jharkhand	0	56	46	85	92	200	0	57	28.9
Karnataka	355	778	633	987	1248	2321	3673	972	77.3
Kerala	1690	1592	1944	3467	6070	7505	15726	2136	77.7
Madhya Pradesh	91	119	152	270	629	1168	1952	321	45.7
Maharashtra	102	453	232	455	582	2071	3869	547	57.3
Odisha	88	167	337	181	326	1302	22281	282	57.5
Punjab	131	246	516	1641	2292	3266	9274	1195	53.2
Rajasthan	1694	334	431	678	1031	1548	1528	705	61.8
Tamil Nadu	377	674	1192	1200	2147	3224	4512	1159	82.5
Telangana	563	578	794	1033	1097	1369	2690	935	89.1
Uttar Pradesh	219	160	218	457	1075	1248	2178	273	43.8
West Bengal	57	146	197	330	329	435	2760	178	51.5
All India	311	239	354	548	949	1827	2903	470	51.9

Source: NSSO, 70th Round

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CHAPTER V
PERFORMANCE OF
AGRICULTURAL
CREDIT MARKET IN U.P.



Agriculture has always been a way of life rather than a business and has suffered from stagnation due to low productivity arising from inadequate investment. The only way to remove low productivity and stagnation in agriculture is to find ways of increasing capital investment. Therefore, credit plays an important role in improving agriculture production, productivity and mitigating the distress conditions of the farmers. The availability, access to adequate, timely and low cost credit from institutional sources are very important especially to small and marginal farmers. The availability of concessional credit has been supporting the farmers to adopt new technology, encourage investment in machinery and irrigation and increase agricultural productivity (Swami Nathan, 1991). Credit is also essential for establishing sustainable and profitable farming systems because most of the farmers are small and marginal producers engaged in agricultural activities in rural areas. It has seen that the easy access to financial services at affordable cost positively affects the productivity, income and food security of small and marginal farmers at state level.

Credit is the backbone for each sector of the economy. Credit is one of the basic needs of the farmers, which facilitate them to meet the investment as well as working capital requirements. Poor credit facilities for investment are an important hindrance to expansion of area under HYV seeds and the use of optimal measured quantity of inputs. Like other sectors, availability of credit for the agriculture sector must be easy, adequate, and timely. Despite of a large network of Rural Financial Institutions (RFIs), a large portion of the rural population is continuously neglected by the formal banking sector in the state. On the other hand, inflexible credit flows and security-based lending system is widespread in formal Indian banking sector. Besides, "due to long gestation period, lack of trained technical staff, poor eligibility and security problems are some of the reasons behind insufficient credit flow to agriculture sector. It must be rectified for speedy and easy flow of credit to the agriculture sector.

Credit is one of the basic needs for increasing capital and investment. The demand for both short and long term credit started rising at a faster rate after modernization of agriculture in the mid 1960's as the farmers had to purchase costly inputs like fertilizers, high yielding variety seeds, and pesticides from the market. Credit is also important for land improvement, purchasing tractors, to build farm structures and dig tubewells. The demand of the credit has been increased due to diversification of the

agriculture and rapid growth of the agro-processing among the farmers in the state. Credit is a major source to improve the soil fertility, decrease the regional disparities and solve the problem of the food security in several part of the state. Agriculture credit is vital for the development of the irrigation facilities, water management, and land development in rural areas and helpful to raise the income, saving and improve the standard of the living of the small and marginal farmers. It not only helps the farmers to increase the production but also to drive day to day consumption, paying for medical, educational and social and religious purposes. Credit is the vital tool for enhancing economic activities and support to farmers for better protection as well as making balance in the economy. Institutional credit to agriculture has to be allocated significantly to meet their demand at affordable rates and cost-effective mechanism has to be found for its delivery among small and marginal farmers in the state.

The Government has taken various steps to increase the flow of the credit in agriculture sector. Agricultural credit has declined since the economic reforms in Uttar Pradesh (Arora 2009). But still, there are various problems of agriculture credit system is that the coverage area of the agriculture credit agencies is limited because 80 per cent farmers are small and marginal and some of the areas are remotely located. Catering to their requirements of farmers of such areas becomes very difficult and costly. Therefore, the people of the poor section depend on the money lenders and landlords to meet their requirements. The paper formalities of institutional agencies are very complicated to avail credit facilities. Majority of illiterate farmers find the procedure difficult and time taking so that they prefer to borrow from money lenders at higher rate of the interest. On the other hand, there is large gap between submission of the loan application and approval of the loans because the financial institutions are situated in cities, farmers have to go several time to fulfil many formalities to receive the credit. This results to waste of the time and man power.

The credit institutions have been facing lack of co-ordination. Therefore, the flow of agricultural credit to those areas where credit institutions are strong and the areas with less developed credit institutions, have less availability of agricultural credit. Due to the paucity of the funds agricultural production is decreasing and poverty is increasing among small and marginal farmers. Regional imbalances are also prevailing in the supply of the agricultural credit in many states. So, they adopted new technology and

rapid growth in crop productivity. On the other hand, agriculture in other states remained low productive, and is deprived of new technology. Apart from this, farmers would like to avail credit for productive purposes and non-productive purposes of the family. But for the consumption needs, banks are highly associated to the urban areas. Therefore, farmers are compelled to borrow from the money lenders for non-productive purposes. Hence, they has been trapping and commit suicide. Credit institutions are interested to provide the credit facilities to the rich farmers, industry and safest field rather than the agriculture sector, due to decreasing share in the economic development. There is the dominance of the private agencies and professional money lenders.

The present chapter is divided in five sections. Section I analyses the purpose of credit and sources of credit. Section II describes the growth of agricultural credit and performance of institutional credit agencies. The regression results are presented in Section III. The initiatives are given in Section IV. Final section V describes conclusion and suggestions of the present chapter.

V.1 PURPOSE OF CREDIT

The credit requirements of the farmers can be classified on the basis of purpose into the following categories:

- A. Productive Purposes:** Credit requirement of the farmers directly influencing agricultural productivity, as buying seeds, fertilizers, manure and agricultural implements, digging and repair of wells and tube wells, payment of wages, improvements of land.
- B. Consumption Needs:** The conditions of the farmers in rural areas are very poor. They cannot afford the basic needs by their income. Therefore, credit makes them meet their basic needs.
- C. Unproductive Purposes:** Indian farmers often borrow credit for unproductive purposes like celebration of marriage, birth, death, litigation, religious functions and festivals from money lenders and mahajans.

V.2 SOURCES OF THE AGRICULTURAL CREDIT

The various source of the agricultural credit can be classified in two groups:

(A) Institutional Agricultural Credit: The agricultural credit system as developed and grown over the years through reforms and policy initiatives are characterized by dualistic structures, limited availability of collateral, risks and seasonal fluctuations in the supply and demand for financial services as well as high transaction costs. Thus, there are three source of agricultural credit in the rural areas such as;

(I) Co-operative Banks

(II) Commercial Banks (CBs)

(III) Regional Rural Banks (RRBs)

These sources have its own unique organizational features but common in all of them have a structural pattern which provide machinery for supplying credit at village level. All the three sources are linked with the state apex organizations. National Bank for Agriculture and Rural Development (NABARD) is the apex institution at state level that provides finance to the cooperative societies, commercial banks and regional rural banks. Reserve Bank of India (RBI) is apex organization at national level, for policy, funding and operational control of all institutions. The structural pattern of the various sectors in the rural credit system from the base level to the national level is as agencies operating at the national level for providing refinance to other agencies are Reserve Bank of India (RBI), National Co-operative Development Corporation (NCDC), National Bank for Agriculture and Rural Development (NABARD), and Agricultural Finance Corporation (AFC). At the state level, the State Co-operative Agriculture and Rural Development Banks (SCARDBs), State Co-operative Banks (SCBs), and Commercial Banks (CBs) constitute the source of rural credit. At the district level District Central Co-operative Banks (DCCBs) and Regional Rural Banks (RRBs) are the agencies providing credit while at the field level Primary Co-operative Agriculture and Rural Development Banks (PCARDBs), branches of RRBs, rural branches of CBs, Primary Agricultural Credit Societies (PACs), Large Area Multi-purpose Societies (LAMPS) and Farmers Service Societies (FSS) are providing credit to the rural borrowers.

(I) Co-operative Banks

The co-operative credit institutions are one of the most broadly distributed institutions in India as they have been set up at the grass root level in every corner of the country. To mitigate the problems of the farming community, the first co-operative credit societies act was passed by the government in 1904. It was noticed that this act was insufficient to meet the requirement of the people. This problems were removed by the co-operative society's act 1912. This act was successful till 1914 after to review the growth of this act Maclegan committee was set up. This committee submitted his report in 1915 and made three tier structure of the co-operative credit as co-operative credit institutions provide three types of the loans i.e., short, medium and long term credit in rural areas. The short and medium term structure of co-operative credit institutions has three tier systems like;

- (1) State Co-operative Banks (SCB) apex bank at state level,
- (2) District Central Co-operative Banks (DCCB) at district level
- (3) Primary Agricultural Credit Societies (PACS) at village level.

The long term agricultural credit institutions are consisting:

- (1) State Co-operative Agriculture and Rural Development Banks (SCARDBs) or Central Land Development Banks (CLDBs) at state level.
- (2) Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) or Primary Land Development Banks (PLDBs) at state level.

(a) State Co-operative Banks: It is higher agency of three-tier co-operative credit institutions in the state. It is functioning between RBI and District Central Cooperative Banks (DCCBs) and Primary Agricultural Credit Societies (PACS), providing credit support to agriculture and allied activities through a network of DCCBs and other state level co-operative organizations and government corporations. National Agriculture Bank for Rural Development (NABARD) provides credit to lower level co-operatives through the state co-operative banks. SCBs are also allowed to start banking Business under the provisions of Banking Regulation Act. The SCBs functions are control and supervision over DCCBs and PACS. For financing banks

and societies, the SCBs derive resources from owned funds, reserves, borrowings and deposits. More than half of their working resources are through deposits from the lower banks like DCCBs and PACS in the state.

(b) District Central Co-operative Banks (DCCBs): It is the middle-tier of the co-operative credit institutions. It works between the state co-operative banks (SCBs) and primary agricultural credit societies (PACS). Their main function is mobilization of deposits from the members and non-members and provides adequate credit to the lower tier credit institutions like PACS. It is also known as a guide, philosopher and leader of the co-operative movement in the district. DCCBs consist of owned funds, reserves, deposits and borrowings. DCCBs are not allowed to borrow or lend among themselves.

(c) Primary Agricultural Credit Societies (PACS): It is occupying a main position in the co-operative credit structure. These banks constitute the base and large network of credit institutions at the village level. These banks are providing credit to artisan and agriculturist. It deals directly with the agricultural borrowers, provide them with the loans and collects repayments of loan. It functions between the borrowers and the higher financing agencies such as SCBs, RBI and NABARD. The operating capital of the PACS is derived from owned funds, deposits, borrowings and other miscellaneous sources. The PACS receive deposits from both the members and non-members but only the members are entitled to borrow from them. These loans are for agricultural purposes and are short-term in nature. The success of the co-operative credit movements depends crucially upon health and strength of these societies.

Reserve Bank of India (RBI) is the central bank of the country providing services through its agricultural credit department, refinance to the state co-operative bank for both short-term and medium-term agricultural credit, and Agricultural Refinance and Development Corporation (ARDC), renamed as NABARD which is the statutory body that provides finance by way of long-term development loans, mainly to State Co-operative Agricultural and Rural Development Banks (SCARDBs) in the state.

(II) Commercial Banks

Co-operatives were considered to be the most suitable agencies for financing agriculture till 1950s. But after 1950s, there was huge requirement of the agriculture

credit at state level. Therefore, to solve the problems of agriculture credit, commercial banks (CBs) were established in 1969. The major change took place when 14 commercial banks were nationalized in 1969 and 6 banks in April 1980. The banks were established for larger social purpose and to enhance rapid growth of agricultural production as well as development of backward areas. It's also provides funds for adopting new technology, rural development and improve the productivity of the agriculture sector. Initially, commercial banks were active for the development of the trade, commerce, and industry. But after due to risky nature of the agriculture and heavy dependence on the monsoon changed the serving condition of the banks. It is found that commercial banks are providing credit for the development of agriculture sector at state and national level. To raise agriculture and other rural development activities, commercial banks have experimented with a number of alternatives and combinations of methods and approaches in different parts of the country with varying degree of success. These include building up of a base of technically qualified field officers, lead bank scheme (LBS), service area approach (SAA), group financing, financing through primary agricultural co-operative societies (PACS) and farmer service societies (FSS). Commercial banks provide credit to the farmers for agricultural purposes in two ways such as (i) Direct (ii) Indirect

(i) Commercial banks provides direct finance for short-term, medium-term and long-term credit to agriculturists for increasing productivity, purchasing agricultural implements and machinery, development of land, construction of farm, buildings and structures, construction and running of storage facilities.

(ii) The banks also provides indirect finance to agriculture for financing the distribution of fertilizers, pesticides, electricity boards, loans to farmers through PACS, FSS and LAMPS, distribution of agricultural machinery and implement, loans for construction and running of storage facilities, advances to custom units and loans to co-operative marketing societies.

(III) Regional Rural Banks

Regional Rural Banks (RRBs) were introduced October 2, 1975 to strengthen the institutional credit structure in rural areas. The main objectives of the regional rural

banks were to take banking to the doorsteps of the rural areas where the banking facilities were not available and provide cheaper institutional credit to the weaker sections of society. Prior the commercial banks, co-operative banks were active to provide the credit for the agriculture development in the rural areas. But, they were not able to meet the requirements of the rural people. Therefore, a committee under chairmanship of Shri N. Narisimham was set to give the suggestion to increase the credit in the rural areas. This committee felt that regional rural banks will be best to increase the agriculture credit at low cost in the rural areas. Hence, in 1975 five regional rural banks were set up at Gorakhpur and Moradabad in Uttar Pradesh, Bhiwani in Haryana, Jaipur in Rajasthan, and Malda in West Bengal. These banks were sponsored by the Syndicate Bank, State Bank of India, United Commercial Bank, Punjab National Bank and United Bank of India. There were 85 regional rural banks in 1985, but it increased to 196 in 2004 in all over the India. There was 36 regional rural banks working in 2004 in the state.

V.3 NON - INSTITUTIONAL AGRICULTURAL CREDIT AGENCIES

The share of institutional credit has increased in Uttar Pradesh. However, small and marginal farmers depend on non-intuitional source of agricultural credit in the state. The non-institutional source is which operate outside the provision of Indian banking companies act. The main non-institutional source of the agricultural credit is like money lenders, friends, relatives, shopkeepers, landlords, traders and government agent. Money lenders are playing important role in lending for both productive purposes as well as non-productive purposes and for short and long period. They have very easily accessible and have personal contact with the small and marginal farmers. Borrowing from money lenders is very flexible but they charge very high rate of interest on loans. It is observed that often small and marginal farmers have to mortgage their land to repay debt and interest.

V.4 PERFORMANCE OF INSTITUTIONAL CREDIT AGENCIES

Institutional credit agencies play an important role to meet the requirement of the credit in the state. These credit institutions are vital milestones to develop the agriculture sector at state level. They are also best institutions for the development of agricultural activities. Small and marginal farmers provide short term, medium and long term credit for the operation of the agriculture sector in the state. Therefore, the availability of credit for the agriculture sector must be easy, adequate, and timely. It is found that the percentage of commercial bank branches was 38.57 per cent in rural area, followed by 22.97 per cent in semi-urban areas and 38.45 per cent in urban areas at state level. On the other hand, banking services in the state are provided through a network of 16,073 branches, out of which 8,464 branches i.e. (52.66 per cent) in rural area, 3252 branches (20.23 per cent) in semi-urban and 4,357 branches (27.11 per cent) in urban areas in the year 2014. On the other hand, the total number of non-formal agencies associated to the bank was 4917 in 2014 at state level (NABARD, 2015-16).

With regards to Credit-Deposit (C-D) ratio of various institutional agencies, it is found that the percentage of C-D ratio of commercial banks was 47.75 per cent during 2012, with 56.62 per cent in 2013 and further become 52.31 per cent during 2014 at state level. On the other hand, the C-D ratio of regional rural banks was 56.14 per cent during 2012 and become 55.96 per cent in 2014 in the state. Regarding co-operative banks, the C-D ratio was 62 per cent in 2012 and decreased to 59.65 per cent in 2014 at state level. The overall C-D ratio was 56.32 per cent in 2012 and decreased 52.8 per cent in 2014. It is observed that the C-D ratio of CBs, RRBs and Co-operative Banks has declined during 2011-12 to 2013-14 at state level. It is also noticed that C-D ratio in 16 districts of Uttar Pradesh was less than 40 per cent of which 4 districts have C-D ratio between 20-30 per cent. The reasons for declining C-D ratio were due to increase in NPA and lack of entrepreneur (NABARD, 2014). There is need to concern of C-D ratio in the state.

Considering recovery position or non-performing assets of all agencies under agricultural and the priority sector loans, it is found that the percentage of recovery position of commercial banks was 68.05 per cent in 2012 and decreased to 62.49 per cent in 2014. On the other hand, the recovery position of regional rural banks was

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77.58 per cent in 2012 and decreased to 69.89 per cent in 2014. In case of co-operative banks, the recovery position was 27.84 per cent in 2012 and increased to 37.74 per cent in 2013 and further decreased 28.63 per cent in 2014. The overall recovery position was 63.73 per cent in 2012 and decreased to 56 per cent in 2014 at state level (NABARD, 2014). It is observed that the percentage of non-performing assets is increasing while the recovery position is declining during the study period at state level.

The disbursement of agricultural credit in Uttar Pradesh during 2002-03 to -2013-14 has been shown in Table 5.1 and Figure 5.1(A) and (B). The disbursement of agricultural credit is two types such as short term (ST) credit which is being used for purchasing agricultural inputs like (seeds, fertilizers etc.) and long term (LT) credit which is being used for various agricultural investments such as farm mechanization, land development, dairy development, plantation and horticulture and irrigation. It is noticed that there is a strong positive correlation between the term loan disbursed and private sector capital formation in agriculture. The long term credit is leading to the capital formation in agriculture sector in the state. It is found that the total agricultural credit disbursement by the institutional agencies was Rs. 6442.3 crores in 2002-03 and increased to Rs. 56218.9 crores in 2013-14. On the other hand, the short term credit and long term credit was Rs. 3635.9 crores and Rs. 2806.4 crores in 2002-03 and increased to Rs. 41374.7 crores and Rs.14, 844.2 crores in 2013-14 at state level.

Figure 5.1(A): Flow of Agricultural Credit in Uttar Pradesh during 2002-03 to 2013-14.

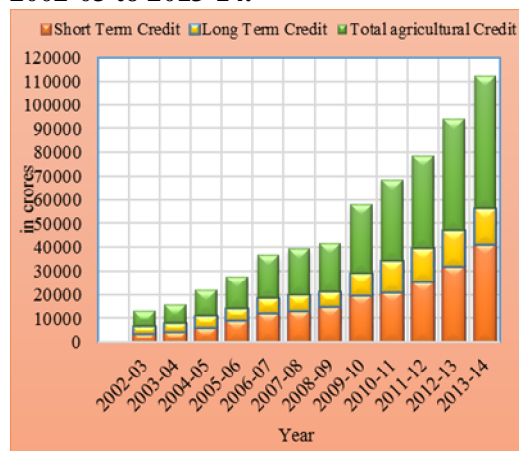
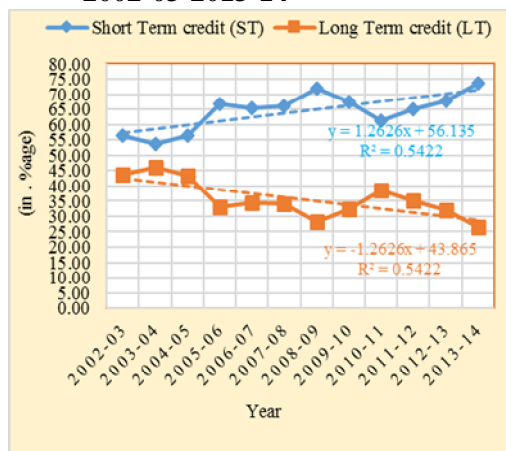


Figure 5.1(B): Flow of Short Term and Long Term Agricultural Credit during 2002-03-2013-14



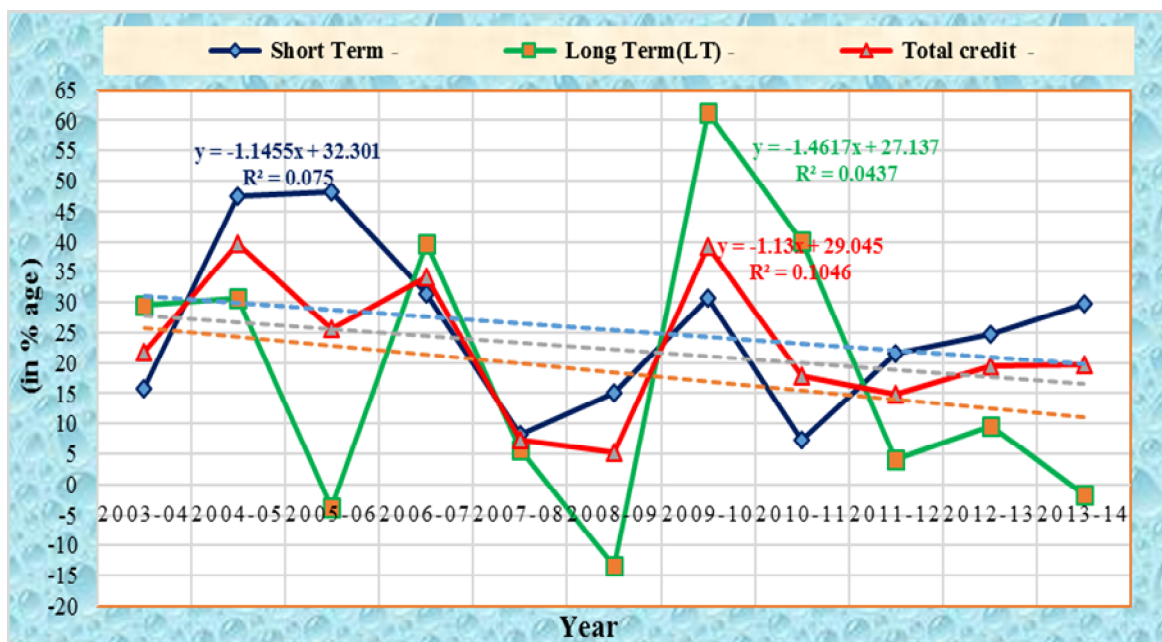
Source: NABARD and State Level Banking Committee, U.P

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From the Figure 5.1(B), the share of short term and long term credit was 56.4 per cent and 43.6 per cent in 2002-03 and become 73.6 per cent and 26.4 per cent in 2013-14 at state level. On the other hand, the compound annual growth rate (CAGR) of short term credit and long term credit was 22 per cent and 15 per cent during the study period. It is observed that the share of short term credit has been increased while long term credit has been declined during the study period at state level. It is pointing towards the increased of credit as an input for agriculture. It is clear that long term credit increase the capital formation in agriculture. This may be considered as an important factor in the slow process of transformation of subsistence agriculture to commercialization of agriculture with the share of purchased inputs increasing over the years at state level.

The annual growth rate of short term, long term and total agricultural credit has been described in Uttar Pradesh during 2003-04 to 2013-14 in Table 5.2 and Figure 5.2. It is found that the growth rate of short term, long term and total agricultural credit was positive and fluctuations during the study period at state level. On the other hand, the growth rate of the long term credit has become negative in several years in the state.

Figure 5.2: Annual Growth Rate of ST, LT and Agricultural Credit in Uttar Pradesh during 2003-04 to 2013-14



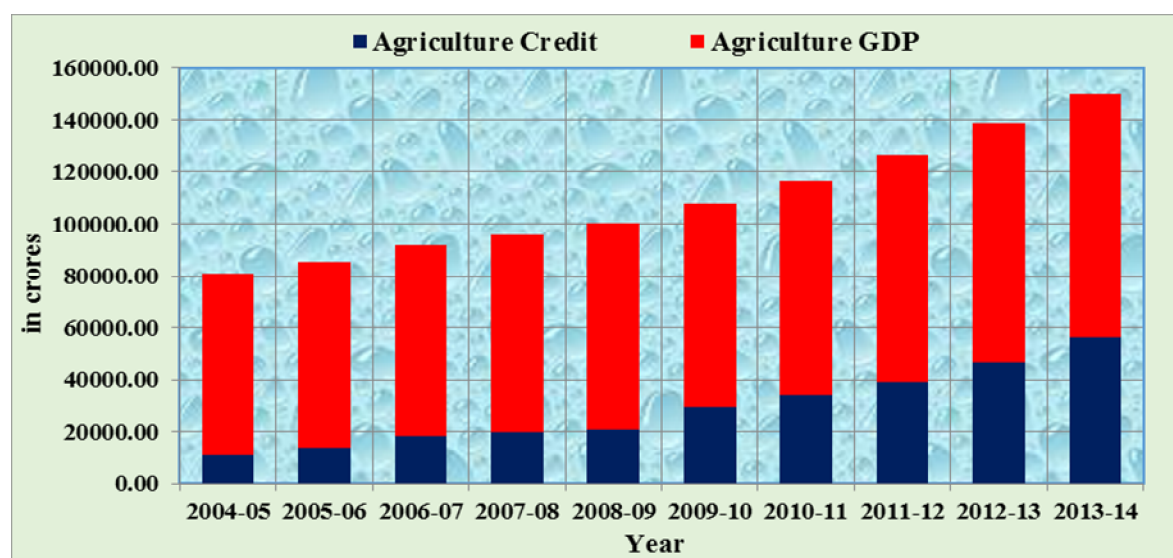
Source: NABARD and State Level Banking Committee, U.P.

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It is noticed that the short term credit is preferred by the banks on account of lower risk while investment in agriculture is possible only with the long term loans because long term loans are larger payback periods and initial development for many agricultural investments. The long-term credit leads to the capital formation in agriculture sector. A decline in long term credit reduces the ability of the farmers to invest in productivity augmentations. It is facts that inadequate long term agricultural credit for improving production capacity and productivity increased risk of the banks for short term credit at state level.

The flow of agriculture credit and agriculture gross domestic product (GDP) in Uttar Pradesh during 2004-05 to 2013-14 is presented in Table 5.3 and Figure 5.3. It is found that the flow of total agriculture credit was Rs. 6,442.3 crores in 2002-03 and increased to Rs. 56,218.9 crores in 2013-14 while agriculture GDP was Rs. 70167 crores in 2004-05 and increased to Rs. 94,035 crores in 2013-14 at state level. On the other hand, the share of agriculture credit to agriculture GDP was 15.62 per cent in 2004-05 and increased to 60 per cent in 2013-14 per cent. Similarly, agriculture credit grew at the rate of 20 per cent while the agriculture GDP grew at 3.0 per cent during the study period in the state. It is noticed that agriculture credit and agriculture GDP has increasing trends during the study period at state level.

Figure 5.3: Agriculture Credit and Agriculture GDP in Uttar Pradesh during 2004-05 to 2013-14



Source: NABARD and State Level Banking Committee, U.P.

The flow of agriculture credit in nominal and real terms in Uttar Pradesh during 2004-05 to 2013-14 are presented in Table 5.4. It is found total nominal agriculture credit was Rs. 10962.5 crores in 2004-05 and become Rs. 56218.9 crores in 2013-14 at state level. On the other hand, the total real agriculture credit was Rs. 10962.5 crores in 2004-05 and become Rs. 22169.7 crores in 2013-14 in the state. On the other hand, the compound annual growth rate (CAGR) of short and long term credit in nominal terms was 20.88 per cent and 12.05 per cent whereas the agriculture credit in nominal terms was 17.75 per cent during the study period. But the growth rate of short term and long term credit in real terms was 10.14 per cent and 2.1 per cent while agriculture credit in nominal terms was 7.2 per cent during the study period at state level. Agriculture credit in nominal terms grew at the rate of 17.75 per cent compared to 7.2 per cent in real terms. Overall, it is obvious that the CAGR of long term credit in nominal term is one sixth of growth compared to long term credit in real term. The flow of nominal and real agricultural credit has various fluctuations during the study period. This clearly reflects that there is need of institutional support for agriculture credit in the state of Uttar Pradesh.

The target and achievement of long term agriculture credit in Uttar Pradesh during 2002-03 to 2013-14 are presented in Table 5.5. It is found that the bank's target of long term credit was Rs. 4885.5 crores and achieved Rs. 2806.4 crores, which was 57.4 per cent in 2002-03 at state level. Further, the banks have achieved the target of long term credit such as 115.8 per cent in 2004-04, with 107 per cent in 2009-10, followed by 142.6 per cent in 2010-11, 114.3 per cent in 2011-12 and 100.6 per cent in 2012-13. It is considered that during twelve years, the banks have fallen short of achieving the target of long term credit in the state. However, during the recent years i.e. from 2009-10 to 2012-13, the banks have been able to achieve or exceed the target of long term credit except in 2013-14 where, it could achieve only 81.5 per cent of the target. There is need to increase long term credit in agriculture and providing long term refinance support for investment in agricultural activities completely for cooperative banks and regional rural banks (RRBs) in Uttar Pradesh.

The flow of agriculture credit by schedule commercial banks (SCBs) in Uttar Pradesh during 1992-93 to 2008-09 has been shown in Table 5.6. It is found that the flow of credit to agriculture was 11.14 per cent in 1992-93 and increased to 28.18 per cent in

2008-09 at state level. On the other hand, the per hectare credit flow to agriculture by SCBs was Rs. 961 in 1992-93, increased to Rs.11,131 in 2006-07 and further decreased to Rs. 2740 in 2007-08 in the state. It is fact that the economic reforms have a significant growth in share of agriculture credit at state level.

The percentage of institutional credit taken from different agencies for the agriculture purpose in Uttar Pradesh during 1996-97 to 2006-07 has been presented in Table 5.7. It is found that the percentage of institutional credit from Primary Agricultural Credit Societies (PACS) to the total institutional credit for agricultural purposes was 55.13 per cent in 1996-97 and increased to 62.88 per cent in 2000-01 and further decreased to 28.39 per cent in 2006-07. On the other hand, Primary Land Development Bank (PLDB) grew at the rate of 9.84 per cent in 1996-97, increased to 23.1 per cent in 2000-01 and further become 5.64 per cent in 2006-07. With regards to the commercial banks (CBs), it grew at 28.78 per cent in 1996-97 and become 24.30 per cent in 2006-07 at state level. In case of Regional Rural Banks (RRBs), it grew at the rate of 6.23 per cent in in 1996-97 and become 45.66 per cent in 2006-07.

Table 5.8 shows that the operational holdings that took credit from PACS for agricultural purpose was Rs. 2.5 lakh in 1996-97, increased to Rs. 13.09 lakh in 2001-02 and further decreased to Rs. 9.03 lakh in 2006-07 at state level. On the other hand, the operational holdings that took credit from PLDB for agricultural purpose was Rs. 45.8 thousand in 1996-97, increased to Rs. 4.7 lakh in 2001-02 and become Rs.1.7 lakh in 2006-07 in the state. The operational holding that took credit from CBs was Rs. 1.33 lakh in 1996-97 and increased to Rs. 7.7 lakh in 2006-07. With regards to RRBs, the operational holding that took credit was Rs. 28. 9 thousand in 1996-97 and increased up to Rs. 14.53 lakh in 2006-07 at state level. It is evident from the facts that most of the agro machine is costlier which is beyond the purchasing power of the farmers in Uttar Pradesh. This is primarily because more than 91 per cent farmers fall in the small and marginal farmers and half of them are below the poverty. Therefore, the state requires implementing proper policies and programmes for credit institutions to raise the agricultural productivity at state level.

V.5 FLOW OF AGRICULTURE CREDIT BY PUBLIC AND PRIVATE INSTITUTIONS

The flow of agricultural credit through public sector banks and private sector banks in Uttar Pradesh during 2015 are analyzed in Table 5.9. It is found that out of 27 public sector banks, Allahabad Bank, Punjab National Bank, State Bank of India, Bank of Baroda, Union Bank of India, Syndicate Bank, Bank of India, Canara Bank, Central Bank of India, Union Bank of India and Oriental Bank of Commerce are leading credit institutions in term of credit disbursement during the study period at state level. On the other hand, the percentage of direct credit of Allahabad bank was 19.24 percent, Bank of Baroda (9.57 per cent), Bank of India (5.58 per cent), Canara Bank (3.79) per cent, Central Bank of India (3.58 per cent), Punjab National Bank (16.94 per cent) , State Bank of India (17.04 per cent), Syndicate Bank (4.26 per cent), Union Bank of India (7.38 per cent), and Oriental Bank of Commerce (5.61 per cent) during 2015 in the state.

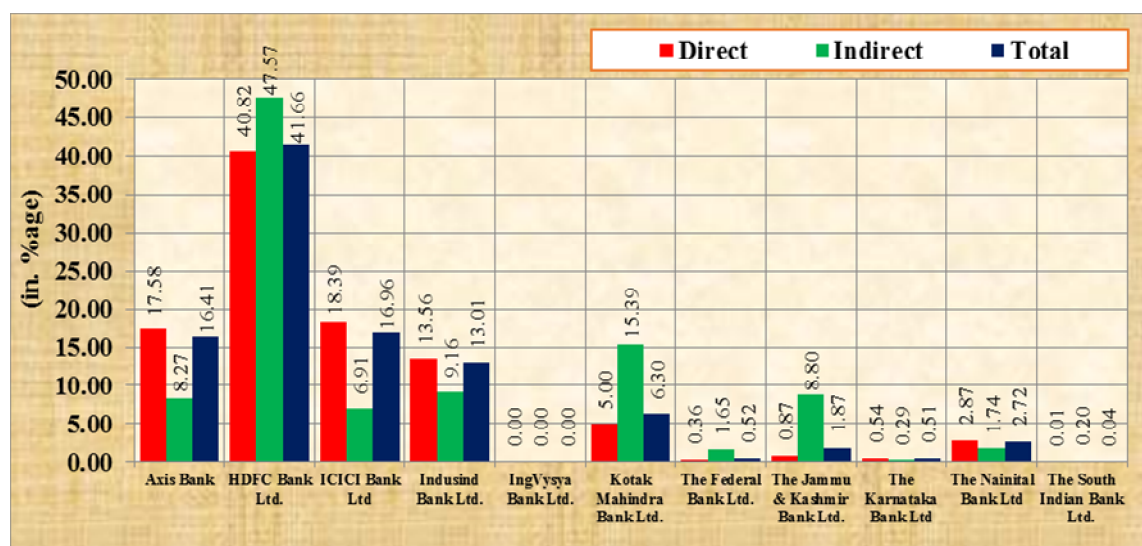
Regarding to indirect credit, the share of Allahabad Banks was 10.03 per cent, Bank of Baroda (15.64 per cent), Bank of India (14.10 per cent), Canara Bank (5.02 per cent), Central Bank of India (3.72 per cent), Punjab National Bank(18.50 per cent), State Bank of India (11.30 per cent), Syndicate Bank (1.41 per cent), Union Bank of India (8.65 per cent), and Oriental Bank of Commerce (2.16 per cent) in 2015 at state level. Overall from the analysis, it is found that out of 27 public sector banks, ten public sector banks had 93 per cent share of direct while 91 per cent share of indirect agricultural credit in total agricultural credit during 2015. On the other hand, out of 27 public sector banks, three public sector banks had more than 53 per cent share of direct agricultural credit in Uttar Pradesh. In case of Total (direct + indirect), the share of agriculture credit of Allahabad Bank was 17.83 per cent, followed by 17.18 per cent of Punjab National Bank, State bank of India (16.16 per cent), Bank of Baroda (10.51 per cent), Union Bank of India (7.58 per cent), Syndicate Bank (3.82 per cent), Bank of India (6.89 per cent), Canara Bank (3.98 per cent), Central Bank of India (3.60 per cent), Union Bank of India (7.58 per cent) and Oriental Bank of Commerce (5.09 per cent) during 2015 in the state. It is observed that out of 27 public sector banks, three public sector banks had more than 51 per cent share of agricultural credit in 2015. Apart from these banks, the share of others public sector banks to flow the

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direct and indirect credit was not impressive during the year at state level. It is fact that very few public sector banks are dominant to provide agriculture credit in the state. There is need to expand bank branches in rural areas because most of the bank branches are far from the village which consumes the time and very high cost.

The share of agricultural credit flow by private sector banks in Uttar Pradesh during the year 2015 is presented in Table 5.10 and Figure 5.4. It is found that HDFC Bank Ltd was leading banks to flow the agricultural credit among all private banks in 2015 in the state. The share of direct agricultural credit by Axis Bank was 17.58 per cent, HDFC Bank Ltd (40.82 per cent), ICICI Bank (18.39 per cent), Indusind Bank Ltd (13.56 per cent), Kotak Mahindra Bank Ltd (5.0 per cent) whereas the indirect credit was Axis Bank (8.27 per cent), HDFC Bank Ltd (47.57 per cent), ICICI Bank (6.91 per cent), Indusind Bank Ltd (9.16 per cent), Kotak Mahindra Bank Ltd (15.39 per cent) in the year 2015 at state level. From the analysis, it is facts that out of 11 private sector banks, only 5 banks had more than 95 per cent share of direct agriculture credit and had more than 87 per cent share of indirect credit during the year in the state.

Figure 5.4: The Share of Agricultural Credit Flow by Private Banks out of total Agriculture Credit flow by Private Banks in Uttar Pradesh in 2015



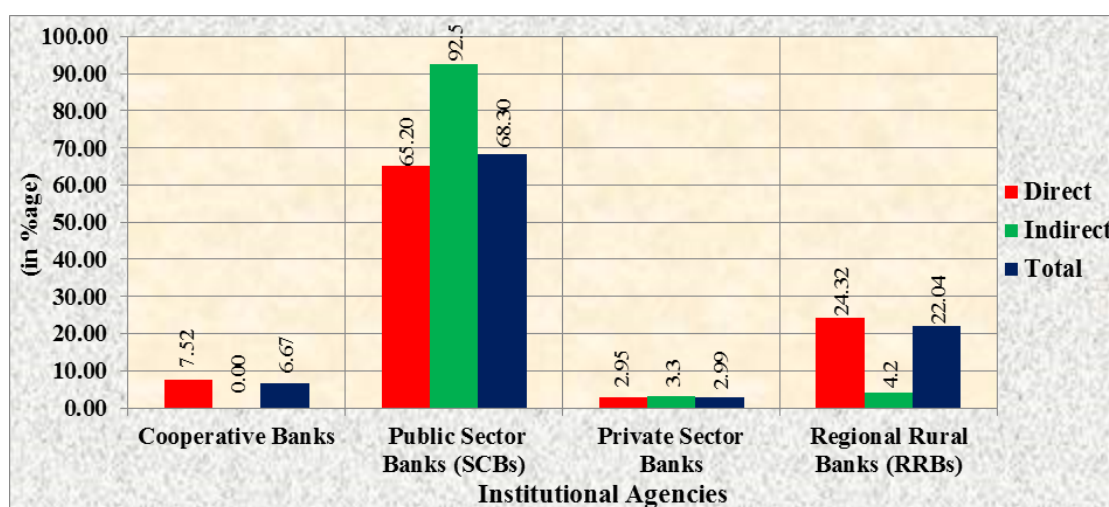
Source: NABARD and State Level Banking Committee, U.P.

Regarding total agricultural credit, the share of Axis Bank was 16.41 per cent, HDFC Bank Ltd (41.66 per cent), ICICI Bank (16.96 per cent), Indusind Bank Ltd (13.01 per cent), Kotak Mahindra Bank Ltd (6.30 per cent) in the year 2015 at state level. It is observed that out of 11 private sector banks only 5 banks had more than 94 per cent

share of total agricultural credit. Obviously, it is noticed that the flow of agricultural credit by private sector banks is not impressive at state level. The government initiated new economic reforms to liberalize the financial system in 1991 and opened the door for the private sector banks as well as foreign banks in the state. Private sector banks opened the bank branches to provide agriculture credit and agriculture development. But the performance of the private sector banks to provide agricultural credit is not satisfactory at state level.

The share of direct and indirect agricultural credit by institutional agencies in Uttar Pradesh during 2015 is presented by Table 5.11 and Figure 5.5. It is found that the share of direct agricultural credit flow by cooperatives banks was 7.52 per cent while indirect credit was negligible in 2015 at state level. With regards to public sector banks, the share of direct and indirect agricultural credit was 65.20 per cent and 92.5 per cent in 2015.

Figure 5.5: The Share of Direct and Indirect Agricultural Credit Flow by Institutional Agencies in Uttar Pradesh during the year 2015



Source: NABARD and State Level Banking Committee, U.P.

On the other hand, the share private sector banks in term of direct and indirect were 2.95 per cent and 3.3 per cent in 2015 at state level. The share of direct agricultural credit by regional rural banks was 24.2 per cent followed by 4.2 per cent for indirect in 2015. Regarding the share of total agricultural credit by cooperatives banks, public sector banks, private sector banks and regional rural banks was 6.65 per cent, 68.30 per cent, 3.0 per cent and 22.04 per cent in 2015 at state level. Overall from the

analysis, it is observed that the share of public sector banks in providing direct and indirect agricultural credit is not impressive. On the other hand, the performance of cooperative banks and regional rural banks is very poor while the share of private sector banks is remarkable due to lack of banking network in rural areas, lack of collateral security of farmers and poor people, lack of education and exploitive nature of the institutions in the state of Uttar Pradesh.

V.6 REGRESSION RESULTS

The growth of net state domestic product, production of foodgrain and productivity of foodgrain is influenced by several factors such as irrigation, fertilisers and credit. The impact of agricultural inputs on NSDP, production of foodgrain and productivity of foodgrain are regressed by simple multiple regression models during the study period from 2002-03 to 2014-15 at state level. The multiple regression models are given below:

$$NSDP = \beta_0 + \beta_1 NIA + \beta_2 FERC + \beta_3 AC + U_i \text{-----} (A)$$

$$POF = \beta_0 + \beta_1 NIA + \beta_2 FERC + \beta_3 AC + U_i \text{-----} (B)$$

$$YOF = \beta_0 + \beta_1 NIA + \beta_2 FERC + \beta_3 AC + U_i \text{-----} (C)$$

Whereas: NSDP is the net state domestic product at constant prices, POF is production of food grain and YOF is the productivity of food grain. NIA, FERC, AC are net irrigated area, consumption of fertilisers, and agricultural credit. β_0 is constant coefficient and β_1 to β_3 is the regression coefficient for respective variables, U_i is error term in the model. To remove the problem of multicollinearity, all variables such as dependent and independent variables are taken growth rate form. Three models are estimated because of multicollinearity. The results of the equation (A) and (B), and (C) are presented in Table 5.4. It found that net irrigated area had positive and significant impact on NSDP whereas agricultural credit had negative but significant impact on NSDP during the study period at state level. On the other hand, consumption of fertilisers had negative and insignificant impact on NSDP during same period in the state. The value of R-square i.e. 0.7338 which implies that around 73 per cent variation in NSDP is explained by the variation in independent variables during the study period. The F-value shows that the given model is a good fit for

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NSDP and the VIF value indicates the absence of multi-collinearity in the regression model.

Table 5.12: Regression Results of NSDP, Production of Foodgrain and Productivity of Foodgrain

Dependent Variables	Regression Values	Independent Variables			
		Net Irrigated Area (NIA)	Consumption of Fertilisers (FERC)	Agricultural Credit (AC)	Constant
Net State Domestic Product(NSDP)	Coefficient	.4367772	-.0454071	-.0764259	.0421678
	t-value	2.06	-1.20	-2.84	5.89
	P-value	0.073	0.263	0.022	0.000
	R-Squared = 0.7338	Adj. R-Squared =0.6340	F (3,8) =7.35	Prob > F =0.0110	Mean VIF =1.12
Production of Food grain	Coefficient	3.001547	.2533635	-.3786846	.0757026
	t-value	2.65	1.26	-2.63	1.98
	P-value	0.029	0.244	0.030	0.083
	R-Squared =0.7036	Adj. R-Squared =0.5924	F (3,8) =6.33	Prob > F =0.0166	Mean VIF =1.12
Productivity of Food grain	Coefficient	1.059317	.1246156	-.374764	.0901696
	t-value	2.23	0.81	-3.42	3.09
	P-value	0.065	0.440	0.009	0.015
	R-Squared =0.6751	Adj. R-Squared =0.5533	F (3,8) =5.54	Prob > F =0.0236	Mean VIF =1.12

Source: Estimated by Author's Calculation

With regards to production of foodgrain, NIA had positive and significant impact whereas agricultural credit had negative but significant impact during the study period. On the other hand, consumption of fertilisers had positive and insignificant impact on production of food grain during the study period. The value of R-square i.e. 0.7036 which implies that around 70 per cent variation in production of foodgrain is explained by the variation in independent variables during the study period. Considering productivity of foodgrain, NIA had positive and significant impact while FERC had positive but insignificant impact during the study period. Agricultural credit had negative but significant impact during the study period at state level. The value of R-square i.e. 0.6751 which implies that around 67 per cent variation in productivity of foodgrain is explained by the variation in independent variables during the study period.

Inspite of the significant growth, the cooperative credit institutions in the state are facing several problems like lack of the resources, declining profitability, low recovery rates, losses accumulation and increasing non-performing assets (NPA). The

main reasons of the co-operatives failure are that they have been unable to increase their own resources locally, instead they depend on other sources of the funds like government in the state.

Commercial banks have been achieved significant growth at state level. But there are large regional disparities in the distribution of the bank credit in agriculture sector. The growth of the commercial banks is away from lending to small and marginal farmers. This is a reason that commercial banks restricted rural lendings due to lack of demand because of limited productive activities at the lower level. The profitability of commercial banks are also adversely affecting due to lack of qualitative schemes, recovery position, overdues of the credit and large number of the small accounts. Commercial banks have failed to serve those areas where other financial institutions also have failed to increase the agricultural credit. This results that the large part of the state is still deprived from commercial banks. There is also lack of co-ordination among financial institutions. The flow of agricultural credit to those areas with developed credit institutions is strong while areas with less developed credit institutions have less availability of agricultural credit.

Regional rural banks are the landmark for the development of agriculture sector at state level. The purpose of the regional rural banks is to provide credit those regions where the availability of the institutional credit was inadequate but the potential of the agriculture development is very high. Regional rural banks are also beneficial for small and marginal farmers, landless labourers, agricultural labours and others where productivity of agriculture is potentially not good. The performance of the regional rural banks is quite well but they are facing various problems in the state such as recovery rate of the agricultural credit is low. Therefore, they have low earning capacity at state level.

V.7 INITIATIVES

Agricultural credit is an integral part of the process of modernization of agriculture and commercialization of the rural economy. The introduction of easy and cheap credit is the quickest way for boosting agriculture production. Therefore, it is the prime policy of all the successive governments to meets the credit requirements of the farming community in Uttar Pradesh. Agriculture as a sector depends more on credit

than any other sector of the economy because of the seasonal variations in the farmers' returns and a changing trend from subsistence to commercial farming. Important initiatives have taken by the government in recent years such as National Bank for Agriculture and Rural Development (NABARD) is providing refinance to the commercial banks. In order to reduce the competition amongst the commercial banks in the rural areas a policy of "Service Area Approach" has been adopted since 1988. As per this policy, each bank has to adopt few villages and they are required to meet credit. Agricultural and Rural Debt Relief Scheme was announced in 1990-91. This Scheme also called the loan waiver scheme. Under this scheme those borrowers were taken who was engaged in agricultural and allied activities and artisans engaged in any activity of the rural development relating to cottage and village industries, handicrafts and weaving.

Agricultural Debt Waiver and Debt Relief (ADWAR) for farmers was announced in 2008-09 to address the indebtedness of farmers and difficulties of the farming community especially small and marginal farmers. Similarly, comprehensive crop insurance scheme was announced in 1986 to protect the farmers from natural calamities (like drought, flood) and ensure their credit availability to the next season. On the other hand, crop insurance scheme in 1997-98 covered non-loanee small and marginal farmers growing specified crops in selected districts. Kisan Credit Card (KCC) scheme was introduced in 1998-99 to facilitate farmers to access the short term credit from organized financial institutions. The credit under this scheme is sanctioned in proportion to the size of owned land, but there is some flexibility for the farmers cultivating leased-in land, in addition to their owned holding. Further, government of India announced National Agricultural Insurance Scheme (NAIS) or Rashtriya Krishi Bima Yojana in 1999-2000 due to ineffective performance of the Experimental Crop Insurance Scheme (1997-98). This scheme covered all food crops (cereals and Pulses), oilseeds, horticultural and commercial crops.

The Central Government has announced a new scheme for the farmers known as Farm Income Insurance Scheme (FIIS) in 2002. The scheme focused on farmer's income and prices. The scheme provides income protection to the farmers by insuring both production and market risks and also insured the farmers to get the minimum guaranteed income and minimum support prices (MSP) from their average yield.

Further, The Government of India launched one more insurance scheme for farmers in his Union Budget 2007-08. The scheme was launched to provide insurance protection to farmers against adverse incidence, like deficit and rainfall which would impact adversely crop production. The scheme is implemented by the Agricultural Insurance Company of India Ltd.

The Government of India has launched modified national agricultural scheme in 2010-11. This scheme was launched to provide protection to the farmers from natural calamities like floods and Cyclone. Swarozgar Credit Card (SCC) scheme was introduced in September 2003 for providing adequate and timely credit to small artisans, handloom weavers, other micro-entrepreneurs, SHGs, etc., from the banking system in a flexible, hassle free and cost effective manner. The government also implemented a package for revival of short-term rural cooperative credit structure in the country. The Revival Package is aimed at reviving/strengthening the short-term Rural Cooperative Credit Structure (CCS) and makes it a well-managed and vibrant medium to serve the credit needs at state and national level, especially the small and marginal farmers.

The Pradhan Mantri Jan Dhan Yojana is conceived with the objective of financial inclusion of the poor and rural population giving them dignity and financial independence. The Prime Minister launched the National Mission on Financial inclusion named as Pradhan Mantri Jan Dhan Yojana (PMJDY) in national capital on August, 28, 2014. The PMJDY, a national mission on financial inclusion, has the objective of covering all households in the country with banking facilities and having bank accounts for each household.

V.8: CONCLUSION AND SUGGESTIONS

Agricultural credit should not be only for increasing food-producing activity but it should be focus on the need to improve the overall socio-economic well-being of the farmers. It is found that agricultural credit has been influencing agricultural productivity, income, consumption, employment and agricultural GDP at state level. The share of short term credit is increasing and the share of long term credit has been decreasing whereas annual growth rate of ST and LT credit has been fluctuating trends during the study period at state level. But agricultural development is depends

more on long term credit so that it is the major concern in the state. The available data shows that the performance of institutional sources i.e. cooperative banks, commercial banks, and regional rural banks in term of agricultural credit is not impressive during the study period. These institutional sources have widespread variation in term of credit disbursement during the study period in the state of Uttar Pradesh.

The regression result shows that net irrigated area had positive and significant impact on NSDP, production of foodgrain and productivity of food grain whereas agricultural credit had negative but significant impact on NSDP, production of foodgrain and productivity of food grain during the study period at state level. On the other hand, consumption of fertilisers had negative and insignificant impact on NSDP except production of foodgrain and productivity of foodgrain during the study period at state level.

The state made several committees, commissions, Acts, programmes and policies to increase the agricultural credit as well as to abolish the malpractices of the moneylenders. However, majority of small and marginal farmers depend on non-institutional agencies for agricultural credit. Due to the exploitative nature of the non-institutional agencies, farmers are leaving agriculture sector and migrating to other sector for better livelihood. There is need to make effective programmes and policies to increase agriculture credit as well as to protect agriculture sector at regional level and state level.

**PERFORMANCE OF AGRICULTURAL CREDIT MARKET IN
UTTAR PRADESH**

Table 5.1: Flow of Short Term (ST) and Long Term (LT) Agricultural Credit in Uttar Pradesh during 2002-03 to 2013-14

Year	Short Term(ST) Credit	Long Term(LT) Credit	Total Agriculture Credit	Share of ST Credit (%)	Share of LT Credit (%)
2002-03	3635.9	2806.4	6442.3	56.4	43.6
2003-04	4212.4	3635.6	7848.1	53.7	46.3
2004-05	6207.2	4755.3	10962.5	56.6	43.4
2005-06	9191.3	4576.7	13768.1	66.8	33.2
2006-07	12071.6	6395.4	18466.9	65.4	34.6
2007-08	13051.2	6765.3	19816.6	65.9	34.1
2008-09	15015.1	5855.9	20871	71.9	28.1
2009-10	19615.7	9439.9	29055.6	67.5	32.5
2010-11	21024.1	13216.8	34240.9	61.4	38.6
2011-12	25549.1	13756.0	39305	65	35
2012-13	31854.4	15086.3	46940.8	67.9	32.1
2013-14	41374.7	14844.2	56218.9	73.6	26.4
CAGR*	22	15	20		

Source: NABARD, Credit data, Lucknow, Uttar Pradesh

Table 5.2: Annual Growth Rate of ST, LT and Agricultural Credit in Uttar Pradesh during 2002-03 to 2013-14

Year	Short Term (ST)	Long Term (LT)	Total Agricultural Credit
2002-03	-	-	-
2003-04	15.86	29.55	21.82
2004-05	47.36	30.8	39.68
2005-06	48.07	-3.76	25.59
2006-07	31.34	39.74	34.13
2007-08	8.11	5.78	7.31
2008-09	15.05	-13.44	5.32
2009-10	30.64	61.2	39.22
2010-11	7.18	40.01	17.85
2011-12	21.52	4.08	14.79
2012-13	24.68	9.67	19.43
2013-14	29.89	-1.6	19.77

Source: NABARD, Credit Data, Lucknow, Uttar Pradesh

**PERFORMANCE OF AGRICULTURAL CREDIT MARKET IN
UTTAR PRADESH**

Table 5.3: Flow of Agriculture Credit and Agriculture GDP in Uttar Pradesh during 2002-03 to 2013-14

Year	Agriculture Credit	Agriculture GDP	Ratio of Agriculture Credit to Agriculture GDP
2002-03	6442.3	-	-
2003-04	7848.1	-	-
2004-05	10962.5	70167.1	15.62
2005-06	13768.1	71813.5	19.17
2006-07	18466.9	73512.0	25.12
2007-08	19816.6	76140.6	26.03
2008-09	20871	79151.7	26.37
2009-10	29055.6	78502.9	37.01
2010-11	34240.9	82344.1	41.58
2011-12	39305	87261.9	45.04
2012-13	46940.8	91579.1	51.26
2013-14	56218.9	94035.1	59.79
CAGR [#]	20	3	

Source: NABARD, Credit Data, Lucknow, Uttar Pradesh

Table 5.4: Flow of Agriculture Credit in Uttar Pradesh during 2004-05 to 2013-14

Year	Nominal Credit			Real Credit (at 2004-05) Prices		
	ST	LT	Agriculture Credit	ST	LT	Agriculture Credit
2004-05	6207.2	4755.3	10962.5	6207.2	4755.3	10962.5
2005-06	9191.3	4576.7	13768.1	8616.6	4290.5	12907.1
2006-07	12071.6	6395.4	18466.9	10779.9	5711.1	16491
2007-08	13051.2	6765.3	19816.6	10728.7	5561.4	16290.1
2008-09	15015.1	5855.9	20871	10080.5	3931.4	14011.9
2009-10	19615.7	9439.9	29055.6	11391.8	5482.2	16874
2010-11	21024.1	13216.8	34240.9	11387.1	7158.5	18545.6
2011-12	25549.1	13756	39305.1	12368.2	6659.2	19027.4
2012-13	31854.4	15086.3	46940.8	14000.6	6630.7	20631.3
2013-14	41374.7	14844.2	56218.9	16316	5853.8	22169.7
CAGR	20.88	12.05	17.75	10.14	2.1	7.2

Source: Various Issues of NABARD, Lucknow, Uttar Pradesh

**PERFORMANCE OF AGRICULTURAL CREDIT MARKET IN
UTTAR PRADESH**

Table 5.5: Target and Achievement of Long Term Agricultural Credit in Uttar Pradesh during 2002-03 to 2013 -14

Year	Potential Assessed	Target	Achievement	Achievement (in %)
2002-03	2819.1	4885.5	2806.4	57.4
2003-04	3360.9	4878.7	3635.6	74.5
2004-05	4214.4	4106.2	4755.3	115.8
2005-06	5300.1	5273.7	4576.7	86.8
2006-07	6308.2	6729.2	6395.4	95.0
2007-08	7197.7	7234.2	6765.3	93.5
2008-09	8079.7	7839.5	5855.9	74.7
2009-10	8938.7	8804.4	9439.9	107.2
2010-11	9585.1	9271.2	13216.8	142.6
2011-12	11861.5	12031.3	13756.0	114.3
2012-13	13828.6	14995.2	15086.3	100.6
2013-14	14561.2	18215.6	14844.2	81.5

Source: NABARD, Lucknow, Uttar Pradesh

Table 5.6: Flow of Schedule Commercial Banks Credit and Per Hectare Credit to Agriculture in Uttar Pradesh during 1992-93 to 2008-09

Year	Credit Outstanding (in. %age)	Per Hectare Credit (Rs. Outstanding)
1992-93	11.14	961
1995-96	10.00	1117
1999-00	11.01	1921
2000-01	12.11	2740
2001-02	11.48	3456
2002-03	12.25	4244
2003-04	22.70	5461
2004-05	24.28	7139
2005-06	25.77	9248
2006-07	25.57	11131

**PERFORMANCE OF AGRICULTURAL CREDIT MARKET IN
UTTAR PRADESH**

Table 5.7: Institutional Credit taken for Agricultural Purpose in Uttar Pradesh during 1996-97 to 2006-07

Year	PACS	PLDB+SLDB	CBBs	RRBs
1996-97	55.13	9.84	28.78	6.23
2000-01	62.88	23.01	10.73	5.42
2006-07	28.39	5.64	24.30	45.66

Source: Agriculture Census, Government of Uttar Pradesh

Table 5.8: Operational Holdings took Credit from Institutional Agencies during 1996-97 to 2006-07

Year	PACS	PLDB+SLDB	CBBs	RRBs
1996-97	256532	45808	133940	28996
2001-02	1309654	479304	223484	112867
2006-07	903604	179444	773396	1453161

Source: Agriculture Census, Government of Uttar Pradesh

**PERFORMANCE OF AGRICULTURAL CREDIT MARKET IN
UTTAR PRADESH**

Table 5.9: Flow of Agriculture Credit by Public Sectors Banks out of total Agriculture Credit flow by Public Sectors Banks in Uttar Pradesh during the year 2015

Name of Bank	Direct (%)	Indirect (%)	Total (%)
Allahabad Bank	19.24	10.03	17.83
Bank Of Baroda	9.57	15.64	10.51
Bank Of India	5.58	14.10	6.89
Canara Bank	3.79	5.02	3.98
Central Bank Of India	3.58	3.72	3.60
Punjab National Bank	16.94	18.50	17.18
State Bank Of India	17.04	11.30	16.16
Syndicate Bank	4.26	1.41	3.82
Union Bank Of India	7.38	8.65	7.58
Andhra Bank	0.07	0.15	0.08
Bank Of Maharashtra	0.14	0.13	0.14
Corporation Bank	0.75	1.12	0.81
Dena Bank	0.13	0.47	0.18
IDBI Ltd.	0.56	4.10	1.11
Indian Bank	0.46	0.09	0.41
Indian Overseas Bank	0.83	1.43	0.92
Oriental Bank Of Commerce	5.62	2.16	5.09
Punjab & Sind Bank	1.64	0.34	1.44
State Bank Of B & J	0.00	0.00	0.00
State Bank Of Hyderabad	0.00	0.00	0.00
State Bank Of Mysore	0.00	0.00	0.00
State Bank Of Patiala	0.26	0.31	0.27
State Bank Of Travancore	0.00	0.00	0.00
UCO Bank	1.80	0.61	1.62
United Bank Of India	0.20	0.43	0.24
Vijaya Bank	0.12	0.27	0.14
Bharatiya Mahila Bank	0.00	0.00	0.00
Total	100	100	100

Source: NABARD and State Level Banking Committee, Lucknow, Uttar Pradesh

**PERFORMANCE OF AGRICULTURAL CREDIT MARKET IN
UTTAR PRADESH**

Table 5.10: The Share of Agricultural Credit flow by Private Banks out of total Agriculture Credit flow by Private Banks in Uttar Pradesh during 2015

Name of Bank	Direct	Indirect	Total
Axis Bank	17.58	8.27	16.41
HDFC Bank Ltd.	40.82	47.57	41.66
ICICI Bank Ltd	18.39	6.91	16.96
Indusind Bank Ltd.	13.56	9.16	13.01
IngVysya Bank Ltd.	0.00	0.00	0.00
Kotak Mahindra Bank Ltd.	5.00	15.39	6.30
The Federal Bank Ltd.	0.36	1.65	0.52
The Jammu & Kashmir Bank Ltd.	0.87	8.80	1.87
The Karnataka Bank Ltd	0.54	0.29	0.51
The Nainital Bank Ltd	2.87	1.74	2.72
The South Indian Bank Ltd.	0.01	0.20	0.04
Total	100.00	100.00	100.00

Source: NABARD and State Level Banking Committee, Lucknow, Uttar Pradesh

Table 5.11: Flow of Agricultural Credit by Institutional Agencies in Uttar Pradesh in 2015

Banks	Direct	Indirect	Total
Cooperative Banks	7.52	0.00	6.67
Regional Rural Banks (RRBs)	24.32	4.2	22.04
Public Sector Banks (SCBs)	65.20	92.5	68.30
Private Sector Banks	2.95	3.3	2.99

Source: NABARD and State Level Banking Committee, Lucknow, Uttar Pradesh

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CHAPTER VI

IMPACT OF AGRICULTURE CREDIT ON SMALL AND MARGINAL FARMERS



This chapter is an outcome of the field survey conducted for the study of the impact of agriculture credit on small and marginal farmers in Uttar Pradesh. The impact of credit is analyzed and examined in term of socio- economic development of the small and marginal farmers. The social development is a process of transformation of social studies of the farmers and individual members of a section of society. It highlights that the change in the social status of the farmers of the society, social participation, social equality, social justice and social emancipation in the state. The economic development reveals in term of production, income, employment, wages, savings, education and consumption of the farmers. The impact of agricultural credit studied by collecting and analyzing the primary data of socio-economic development variables from the samples of 300 small and marginal farmers from the two villages of two districts of two regions of Uttar Pradesh. The results of the field survey data are presented here a systematically on issue base like social development and economic development of small and marginal farmers who are involved to take agricultural credit last year continuously in Uttar Pradesh.

Agriculture credit is an important source of agricultural and economic development in term of land improvement, crop production, purchase of inputs, machinery equipment, and development of dairy, poultry, plantation and storage facilities (warehouses and cold storage). Small and marginal farmers take credit either from institutional agencies or non-institutional agencies in the state. Institutional agricultural credit agencies are operating in rural areas at state level are like (a) Co-operative Banks, (b) Commercial Banks (CBs), and (c) Regional Rural Banks (RRBs). These sources have unique organizational features and structural pattern providing agricultural credit and inputs at village level. On the other hand, non- institutional agricultural credit agencies are operating at state level. These agencies operates outside of the provision of Indian Banking Companies Act (IBCA). The main non-institutional sources of the agricultural credit are such as moneylenders, friends, relatives, shopkeepers, landlords, traders and government agent.

This chapter is divided into four sections for convenient analysis of the empirical data collected from the samples from the field area of Uttar Pradesh. The first section explains the social development of the agricultural credited farmers. The social standard of living is analysed in term of the basic facilities such as house type,

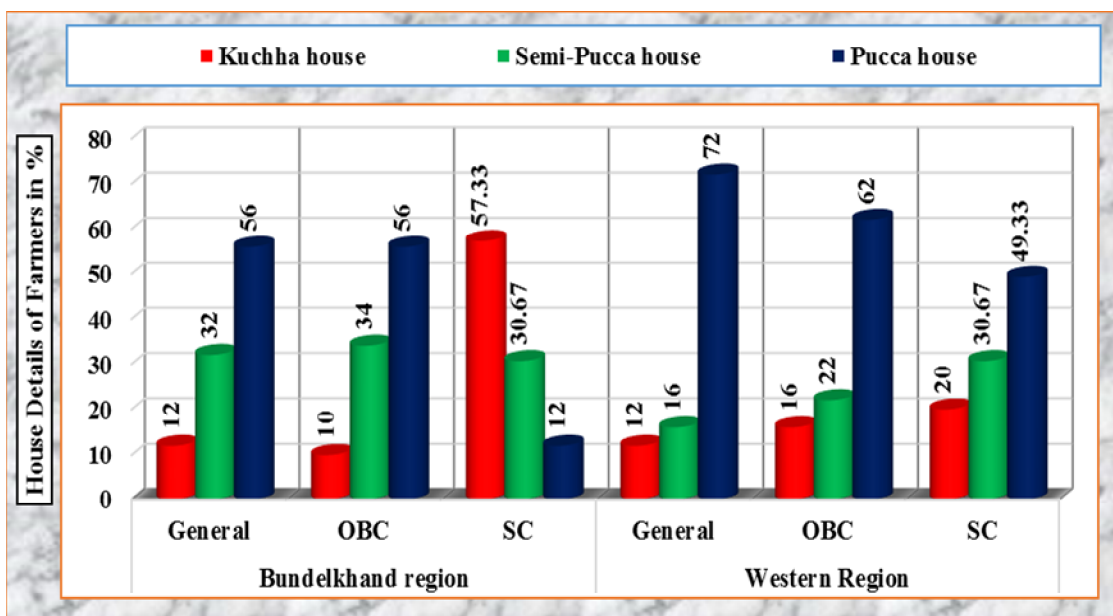
sanitation facility, source of the drinking water, electricity facility, source of the cooking food, vehicle facility, value of live-stock and other durable assets. The second section explains the impact of agriculture credit on socio-economic development of General, OBC and SC small and marginal farmers. The economic development is examined through the several quantitative economic variables such as income, production, consumption, expenditure, poverty, education, total revenue, and total cost of agricultural credit small and marginal farmers. The income of the agricultural credit small and marginal farmers is an average income earned by the agricultural work and non-agricultural work like animal husbandary, remittances, pension, rental income, income from sale of irrigation water, interest, artisan work, business and trade, services and others at state level. Section III has shown the impact of agricultural credit on socio-economic variables of small and marginal farmers. The conclusion and suggestions are presented in Section IV. To analyse the impact of the agriculture credit on small and marginal farmers, we have taken 300 samples of small and marginal farmers in which General category farmers are 50 (16.67 per cent), OBC farmers are 100 (33.33 per cent) and SC farmers are 150 (50.00 per cent) in Uttar Pradesh. We have taken 25 (General), 50 (OBC) and 75 (SC) small and marginal households from the Garhmanu village of Jhansi district of Bundelkhand region. Similarly, we have taken 25 (General), 50 (OBC) and 75 (SC) category small and marginal households from Pipala village of Bulandshahr district of western region. We have taken the samples of those small and marginal households who have taken agricultural credit from formal and informal sources from the villages of both regions of Uttar Pradesh.

VI.1 SOCIAL DEVELOPMENT

The social development of the agricultural credit is analysed in this section. The social status of the small and marginal farmers with the help of the important variables. Table 6.1 and Figure 6.1 reveals that house details of farmers in the year 2015 in both regions of Uttar Pradesh. The figures are shown in absolute and percentage in the brackets. The bar diagram reveals that around 3 (12 per cent), 8(32 per cent) and 14(56 per cent) General farmers were living in kucha house, semi-pucca house and pucca house whereas nearly 5(10 per cent), 17(34 per cent) and 28(56 per cent) OBC farmers were living kucha house, semi-pucca house and pucca house respectively.

Similarly, 43(57.33 per cent), 23(30.67 per cent) and 9(12 per cent) SC farmers were living in kuccha house, semi-pucca house and pucca house during the study period in Bundelkhand region. On the other hand, 3(12 per cent), 4(16 per cent) and 18(72 per cent) General farmers are living in kuccha house, semi-pucca house and pucca house whereas 8(16 per cent), 11(22 per cent) and 31(62 per cent) OBC farmers were living kuccha house, semi-pucca house and pucca house respectively. In the same way, 15(20 per cent), 23(30.67 per cent) and 37(49.33 per cent) SC farmers were living in kuccha house, semi-pucca house and pucca house during the study period in western region. It is clear that there is huge difference between General, OBC and SC farmers house facility in both the regions. Schedule cast farmers are more vulnerable category of farmers in term having pucca house in both the regions. The SC farmers are deprived to take the advantage of the programs and policies in both the regions. It is also found that the SC farmers of western region are more prosperous compared to the SC farmers of Bundelkhand region. Dalit farmers are more social and economically suffering in both the regions while SC farmers of western region are prosperous compared to SC farmers of Bundelkhand region.

Figure 6.1: House Details of Farmers

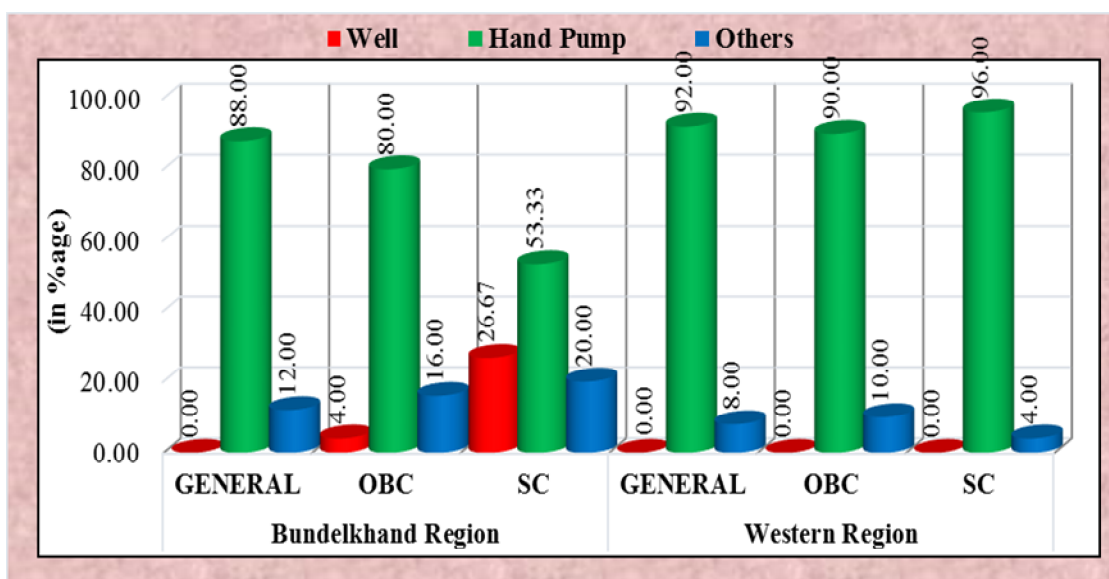


Source: Field Survey Data, 2015

The other very important component of farmer's life is drinking water and source of drinking water of small and marginal farmers. The sources of drinking water of small and marginal farmers are analyzed in Table 6.2 and Figure 6.2. The Figures of the

Table has been presented in absolute number and percentage in brackets. From the bar diagram, it is found that most of the farmers have been used hand pump facility for drinking water during the study period in both the regions. In case of General category farmers, almost 22(88 per cent) used hand pump and 3(12 per cent) used others source for drinking water whereas the used Well for drinking water was negligible during the study period in Bundelkhand region.

Figure 6.2: Source of Drinking Water of Farmers

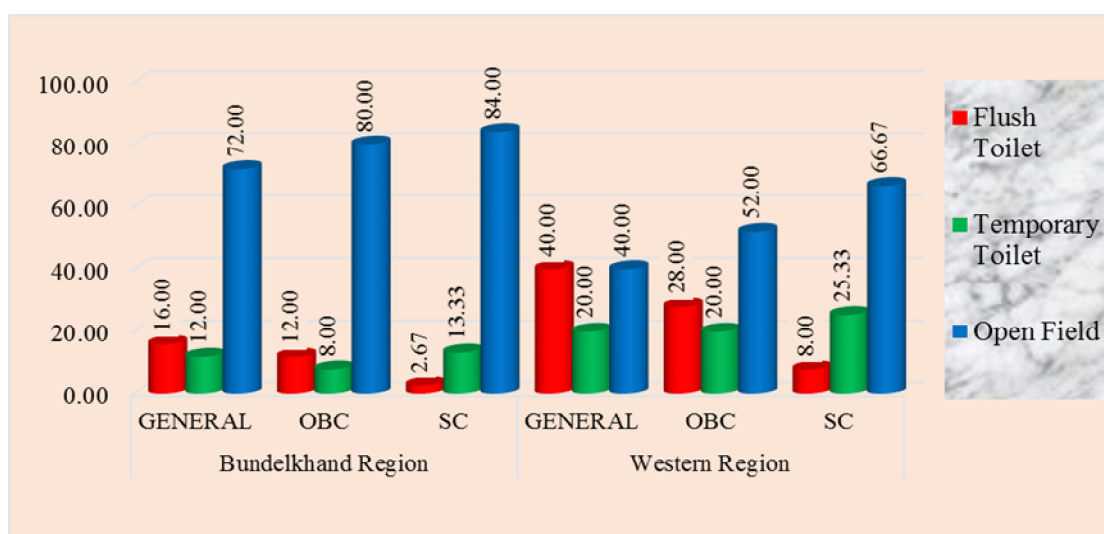


Source: Field Survey Data, 2015

Similarly, around 2(4 per cent), 40(80 per cent) and 8(16 per cent) OBC farmers are used Well, Hand pump, and others sources of drinking water whereas nearly 20(26.67 per cent), 40(53.33 per cent) and 15(20 per cent) SC farmers are used well, Hand pump and others sources of drinking water in Bundelkhand region. On the other hand, the percentage of General farmers used hand pump was 23(92 per cent) whereas 2(8 per cent) used 'others' sources for drinking water. Similarly, 45(90 per cent) and 5(10 per cent) OBC farmers have used hand pump and 'others' sources for drinking water whereas 72(96 per cent), 3(4 per cent) SC farmers used hand pump and 'others' sources for drinking water in western region. It is found from the field survey that the farmers of Bundelkhand region go to around 4 kilometer per day to get safe drinking water. They are also forced to drink the water of pond. Majority of the farmers are drinking unsafe water in Bundelkhand region while the farmers of Western region are better in term of drinking water.

Sanitation facility of the farmers in both the regions of Uttar Pradesh is analysed in Table 6.3 and Figure 6.3. The Table also shows both absolute numbers and percentages in the brackets. The bar diagram of the Table highlights that in the district, there is only three type of sanitation facility prevailing such as flush toilets, temporary and open field toilets. It is found that the use of flush toilet was 4 (16 per cent) in General, followed by 6(12 per cent) in OBC and 2(2.67 per cent) in SC farmers during the study period in Bundelkhand region. On the other hand, the use of flush toilet was around 10 (40 per cent) in General, followed by 14(28 per cent) in OBC and 6(8 per cent) in SC category farmers in western region. Considering temporary toilets facility, it was insignificant in both the region. It is also found that 63(84 per cent) SC farmers used open field toilets during the study period in Bundelkhand region.

Figure 6.3: Source of Sanitation Facility of Farmers

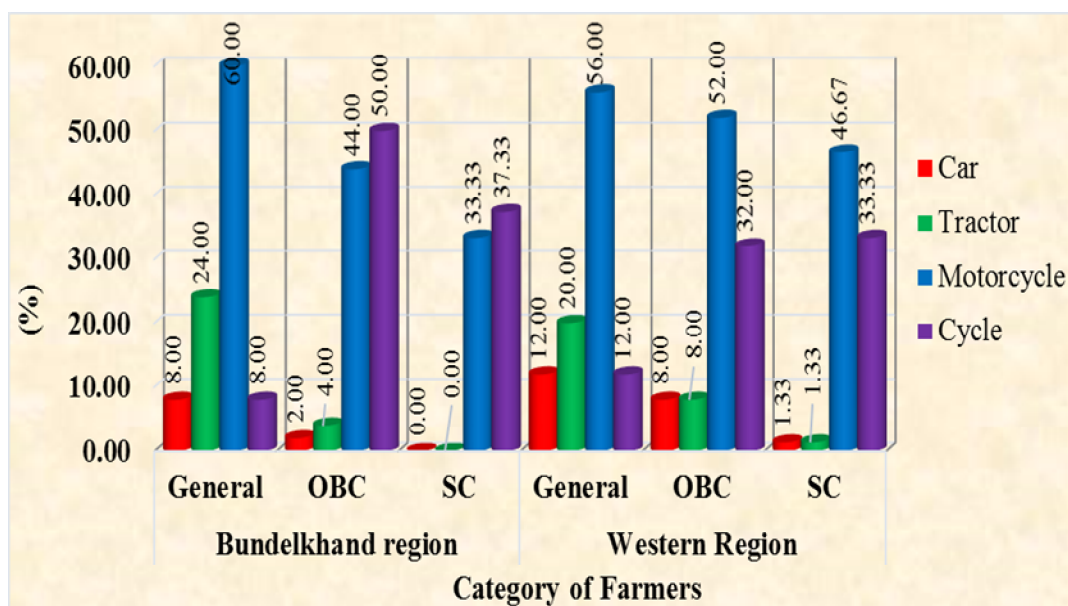


Source: Field Survey Data, 2015

It is observed that the facility of toilets in Western region was impressive compared to Bundelkhand region. On the other hand, it is also noticed that the conditions of the SC farmers was not satisfactory in term of using toilet facility. It is facts that sanitation facility is very vital for the all category of the farmers particularly for women. All the farmers of both the regions are facing very serious problems. There is need to take action at village, state and national level to improve the sanitation facility among the small and marginal farmers.

The percentage of farmers having vehicle facility is analyzed in Table 6.4 and Figure 6.4. The figure has presented the absolute numbers and percentage in the brackets. It is found that around 2(8 per cent) General, followed by 1(2 per cent) OBC have Car whereas the percentage of SC farmers having Car was negligible. In the same way, nearly 6 (24 per cent) General, 2(4 per cent) OBC have tractor in Bundelkhand region. The percentage of General, OBC and SC farmers own Motorcycle was 15(60 per cent), 22(44 per cent) and 25(33 per cent) whereas the percentage of General, OBC and SC farmers own cycle was 2(8 per cent), 25(50 per cent) and 28(37 per cent) during the study period in Bundelkhand region. It is important to note that nearly 30 per cent SC farmers have no any type of vehicle in Bundelkhand region. On the other hand, nearly 3(12 per cent) General, 4(8 per cent) OBC, and 1 (1 per cent) SC farmers have Car in western region. Similarly, nearly 5(20 per cent) General, 4(8 per cent) OBC, 1(1 per cent) SC farmers have tractor in the same region. The percentage of General, OBC and SC farmers own Motorcycle was 14(56 per cent), 26(52 per cent) and 35(46.67 per cent) whereas the percentage of General, OBC and SC farmers own cycle was 3(12 per cent), 16(32 per cent) and 25(33 per cent) during the study period in western region. Nearly, seventeen SC farmers have no any type of vehicle in the western region. Overall, it is found that schedule cast (SC) farmers are very poor in both the regions but SC farmers of western region are rich and prosperous.

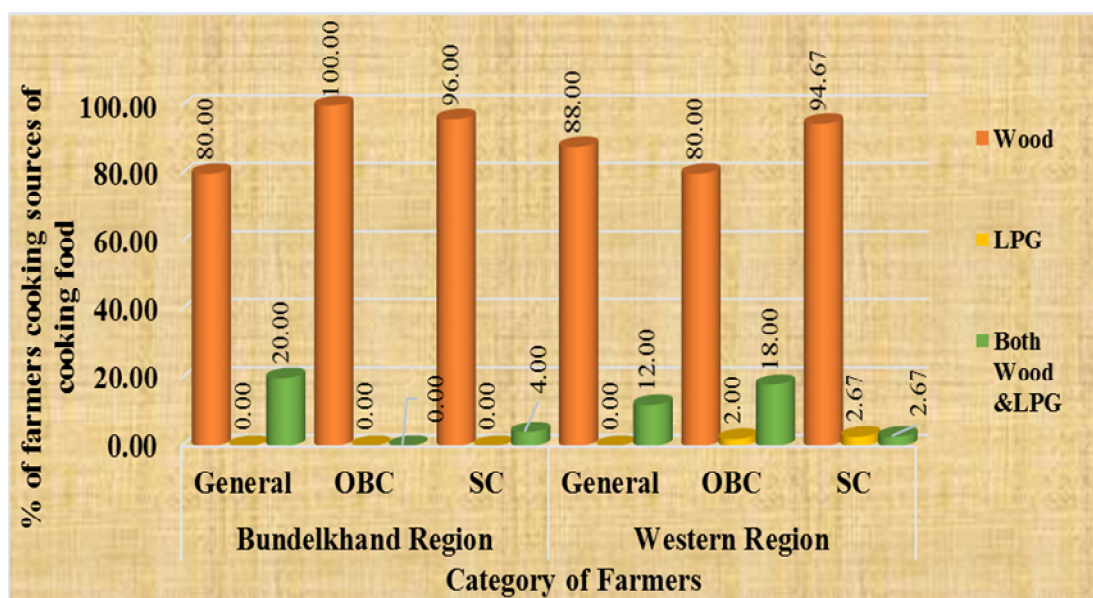
Figure 6.4: Use of Vehicle among Social Groups



Source: Field Survey Data, 2015

Majority of small and marginal farmers are using woods for cooking food in both the regions. The Table 6.5 and Figure 6.5 reveals that the source of cooking food among all social category farmers. The figures of the table have presented in both terms numbers as well as percentage in brackets. The bar diagram explains that the main source of cooking food are like wood, Liquid Petroleum Gas (LPG) and both wood and LPG. The figure highlights that around 20(80 per cent) General, 72(96 per cent) SC, and almost every OBC farmers were using wood for cooking food during the study period in Bundelkhand region. The percentage of the farmers was using LPG for cooking purpose was negligible in Bundelkhand region. Similarly, nearly 5(20 per cent) General, 3(4 per cent) SC farmers were using both wood and LPG for cooking purpose in same region. On the other hand, around 71(95 per cent) SC, 40(80 per cent) OBC and 22(88 per cent) General farmers were using wood for cooking purpose during the study period in of western region whereas nearly 2(3 per cent) SC and 1(2 per cent) OBC farmers were using only LPG while the use of LPG was negligible in General farmers in western region. Similarly, around 2 (3 per cent) SC, 9 (18 per cent) OBC and 3(12 per cent) General farmers were using both wood and LPG in western region.

Figure 6.5: Source of Cooking Food among Social Groups



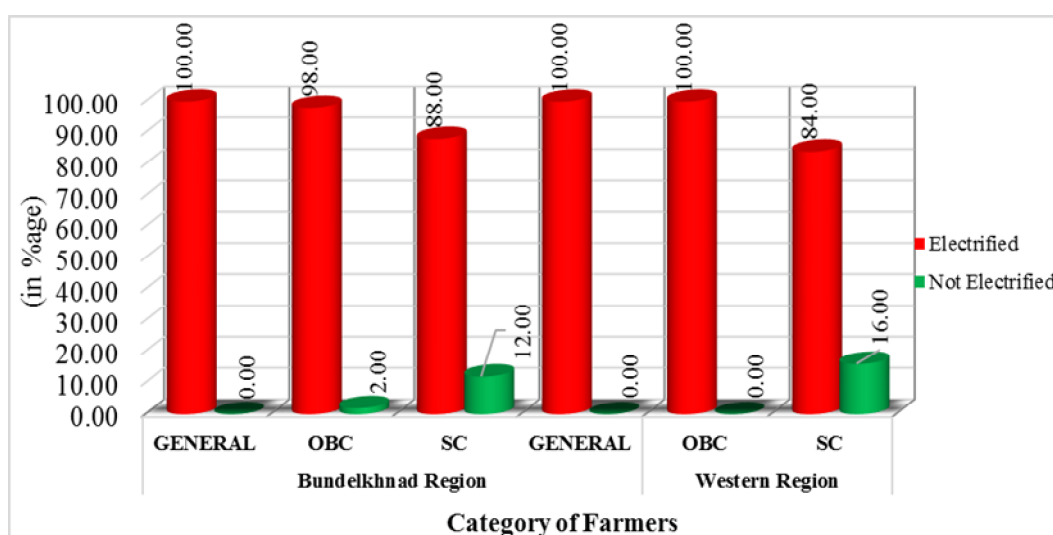
Source: Field Survey Data, 2015

It is clear that majority of the farmers in both the regions was using wood for cooking food and the use of LPG for cooking food was negligible among all categories of

farmers during the study period in both the regions at state level. It is obvious that in the liberalized and modern era, the farmers are using tradition way for cooking food in the state. Cooking food from wood is a decreasing cause of health and increasing indoor population. So, there is need to increase the use of LPG and other eco-friendly sources for cooking purpose at rural level and urban level.

Electricity is important factors to remove the darkness of farmers and brings happiness in the life of farmers. It is also very important component to improve the socio- economic conditions of small and marginal farmers in both regions of Uttar Pradesh. The percentage of farmers having electricity facility is analyzed in Table 6.6 and Figure 6.6. The figure has presented the absolute numbers and percentage in the brackets.

Figure 6.6: Accessibility of Electricity among Social Groups



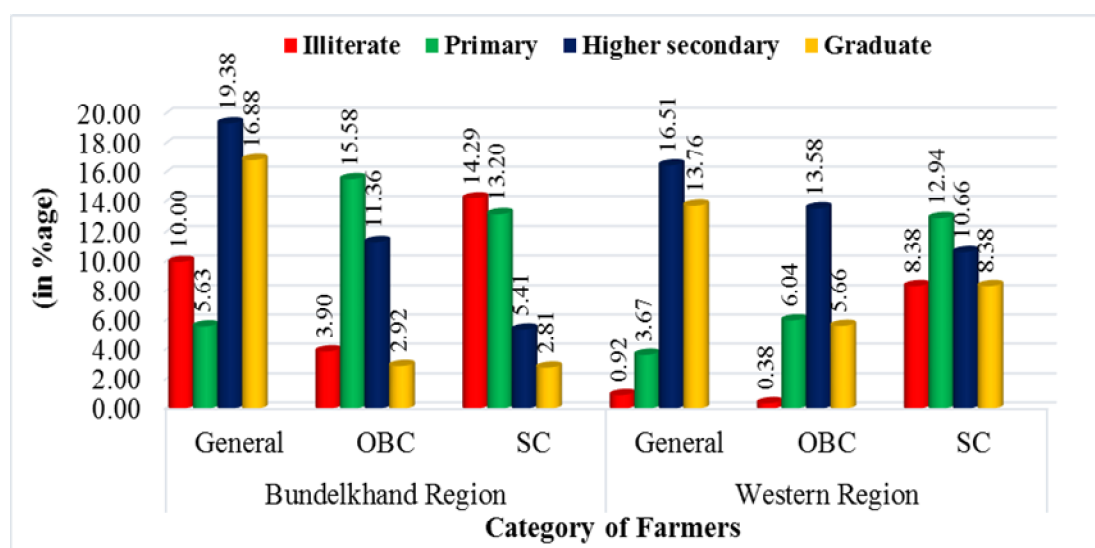
Source: Field Survey Data, 2015

The above bar diagram reveals that the percentage of the OBC and SC farmer's electrified houses was 98(98 per cent) and 88(88 per cent) while every house of General category farmers was electrified in Bundelkhand region. Similarly, around 12(12 per cent) SC farmers and 2(2 per cent) of Other Backward Class (OBC) farmer's houses were not electrified in Bundelkhand region. On the other hand, the percentage of the SC farmer's electrified houses was 84(84 per cent) while General and OBC farmers were fully electrified during study period in western region. Similarly, nearly 16(16 per cent) of SC farmer's houses were not electrified during the study period in western region. It is found that schedule cast farmers were the most vulnerable in term

of accessing the facility of electricity during the study period in both the regions. Majority of SC farmers were living without power connection in both the regions of Uttar Pradesh. The Schedule cast farmers were not in a condition that they can afford the bill of electricity in both the regions. Therefore, there is need to look the policy intervention or to subsidies electricity among the poor sections particularly small and marginal farmers in both the regions.

The Category wise educational level of the households is analyzed in Table 6.7 and Figure 6.7. The figure has presented the absolute numbers and percentage in the brackets. It is found that around 27(16.88 per cent) General, 9(2.92 per cent) OBC farmers, and 13(2.81 per cent) SC farmers were graduate during the study period in Bundelkhand region. On the other hand, nearly 15(13.76 per cent) General, 15(5.66 per cent) OBC, and 33(8.38 per cent) SC farmers were graduate during the same year in western region. It is observed that there were highly fluctuations in the education level of the farmers in both regions. Generally, it is found in the field survey that General and OBC farmers were more literate compared to SC farmers during the study period in both the regions. The conditions of SC farmers were not good. They cannot afford the fees as well as expenditure of education in both the regions.

Figure 6.7: Educational Level among Social Groups



Source: Field Survey Data, 2015

Region wise occupational distribution among the total family members during the study period in both the regions has presented in Table 6.8. The figure in the table has

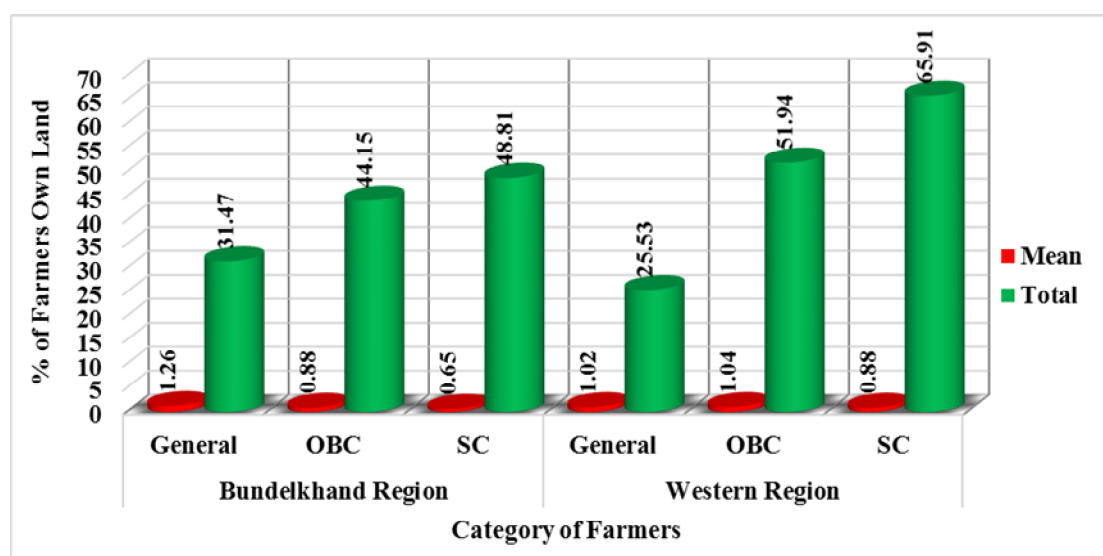
presented in both in absolute numbers and percentage in bracket. It is found that around 5(3.13 per cent) General, followed by 1(0.32 per cent) OBC, and 1(0.22 per cent) SC farmers were working as self-employment while around 42(26.25 per cent) General, followed by 79(25.65 per cent) OBC and 121(26.19 per cent) SC farmers were working in agriculture during the study period in Bundelkhand region. On the other hand, With regards to agriculture labour, around 2(0.65 per cent) OBC and 3(0.65 per cent) SC farmers were working as agriculture labour while it was negligible in General farmers during the same period in same region. The percentage of non-agriculture labour was 3(0.97 per cent) in OBC and 13(2.81 per cent) in SC while was negligible in General farmers. With regards private sector, 2(1.25 per cent) in General, followed by 3(0.97 per cent) in OBC and 8(1.73 per cent) in SC farmers while around 5(3.13 per cent) General, 10(3.25 per cent) OBC and 6(1.30 per cent) SC farmers were working in public sector during the study period in Bundelkhand region. Similarly, 3(0.97 per cent) OBC and 6(1.30 per cent) SC farmers were unemployed while 8(2.60 per cent) OBC and 28(6.06 per cent) SC farmers were working in domestic work during the same period in Bundelkhand region. Regarding western region, the percentage of self-employment was 1(0.92 per cent) in General, followed by 1(0.38 per cent) in OBC, and 2(0.51 per cent) in SC farmers while around 37(34 per cent) General, 69(26 per cent) OBC and 79 (20 per cent) SC farmers were working in agriculture during the study period. On the other hand, around 1(1 per cent) SC farmers were working as agriculture labour whereas the percentage of General and OBC farmers in term of working as agricultural labour was negligible. In the same way, nearly 2(1.0 per cent) OBC and 50(12.69 per cent) SC farmers were working as non-agricultural labour while 4(3.67 per cent) General, followed by 13(5 per cent) OBC and 9(2.28 per cent) SC farmers were working in private sector during the study period. On the other hand, 8(3.34 per cent) General, followed by 9(3.40 per cent) OBC and 6(1.52 per cent) SC farmers were working in public sector while around 5(2 per cent) OBC and 9(2.28 per cent) SC farmers were working in domestic work during the study period. On the other hand, the rest of the General, OBC and SC farmers were working in 'other' works such as cultivators, student, house wife, animal husbandry, trade articians and pensioners during the study period in both the regions. It is observed that there are extensive variations in the occupations of social groups. Majority of the farmers are unemployed due to lack of job opportunities in

Bundelkhand region. Small and marginal farmers are losing their assets and migrating to urban areas for better job opportunities in both the regions.

VI.2 ECONOMIC DEVELOPMENT

This section is analysed the economic development of small and marginal farmers. Table 6.9 and Figure 6.9 shows that land distribution among social groups (in. hectare) during the year 2015 in Uttar Pradesh. The average land of General, OBC and SC farmers was around 1.26 hect, 0.88 hect and 0.65 hect whereas the total land of General, OBC and SC category farmers was nearly 31.47 hect, 44.15 hect and 48.81 hect respectively during the study period in Bundelkhand region. On the other hand, the average land of General, OBC and SC farmers was nearly 1.02 hect, 1.04 hect and 0.88 hect while the total land of General, OBC and SC farmers was around 25.53 hect, 51.94 hect and 65.91 hect during the study period in western region. It is found that there was unequal distribution of land among the social groups during the study period in both the regions. Schedule caste (SC) farmers are the most vulnerable groups in term of having land compared to General and OBC farmers. It is observed that land is basic economic asset but most of the SC farmers in both regions are suffering from unavailability of land. There average land is much smaller than other social groups. The incidence of land leasing is found very high in SC farmers compared to General, OBC and SC farmers in both the regions.

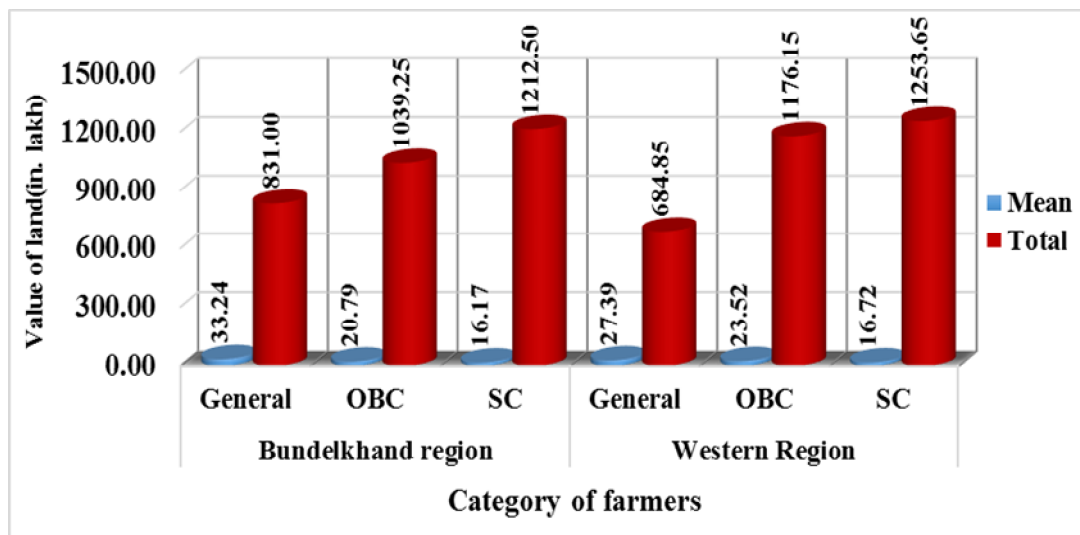
Figure 6.9: Land Distribution among Social Groups (in. Hectare)



Source: Field Survey Data, 2015

Category wise average value of land of small and marginal farmers is analysed in Table 6.10 and also Figure 6.10.

Figure 6.10: Average Value of Land (in. Lakh)

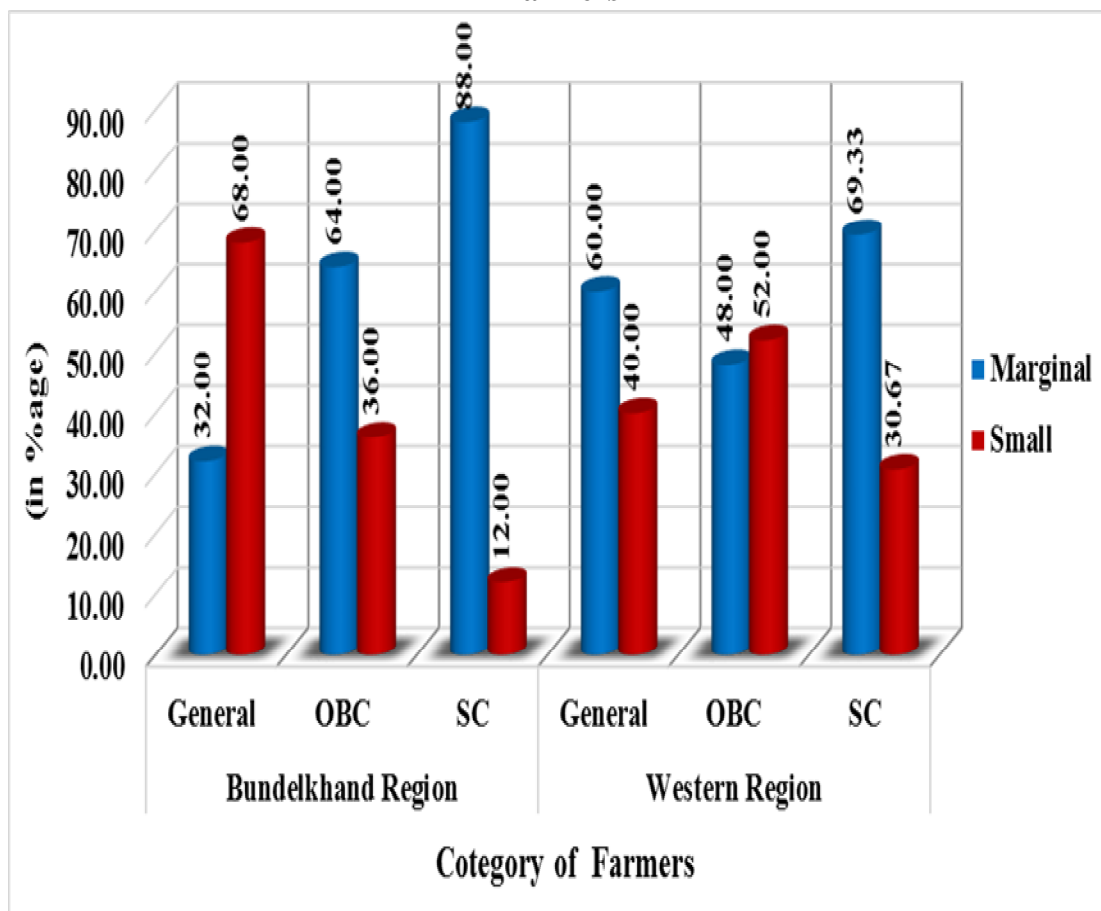


Source: Field Survey Data, 2015

The bar diagram shows that the average value of land of General, OBC and SC farmers was around Rs. 33 lakh, Rs. 21 lakh and Rs. 16 lakh whereas the total value of land in General, OBC and SC farmers was Rs. 831 lakh, Rs. 1039 lakh and Rs. 1212 lakh respectively during the study period in Bundelkhand region. On the other hand, the average value of land among General, OBC and SC farmers was around Rs. 27 lakh, Rs. 23 lakh and Rs.17 lakh whereas the total value of land in General, OBC and SC farmers was around Rs. 684 lakh, Rs. 1176 lakh and Rs.1253 lakh respectively during the study period in western region. It is observed that the average value of land among all social groups had widespread variations during the study period in both the regions.

Small and marginal farmers are playing very important role in the economic development of the state. The category wise small and marginal farmers are analysed in Table 6.11 and Figure 6.11. The figures in the table have presented in both absolute numbers and percentage in brackets. It is found that the percentage of small and marginal farmers in General groups was around 17 (68 per cent) and 8(32 per cent) while small and marginal farmers in OBC groups was 18(36 per cent) and 32(64 per cent) during the study period in Bundelkhand region.

**Figure 6.11: Category wise type of
Farmers**

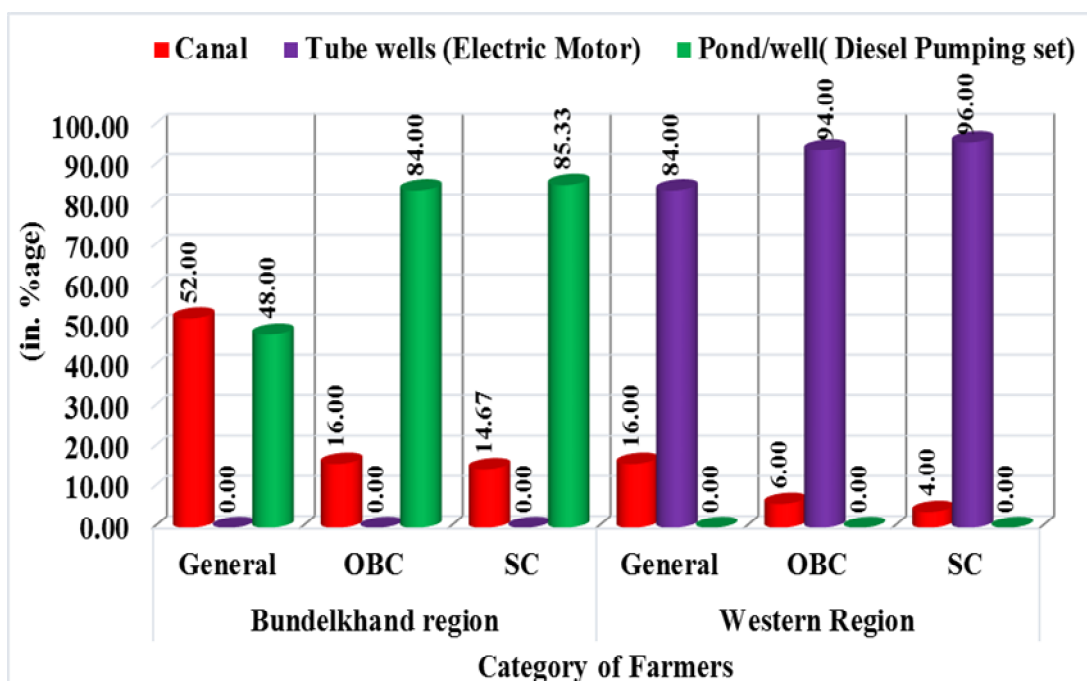


Source: Field Survey Data, 2015

In case of SC farmers, the percentage of small and marginal farmers was 9(12 per cent) and 66(88 per cent) in the same region. On the other hand, the percentage of small and marginal farmers in General category farmers was around 10(40 per cent) and 15(60 per cent), followed by 26(52 per cent) and 24(48 per cent) in OBC farmers while 23(31 per cent) and 52(69 per cent) in SC farmers during the study period in western region. It is facts that marginalization was larger in SC category farmers during the study period in both the regions.

Irrigation is very important factors to increase the productivity of agriculture sector. The source of irrigation of farmers is analyzed in Table 6.12 and Figure 6.12. The figure in the table has presented in both in absolute numbers and percentage in bracket.

Figure 6.12: Source of Irrigation among Social Groups



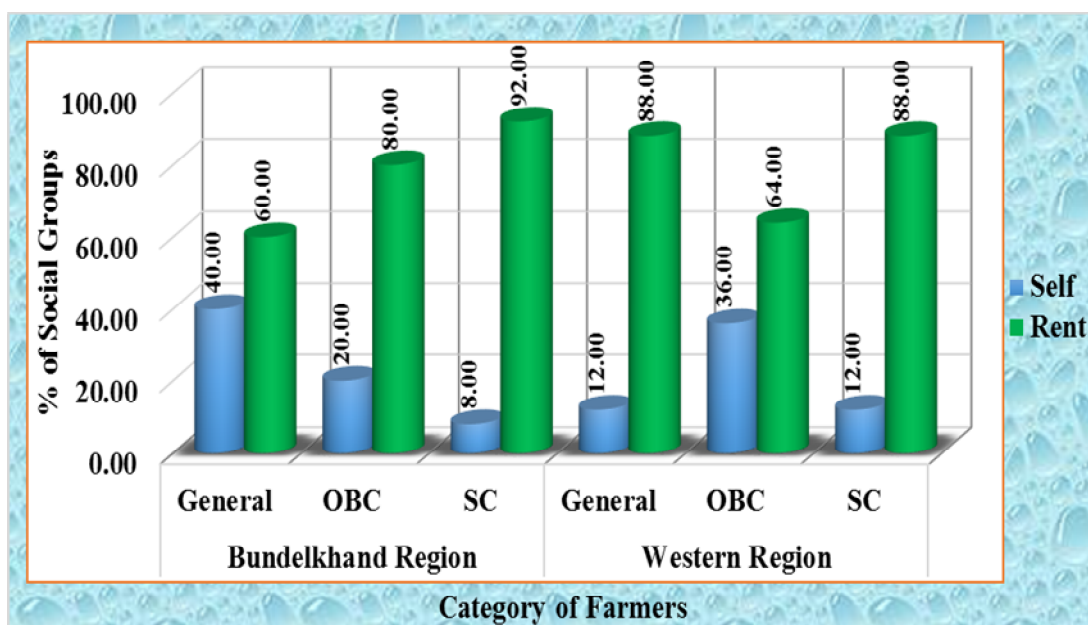
Source: Field Survey Data, 2015

It is found that there was only three types of source of irrigation facility prevailing in both the regions such as canal, tube wells (Electric Motor) and pond/ well (Diesel pumping set). Around 13(52 per cent) General, followed by 8(16 per cent) OBC and 11(15 per cent) SC farmers were using canal for irrigation purpose during the study period in Bundelkhand region whereas 4(16 per cent) General, 3(6 per cent) OBC and 3(4 per cent) SC farmer was using canal for irrigation purpose during the study period in western region. In case of tube wells (electric motor), the percentage of General, OBC and SC farmer was negligible in Bundelkhand region while around 21(84 per cent) General, 47(94 per cent) OBC and 72(96 per cent) SC farmer was using tubewells (electric motor) for irrigation purpose in western region. On the other hand, around 12(48 per cent) General, 42(84 per cent) OBC and 64(85 per cent) SC farmer was using pond/wells (Diesel pumping set) for irrigation purpose during the study period in Bundelkhand region whereas the percentage of General, OBC and SC farmer was using pond/wells (Diesel pumping set) for irrigation purpose was negligible during the study period in western region. It is observed that the source of irrigation among social groups is not sufficient in both the regions. Farmers of Bundelkhand region are using diesel pumping set for irrigation while farmers of western region mostly are using electric motor for irrigation purpose. As results,

farmers of Bundelkhand region are bearing high cost compared to the farmers of western region. On the other hand, western region is highly developed compared to Bundelkhand region. In fact it is clear that SC farmers are most vulnerable in terms of having irrigation facility in both the regions.

The social category wise irrigated land is analysed in the Table 6.13 and Figure 6.13. The figure in the table has presented in both in absolute numbers and percentage in bracket. The bar diagram highlights that in the districts the farmers either using self-input or rental inputs for irrigation purpose.

Figure 6.13: Type of Irrigated Land among Social Groups



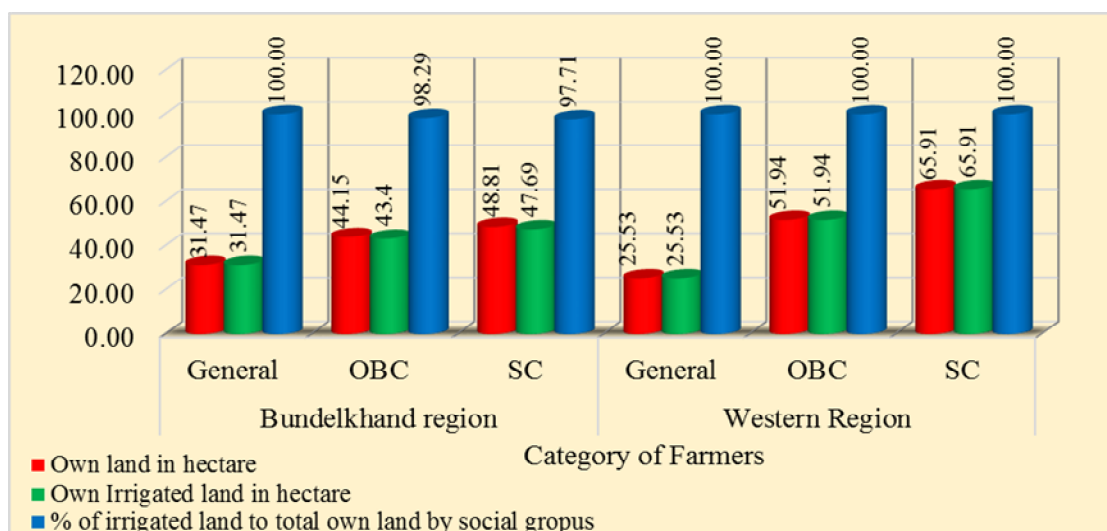
Source: Field Survey Data, 2015

The bar diagram shows that around 10(40 per cent) General, 10(20 per cent) OBC and 6(8 per cent) SC category farmers were using self-resources for irrigation purpose whereas 15(60 per cent) General, 40(80 per cent) OBC and 69(92 per cent) SC farmer was using rental-resources for irrigation purpose in the Bundelkhand region. On the other hand, nearly 3(12 per cent) General, 18(36 per cent) OBC and 9(12 per cent) SC farmer was using self-resources for irrigation purpose whereas 22(88 per cent) General, 32(64 per cent) OBC and 66(88 per cent) SC farmer was using rental-resources for irrigation purpose during the study period in western region. It is observed that farmers are suffering from unavailability of own resources for irrigation purpose. Most of the farmers are using rental inputs for irrigation purpose in both the

regions. General and OBC category farmers are better in term having own inputs for irrigation purpose compared to SC category farmers. On the other hand, it is seen that SC farmers also paying high cost for rental inputs for irrigation purpose in both the regions. There is need to provide modern irrigation inputs at subsidies rate for increasing irrigation facility among farmers basically the Dalit farmers in both the regions of Uttar Pradesh.

The social category wise percentage of irrigated land to total land is analyzed in Table 6.14 and Figure 6.14. It is found that the percentage of irrigated land to total land in OBC and SC farmers was 98 per cent and 97.71 per cent whereas was hundred per cent in General category farmers in Bundelkhand region.

Figure 6.14: Percentage of Irrigated Land to Total Land among Social Groups



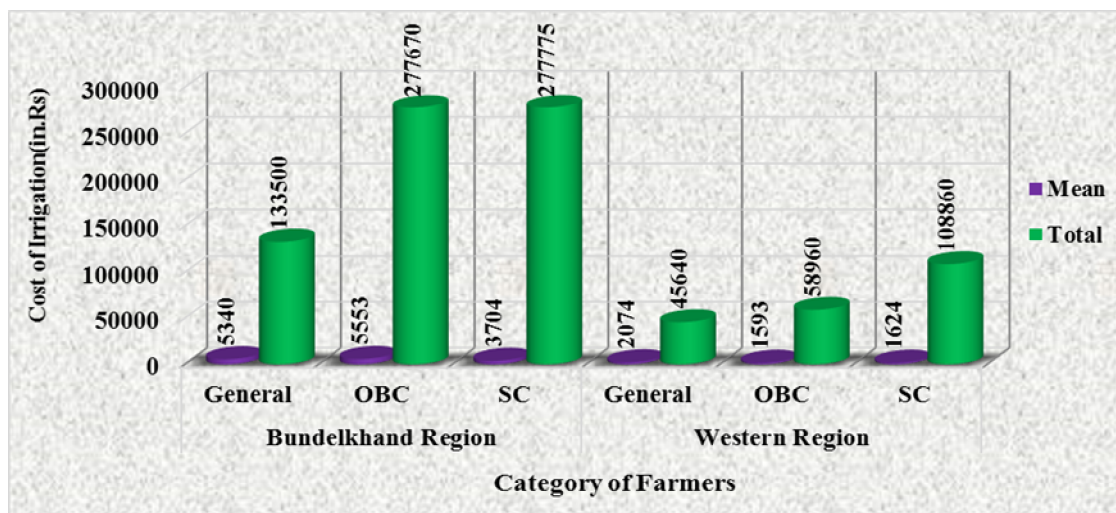
Source: Field Survey Data, 2015

On the other hand, the percentage of irrigated land to total land among General, OBC and SC category farmers was hundred per cent during the study period in western region. It is found that the irrigation facilities of western region is highly rich compared to Bundelkhand region. It is facts that the highly subsidised electricity in western region are increasing the over utilization of ground water which results the depletion of ground water at state level.

Social category wise cost of irrigation is analyzed in the Table 6.15 Figure 6.15. The bar diagram reveals that the total cost of irrigation among General, OBC and SC farmers was nearly Rs. 1.3 lakh, Rs. 2.8 lakh and Rs. 2.8 lakh in Bundelkhand region

whereas the cost of irrigation of General, OBC and SC farmers was nearly Rs. 46 thousand, Rs. 59 thousand and Rs. 1.8 lakh during the study period in western region.

Figure 6.15: Irrigation Cost among Social Groups (in. Rs)



Source: Field Survey Data, 2015

On the other hand, the average (mean) cost of irrigation among General, OBC and SC farmers was Rs. 5340, Rs.5553 and Rs. 3704 in Bundelkhand region while the average cost of General, OBC and SC farmers was Rs. 2074, Rs.1593 and Rs. 1625 in western region. It is observed that there is widespread variation in the cost of irrigation among the social groups in both the regions. With regard to Bundelkhand region, the farmers are affording high irrigation cost compared to the farmers of western region. The average cost of irrigation in General and OBC farmers is high compared to SC farmers in both the regions of Uttar Pradesh. The SC farmers are suffering from lack of irrigation inputs in both region. But SC farmers of western region are using efficient irrigation inputs compared to Bundelkhand regions. There is also various inequalities in the cost of irrigation by social groups in both the regions. There is need to increase improved irrigation technology which reduce the cost of irrigation in the Bundelkhand region.

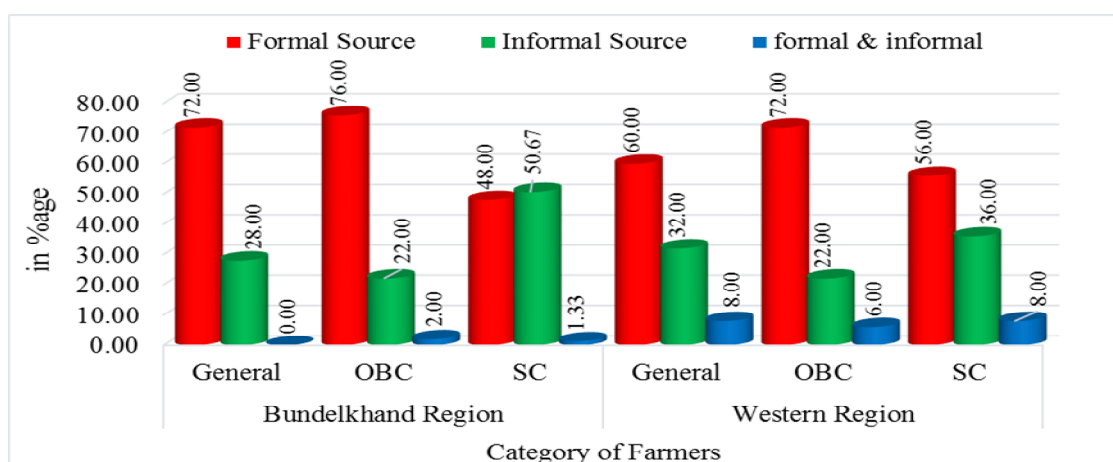
The numbers and percentage of different types of livestock owned by social groups in both the regions are presented in Table 6.16. The table has presented in both in absolute numbers and percentage in bracket. It is found that the numbers of all types of livestock kept by General category farmers were 220, followed by 348 in OBC and 308 in SC farmers in Bundelkhand region whereas the numbers of all types of livestock were 144 in General, followed by 292 in OBC and 540 in SC category

farmers during the study period in western region. It is found that majority of the farmers having cow and Buffalo, but Goat/Sheep, Pigs and Hen/Duck is kept by a few farmers in both the regions. It is note that western region have highest number of all types of livestocks compared to Bundelkhand region.

Agricultural activity is combined with animal husbandry and the farmers keep some milch and work animals. Table 6.17 shows that the average value of different types of livestock owned among social groups in both the regions. It is found that total average value of all types of livestock's was around Rs. 60,280 in General, followed by Rs. 39,800 in OBC and Rs.18,547 in SC farmers in Bundelkhand region whereas Rs. 40,920 in General, Rs. 45,060 in OBC and Rs. 41,360 in SC farmers during the study period in Western region. It is observed that cow and buffalo have accounted highest average value in the total value of livestocks while other types of livestocks have very small average value in the total in both the regions of Uttar Pradesh. The average value of Goat/Sheep, Pigs and Hen/Duck is accounted negligible in both the regions. It is observed that the average value of livestocks varied among all social groups during the study period in both the regions.

Credit has been influencing the growth of agricultural production, productivity and inputs at state level. The source of agricultural credit among social groups is analyzed in the Table 18 Figure 18. The figure in the table has presented in both in absolute numbers and percentage in bracket.

Figure 6.18: Source of Agricultural Credit among Social Groups



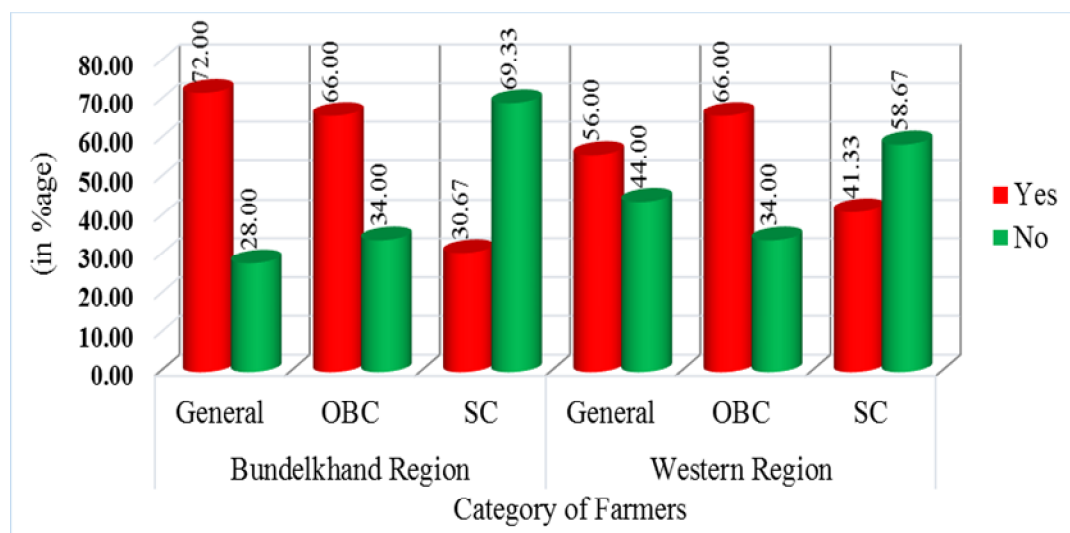
Source: Field Survey Data, 2015

The bar diagram shows that around 18(72 per cent) of General, 38(76 per cent) of OBC and 36(48 per cent) of SC farmers has taken agricultural credit from formal sources in Bundelkhand region whereas 15(60 per cent) of General, 36(72 per cent) of OBC and 42(56 per cent) of SC farmers has taken agricultural credit from formal sources in western region. On the other hand, nearly 7(28 per cent) of General, 11(22 per cent) of OBC and 38(51 per cent) of SC farmers has taken agricultural credit from informal sources in Bundelkhand region whereas 8(32 per cent) of General, 11(22 per cent) of OBC and 27(36 per cent) of SC farmers taken agricultural credit from informal sources during the study period in western region. In case of formal and informal sources, around 1(2 per cent) of OBC and 1(1 per cent) of SC farmers has taken agricultural credit in Bundelkhand region and negligible in General groups in the same regions. With regards to western region, around 2(8 per cent) of General, 3(6 per cent) of OBC and 6(8 per cent) of SC farmers has taken agricultural credit from both formal and informal sources during the study period. The figures reflects that more than half SC farmers have taken agricultural credit from the informal sources of Bundelkhand region while SC farmers are better in western region. It is also observed that the percentage of SC farmers has taken agricultural credit from formal sources was less than General and OBC farmers during the study period in both the regions. The conditions of SC farmers are very miserable in both the regions in term of accessing banking facility. Banks are not properly supporting to Schedule cast (SC) farmers due to lack of collateral security in both the regions. Therefore, mostly SC farmers are taking agricultural credit from informal sources and suffering from high rate of interest. It is found that due to exploitive nature of the informal sources, SC farmers are selling their land and becoming landless or migrating to rural to urban areas for better livelihoods.

The percentage of repaying capacity of agricultural credit among social groups has shown in Table 6.19 and Figure 6.19. The figure in the table has presented in both in absolute numbers and percentage in bracket. It is found that around 18(72 per cent) General, 33(66 per cent) OBC and 23(31 per cent) SC farmers was able to repay the credit in Bundelkhand region whereas nearly 14(56 per cent) General, 33(66 per cent) OBC and 31(41per cent) SC farmers was able to repay the agricultural credit in western region respectively. On the other hand, it is observed that more than half SC farmers were not able to repay the credit during the study period in both the regions.

But SC farmers of western region are better than Bundelkhand region. The figures also reflect that the ability to repay credit of the SC farmers was worst compared to General and OBC farmers in both the regions of the state. There is need to make effective programmes and policies at regional and national level to improve the conditions of schedule caste farmers.

Figure 6.19: Repaying Capacity of Agricultural Credit among Social Groups



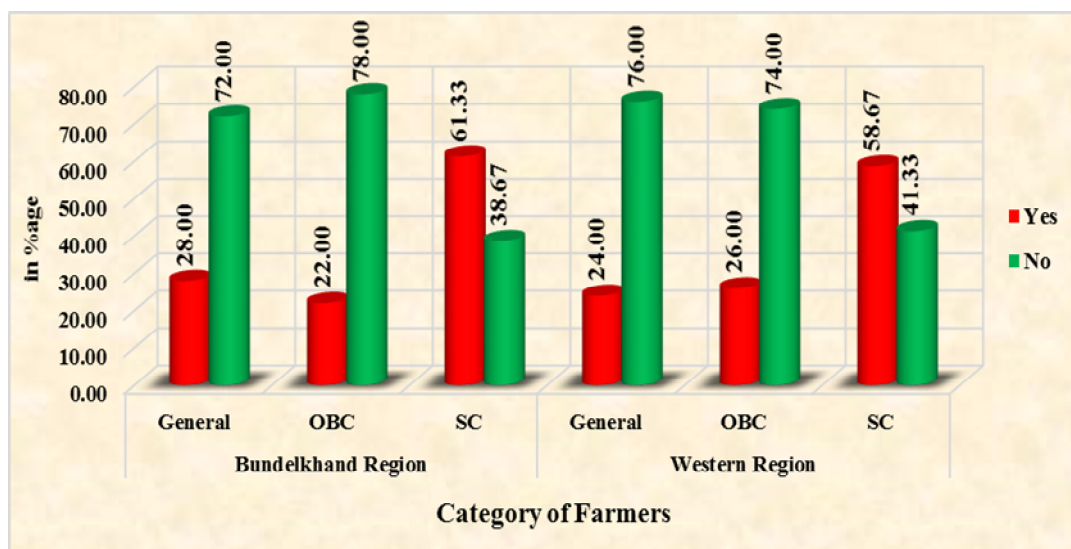
Source: Field Survey Data, 2015

The main cause of social groups does not repay the agricultural credit during the study period in both the regions is presented in Table 6.20. The figure in the table has presented in both in absolute numbers and percentage in bracket. It is found that nearly 16(94.12 per cent) OBC farmers said that harvest failure and low productivity are the main cause of not repay the credit whereas 1(6 per cent) OBC farmers said that only low productivity is the main cause of not repay the credit. But the General and SC farmers said that only harvest failure and low productivity are the main cause of not repay the credit in Bundelkhand region. On the other hand, about 1(9 per cent) General, 4(23 per cent) OBC and 6(13.64 per cent) SC farmers were in the favour of harvest failure whereas 6(54 per cent) General, 13(76 per cent) OBC and 28(64 per cent) SC farmers were in the favour of the low productivity in western region. Nearly, 2(4 per cent) SC farmers were agreed that charge high rate of interest is the main cause not to repay the credit in western region. In the same way around 3(27 per cent) General and 6(14 per cent) SC farmers accepted that both harvest failure and low productivity is the main cause of not to repay the credit in western region. It is

observed that most of the farmers are agreed that harvest failure, low productivity or both are the main cause not to repay the credit in both the regions. It is also observed from the field survey that the farmers of Bundelkhand region are highly suffering from harvest failure and low productivity compared to western region farmers.

The social category wise percentage of action charged by bank if farmers fail to repay the credit has been analyzed in the Table 6.21 and Figure 6.21.

Figure 6.21: Banks Actions among Social Groups

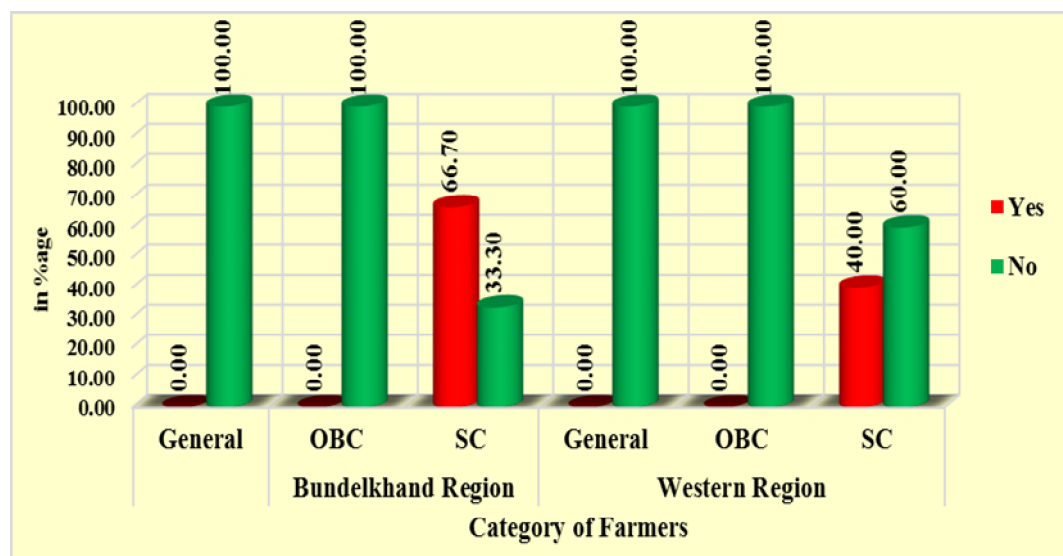


Source: Field Survey Data, 2015

The figure in the Table has presented in both in absolute numbers and percentage in bracket. The bar diagram shows that around 7(28 per cent) General, 11(22 per cent) OBC, and 46(61.33 per cent) SC farmers said that banks take action if farmers fail to repay the credit in Bundelkhand region. Similarly, about 18(72 per cent) General, 39(78 per cent) OBC, and 29(38.67) per cent SC farmers said that banks do not take action if farmers fail to repay the credit at time in the same region. On the other hand, nearly 6(24 per cent) General, 13(26 per cent) OBC, and 44(58.67) per cent SC farmers said that banks take action if farmers fail to repay the credit in the western region. Similarly, 19(76 per cent) General, 37(74 per cent) OBC, and 31(41.33 per cent) SC farmers said that banks do not take action if farmers fail to repay the credit at time in same region. It is observed that mostly banks take action against the schedule caste farmers while General and OBC farmers get relief from the banks in both the regions.

The percentage of farmer's was suffering from discrimination in sanctioning credit by banks is analyzed in Table 6.22 and Figure 6.22. The figures in the table has also shown in both in absolute numbers and percentage in bracket.

Figure 6.22: Discrimination by Banks during Sanctioning Credit among Social Groups



Source: Field Survey data, 2015

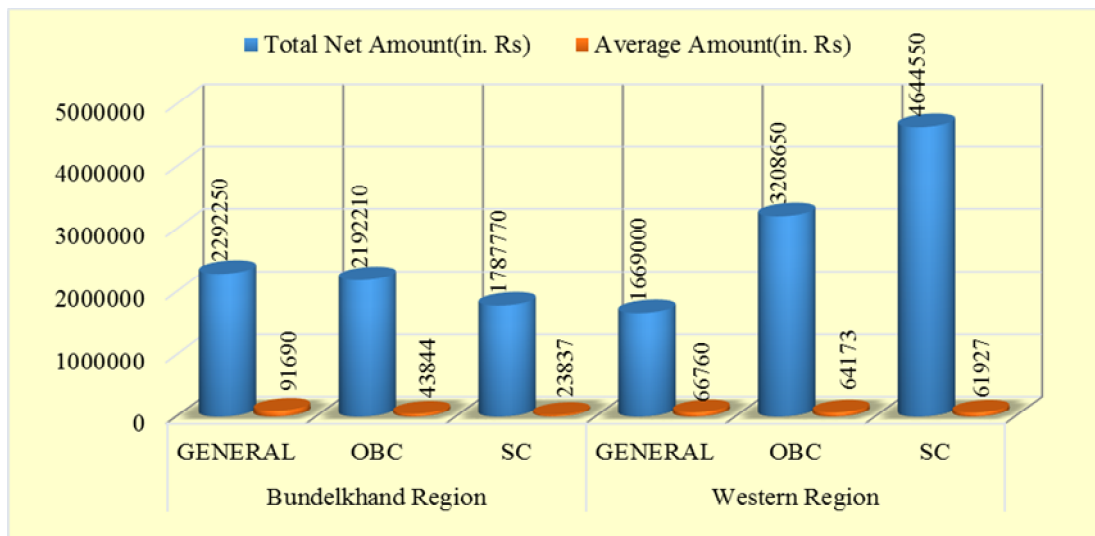
It is found that around 50(66 per cent) SC farmers were saying that banks follow discrimination in sanctioning credit whereas the percentage of General and OBC farmers were negligible during the study period in Bundelkhand region. On the other hand, about 30(40 per cent) SC farmers were accepting that banks follow discrimination in sanctioning credit while 45(60 per cent) SC farmers accepted that banks do not follow discrimination in sanctioning credit during study period in western region. But General and OBC farmers said that banks do not follow discrimination among social groups in sanctioning credit in western region. In facts, it is noticed that mostly banks follow discrimination with the poor or SC farmers in sanctioning credit in both the regions. Western regions banks follow less discrimination during sanctioning credit due to better accessibility of financial services compared to the banks of Bundelkhand region.

The flow of average agricultural credit per household farmers has been shown in Table 6.23. It is found that the average agricultural credit flow in General farmers was Rs. 74,760 by commercial banks, Rs. 16,000 by moneylenders and Rs.1600 by relatives while was negligible by co-operative banks and friends during the study

period in Bundelkhand region. In the same way, the flow of average agricultural credit in OBC farmers was Rs. 2000 flow by co-operative banks, Rs. 37,360 by commercial banks, Rs. 4700 by moneylenders, followed by Rs. 300 by friends and Rs.120 by relatives in the same region. With regards to SC farmers, the flow of average agricultural credit was Rs. 133 by co-operative banks, followed by Rs. 17173 from commercial banks, Rs. 5108 by moneylenders, Rs. 1000 from friends and Rs. 840 by Relatives during the study period in Bundelkhand region. On the other hand, the flow average agricultural credit in General farmers was Rs. 1600 by Co-operative banks, followed by Rs. 57000 from commercial banks, Rs. 2520 by moneylenders, Rs. 4840 by friends and Rs. 1800 by Relatives during the study period in the western region. Considering, the flow of average agricultural credit in OBC farmers was Rs. 2170 by co-operative banks, Rs. 57580 by commercial banks, with Rs. 3600 from moneylenders, Rs. 600 by friends and Rs. 1600 by relatives in the same region. In case of SC farmers, the flow of average agricultural credit was Rs. 333 by co-operative banks, Rs 47947 by commercial banks, with Rs. 13600 from moneylenders, Rs. 973 by friends and Rs.267 from relatives in western region. Overall, it is observed that the flow of average agricultural credit from formal sources among SC farmers was less than General and OBC farmers in both the regions. The social groups like General and OBC are taking the benefit of agricultural credit due to large land holdings as well as better socio-economic conditions during the study period in both the regions of Uttar Pradesh.

The flows of agricultural credit (excluding cost) among social groups are analyzed in Table 6.24 and Figure 6.24. It is found that the total net amount and average amount of agricultural credit flowed among farmers in both the regions as the flow of net agricultural credit in General, OBC and SC farmers was Rs. 22, 92,250, Rs. 21, 92,210 and Rs. 17, 87,770 while the average amount was Rs. 91690 in General, followed by Rs. 43844 in OBC and Rs. 23837 in SC farmers during the study period in Bundelkhand region. On the other hand, the net agricultural credit flows among General, OBC and SC Farmers was Rs. 16, 69,000, Rs. 32, 08,650 and Rs. 46, 44,550 whereas the average amount was Rs. 66760, Rs. 64173 and Rs. 61927 respectively during the study period in the western region.

Figure 6.24: Flow of Agricultural Credit among Social Groups

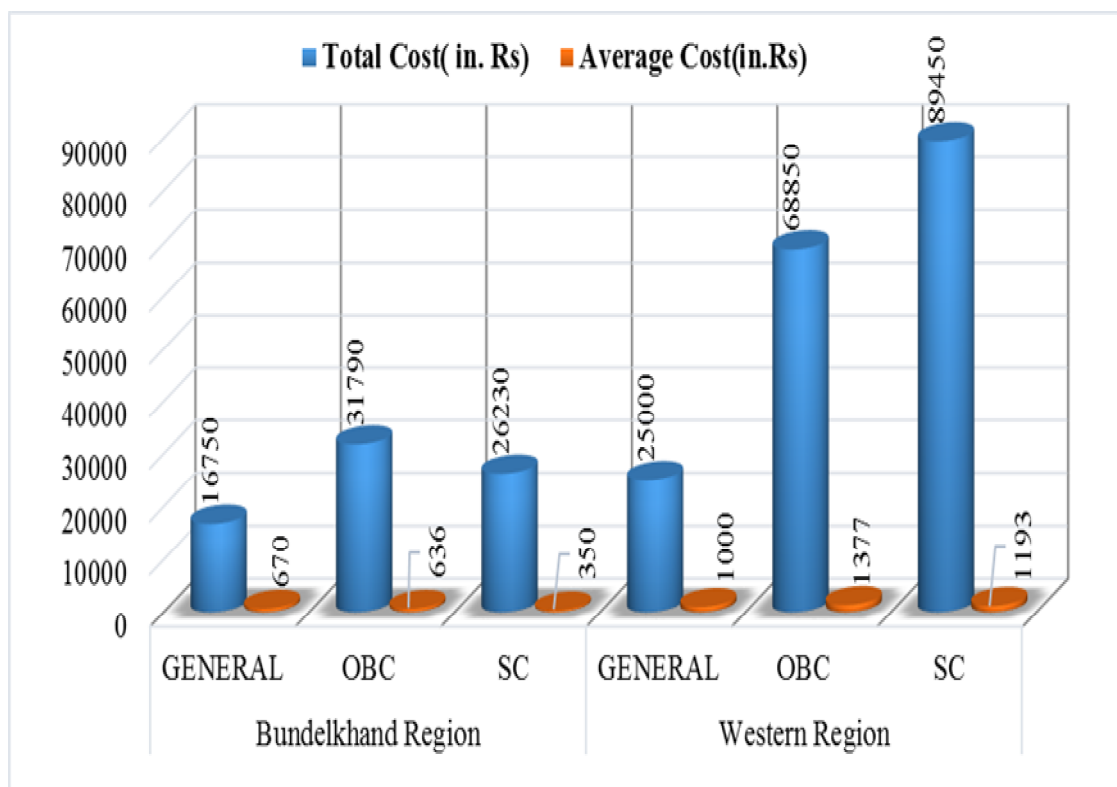


Source: Field Survey Data, 2015

It is observed that the flow of agricultural credit was not impressive to meet the demand of the farmers in Bundelkhand region. Considering Bundelkhand region, farmers are suffering from lack institutional credit due to lack of bank branches in rural areas. It is facts that bank branches are situated about 10 Kilometer from the village in Bundelkhand region. Therefore, farmers are taking agricultural credit from non-intuitional sources and suffering from high rate of interest and malpractices. On the other hand, the conditions of SC farmers are very poor. Banks behavior are mostly against SC farmers due to socio-economic background. They have been discriminating by the banks. From the analysis, the average amount of agricultural credit among SC farmers was less than General and OBC farmers during the study period in Bundelkhand region while the farmers of western region are prosperous compared to Bundelkhand farmers. In both the regions, SC farmers are most vulnerable in term of accessing the facility of agricultural credit compared to General and OBC farmers.

The category wise cost incurred during sanctioning agricultural credit during the year 2015 in both the regions has presented in Table 25 and Figure 6.25. It is found that the cost incurred during the sanctioning agricultural credit among General, OBC and SC farmers was Rs. 16,750, Rs. 31,790 and 26,230 during the study period in Bundelkhand region.

Figure 6.25: Cost incurred during Sanctioning Agricultural Credit



Source: Field Survey Data, 2015

On the other hand, the cost incurred during the sanctioning agricultural credit among General, OBC and SC farmers was Rs. 25,000, Rs. 68,850 and Rs. 89,450 in the western region. In case of average cost per households, was, Rs. 670 in General, followed by Rs. 636 in OBC and Rs. 350 in SC farmers in Bundelkhand region. Regarding western region, the average cost of agricultural credit during transaction was around Rs. 1000 in General, followed by Rs. 1377 in OBC and Rs. 1193 in SC farmers during the study period in western region. It is observed that the cost of agricultural credit during transaction has widespread variation during the study period in both the regions. It is fact that schedule cast farmers are affording high cost due to lack of co-operation of the banks. The banks are mostly in the favour of General and OBC farmers in both the regions. Schedule cast farmers expend more money in term of bribe to receive the agricultural credit from the banks in both the regions.

The social category wise flows of agricultural credit from formal and informal sources are presented in Table 6.26 and Figure 6.26. The figure in the Table has presented in both in absolute numbers and percentage in bracket It is found that the

flow of agricultural credit in General farmers was 80.94 per cent from commercial banks, followed by 17.32 per cent from money lenders and 1.73 per cent from relative while the share of co-operative banks and friends was stagnant during the study period in Bundelkhand region. With regards to OBC farmers, the share of agricultural credit was 4.50 per cent from co-operative banks, followed by 84 per cent from commercial bank, 10.57 per cent from money lenders, 0.67 per cent from friends and 0.27 per cent from relatives. In case of SC farmers, the percentage of credit disbursement was 0.55 per cent by cooperative banks, 71 per cent from commercial banks, around 21 per cent from money lenders, 4.13 per cent by friends, and 3.47 per cent from relatives during the study period in Bundelkhand region. On the other hand, the flow of agricultural credit among General farmers was 2.36 per cent from co-operative banks, followed by 84.12 per cent by commercial banks, 3.72 per cent from money lenders, 7.14 per cent by friends and 2.66 per cent from relatives during the study period in the western region. Regarding OBC farmers, the share of agricultural credit disbursed by co-operative banks was 3.31 per cent, followed by 88 per cent from commercial bank, 5.49 per cent by money lenders, 0.92 per cent from friends and 2.44 per cent by relatives in the same region. In case of SC farmers, the flow of agricultural credit was 0.53 per cent from cooperative banks, around 76 per cent from commercial banks, 21.55 per cent by money lenders, 1.54 per cent from friends and 0.42 per cent by relative during the study period in the western region. It is observed that Schedule cast farmers are highly deprived to take credit from formal sources compared to General and OBC farmers in both the regions. There is extensive variation among social groups in term of agricultural credit disbursed by formal and informal sources during the study period in both the region. However, the farmers of western regions are highly advantageous in term of accessing agricultural credit as well as financial services in western region.

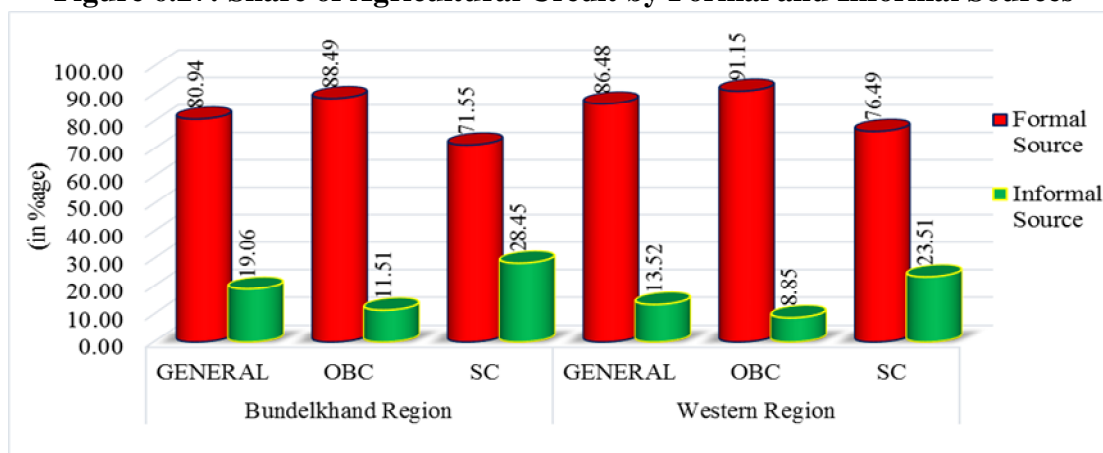
The flow of agricultural credit by co-operative banks was 90.91 per cent in OBC and 9.09 per cent in SC farmers while negligible in General farmers during the study period in Bundelkhand region. With regards to commercial banks, the flow of agricultural credit was 37.19 per cent in General, followed by 37.17 per cent in OBC and 25.63 per cent in SC farmers in the same region. Considering moneylenders, the share of General category farmers was 39.49 per cent, followed by 23.20 per cent in OBC and 37.31 per cent in SC farmers during the study period. In case of friends, the

flow of agricultural credit was 16.67 per cent in OBC and followed by 83.33 per cent in SC category farmers while negligible in General farmers in Bundelkhand region. Similarly, the share agricultural credit disbursed by relatives was 36.70 per cent in General, followed by 5.50 per cent in OBC and 57.80 per cent in SC farmers during the study period in Bundelkhand region.

With regards to western region, the share of credit flow by co-operative banks in General, OBC and SC farmers was around 23.05 per cent, 62.54 per cent and 14.41 per cent during the study period. Considering commercial banks, the flow of credit in General, OBC and SC farmers was 18.04 per cent, 36.44 per cent and 45.52 per cent during the same period while the share of moneylenders was 5 per cent in General, followed by 14.25 per cent in OBC and 80.76 per cent in SC category farmers. Considering friends, the share of agricultural credit in General category farmers has accounted 54.02 per cent, followed by 13.39 per cent in OBC and 32.59 per cent in SC farmers. The percentage of agricultural credit disbursed by relatives was 31.03 per cent in General, followed by 55.17 per cent in OBC and 13.79 per cent in SC category farmers during the study period in the western region. Overall from the analysis, it is observed that the flow of agricultural credit was highly impressive in General and OBC farmers while SC category farmers was most vulnerable to take the advantage of agricultural credit in both the regions. The state should explore the effective mechanism to increase the availability of credit as well as to reduce the regional inequalities among social groups at state level.

The social category wise flow of agricultural credit by formal and informal sources to total agricultural credit has been analyzed in Table 6.27 and Figure 6.27. It is found that the share of agricultural credit disbursed was 80.94 per cent from formal sources and 19.06 per cent from informal sources in General category farmers during the study period in Bundelkhand region. With regards to OBC farmers, the share of formal and informal sources was 88.49 per cent and 11.51 per cent while the share of agricultural credit disbursed by formal and informal sources was 19.06 per cent and 11.51 per cent in SC category farmers in the same region.

Figure 6.27: Share of Agricultural Credit by Formal and Informal Sources

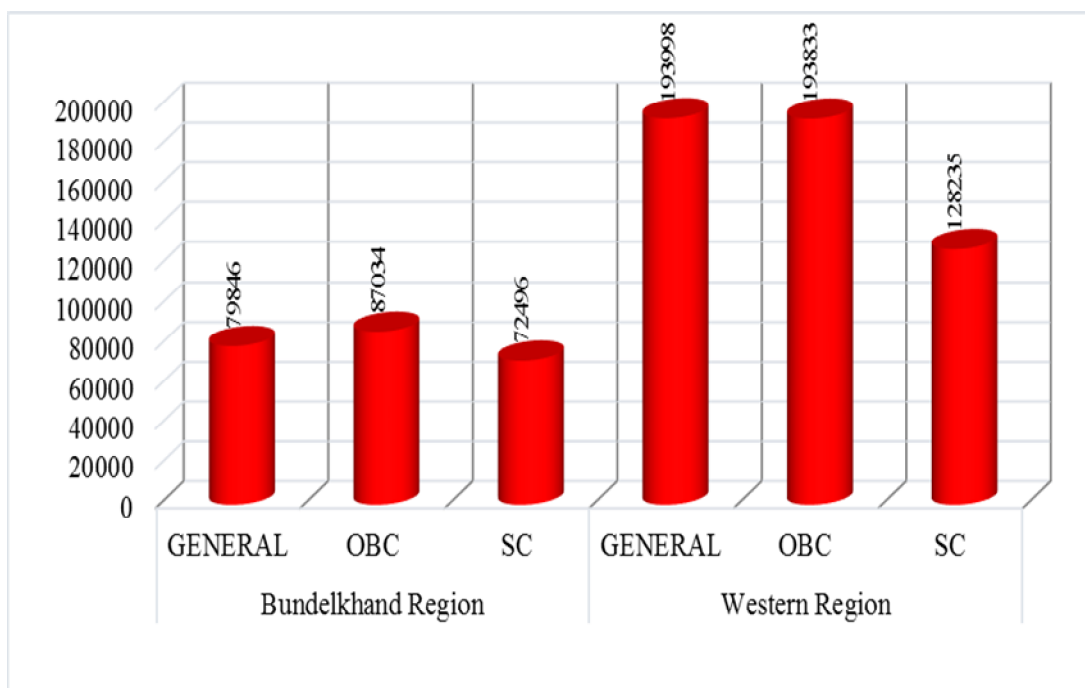


Source: Field Survey Data, 2015

On the other hand, the share of formal sources was 86.48 per cent in General, followed by 91.15 per cent in OBC, and 76.49 per cent in SC category farmers while the share of informal sources was 13.52 per cent in General, 8.85 per cent in OBC, and 23.51 per cent in SC category farmers during the study period in the western region. It is observed that the share agricultural credit of formal sources in western region was higher compared to Bundelkhand region during the study period. Majority of the farmers are taking agricultural credit from non-institutional sources in both the regions. Schedule cast farmers are most miserable because majority of SC farmers are taking credit from informal sources in both the regions. But the flow of agricultural credit by informal sources among schedule cast farmers of western region was lower compared to schedule cast of Bundelkhand region. There is need to expand the bank branches and change the strategy of banks among SC farmers in both the regions of Uttar Pradesh.

The social category wise average annual incomes from all sources are analyzed in Table 6.28 and also Figure 6.28. It is found that the average annual income of General, OBC and SC farmers was Rs.79, 846, Rs. 87,034 and Rs. 72,496 during the study period in Bundelkhand region. On the other hand, the average income was Rs. 1, 93,998 in General, Rs. 1, 93,833 in OBC and Rs. 1, 28,235 in SC category farmers in western region. It is observed that the average income of General and OBC was higher than the average income of SC farmers whereas the average income of western region farmers was higher compared to average income of Bundelkhand region farmers.

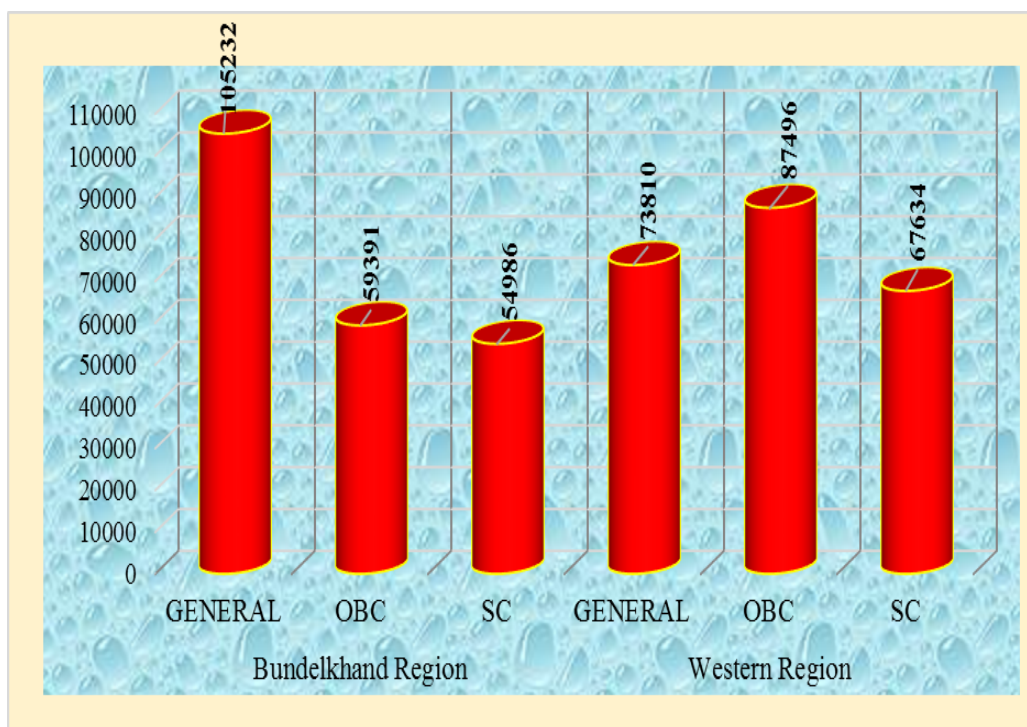
Figure 6.28: Average Annual Income from All Sources (in. Rs)



Source: Field Survey Data, 2015

The annual average expenditure of social groups in the regions of Uttar Pradesh are analyzed in Table 6.29 and Figure 6.29. It is found that the annual average expenditure of General farmers was Rs. 1, 05,232, followed by Rs. 59,391 in OBC and Rs. 54,986 in SC farmers during the study period in Bundelkhand region. On the other hand, the annual average expenditure among General, OBC and SC farmers was Rs. 73,810, Rs. 87,496 and Rs. 67,634 during the same period in the western region. Overall, it is observed that the annual average expenditure of social group's i.e. General, OBC and SC farmers of western region was higher compared to Bundelkhand region. It is noticeable that the average expenditure of schedule cast (SC) farmers was lower compared to General and OBC farmers in both the regions. There is need to increase employment and income opportunities particularly for marginalized farmers at state level.

Figure 6.29: Average Annual Expenditure of Farmers (in Rs)

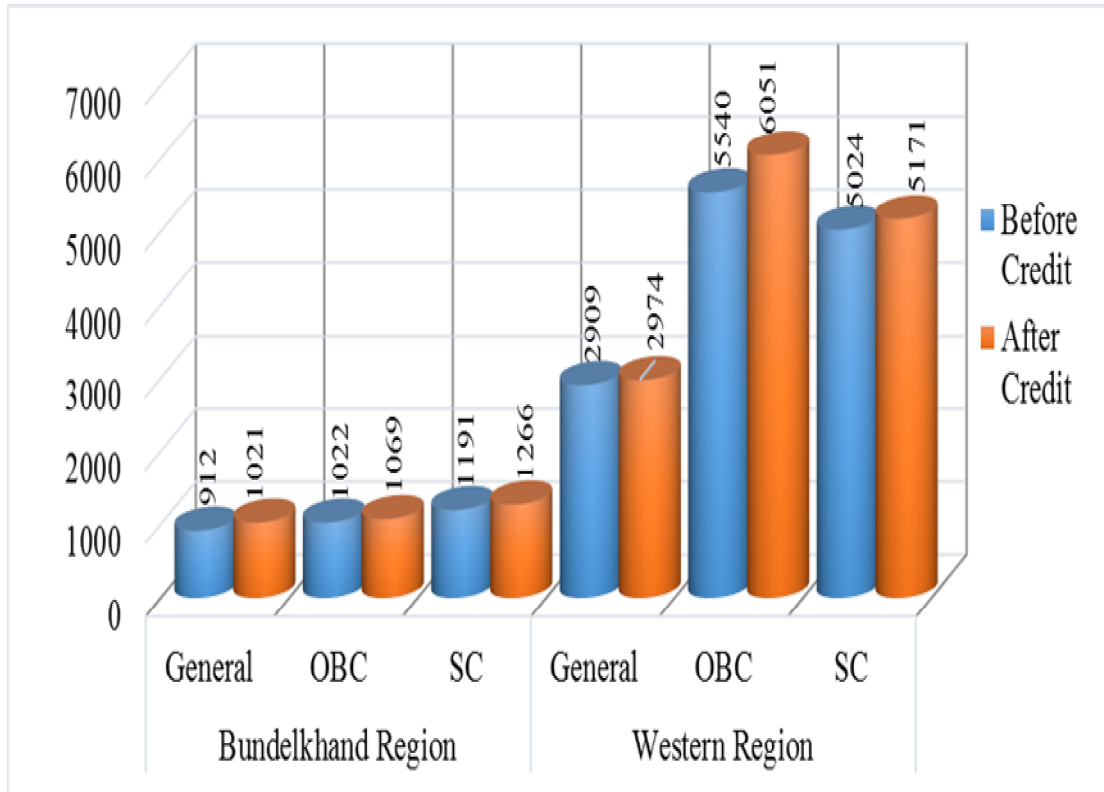


Source: Field Survey Data, 2015

VI.3 IMPACT OF AGRICULTURAL CREDIT ON SOCIO-ECONOMIC VARIABLES OF SMALL AND MARGINAL FARMERS

Agricultural credit influences the socio-economic variables of small and marginal farmers at state level. The productions of agriculture from all crops among social groups are analyzed in Table 6.30 and Figure 6.30. It is found that the total agriculture production was 912 quintals in General, 1022 quintal in OBC, followed by 1191 quintals in SC farmers during without taking credit while it became 1021 quintals in General, followed by 1069 quintals in OBC, and 1266 quintals in SC farmers during the study period in Bundelkhand region. On the other hand, the total agriculture production was 2909 quintals in General, followed by 5540 quintals in OBC and 5024 quintals in SC farmers during before taking credit whereas it become 2974 quintals in General, followed by 6051 quintals in OBC and 5171 quintals in SC farmers in western region. It is observed that agriculture production had widespread variation among the social groups during the study period in both the regions.

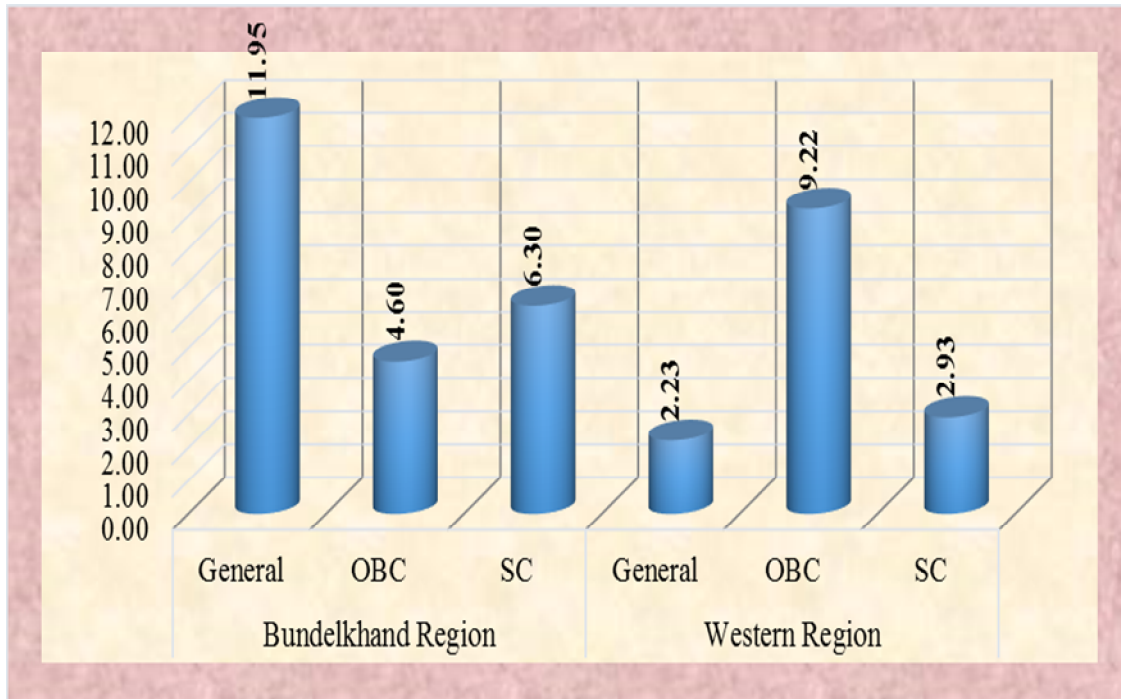
Figure 6.30: Category wise Agriculture Production from All Crops (in. 00 Kg)



Source: Field Survey Data, 2015

The impacts of agricultural credit on agricultural production among social groups are shown in Table 6.31 and Figure.6.31. It is found that agricultural credit increased production around 11.95 per cent in General, followed by 4.60 per cent in OBC and 6.30 per cent in SC farmers during the study period in Bundelkhand region. On the other hand, agricultural credit increased production i.e. 2.23 per cent in General, 9.22 per cent in OBC, and 2.93 per cent in SC farmers during the same period in western region. It is observed that SC farmers are not getting so much benefit of the agricultural credit compared to General and OBC farmers in both the regions. However, agricultural credit has positive but minor impact on agricultural production among social groups during the study period in both the regions.

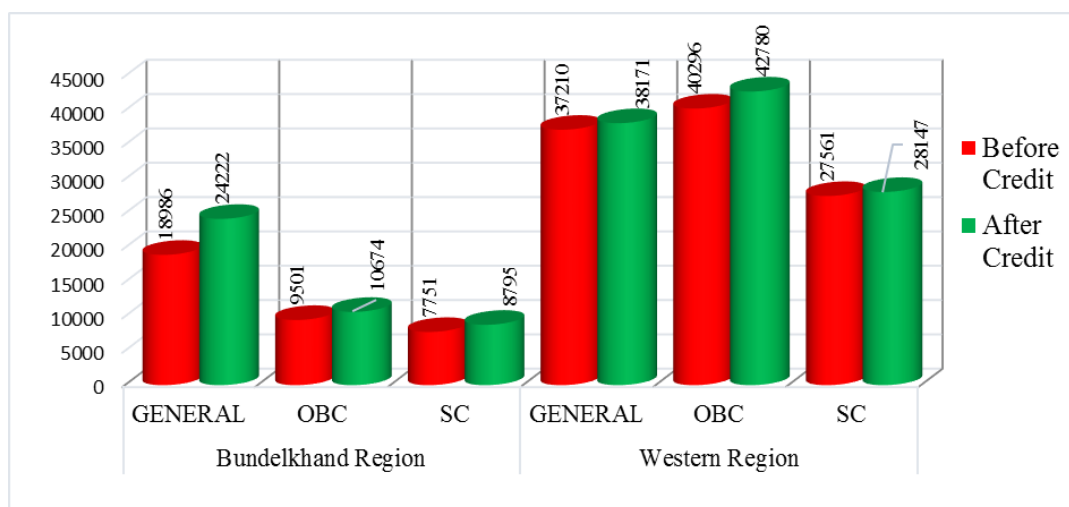
Figure 6.31: Percentage Change in Agricultural Production After taking Agricultural Credit



Source: Field Survey Data, 2015

The net average annual agricultural income among social groups are presented in Table 6.32 and Figure 6.32. It is found that the net average annual agricultural income was Rs.18, 986 in General, followed by Rs. 9,501 in OBC and Rs. 7,751 in SC farmers while it became Rs. 24,222 in General, Rs. 10,674 in OBC and Rs. 8,795 in SC farmers during taking credit in Bundelkhand region. On the other hand, the net average annual income before taking credit was Rs. 37,210 in General, followed by Rs. 40,296 in OBC and Rs. 27,561 in SC farmers and become Rs. 38,171 in General, Rs. 42,780 in OBC and Rs. 28,147 in SC farmers during taking credit in the western region. It is observed that the net average annual income of farmers in western region was higher than the net average annual income of farmers in Bundelkhand region. There are also extensive variations among General, OBC and SC farmers during the study period in both the regions. General and OBC farmers are prosperous compared to schedule cast farmers in both the regions. In facts, schedule cast farmers have very few and scattered land holdings which is the major constraints to take credit, inputs and new technology in both the regions.

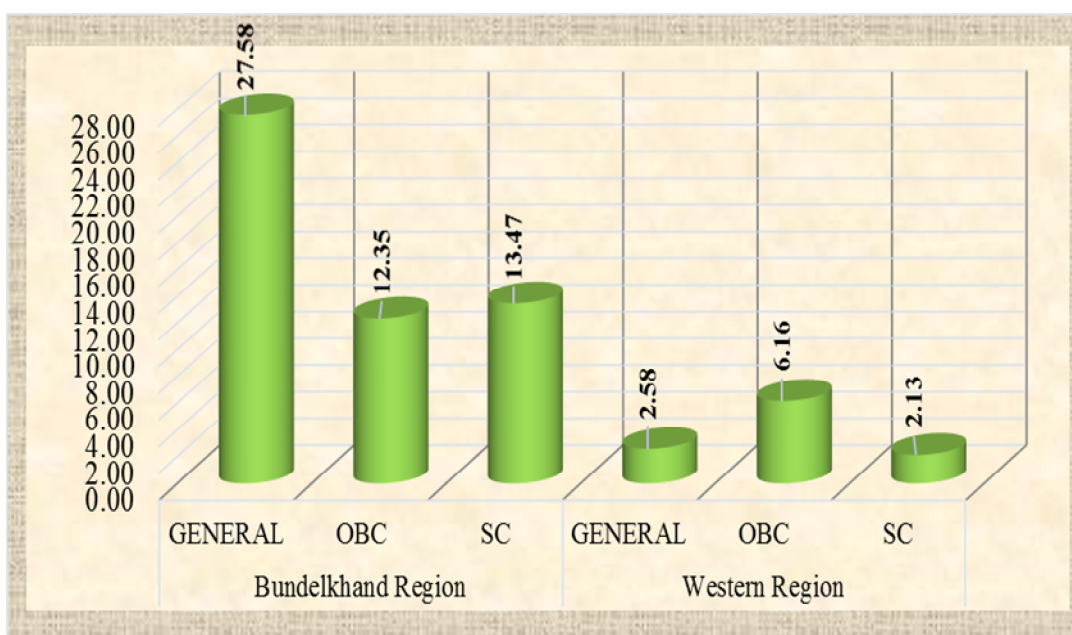
Figure 6.32: Net Average Annual Agricultural Income among Social Groups
(in. Rs)



Source: Field Survey Data, 2015

The percentage changes in net average agricultural income are analyzed in the Table 6.33 and Figure 6.33. The figure in the table has presented the percentage change in income after taking credit.

Figure 6.33: Percentage Change in Net Average Annual Agricultural Income among Social Groups

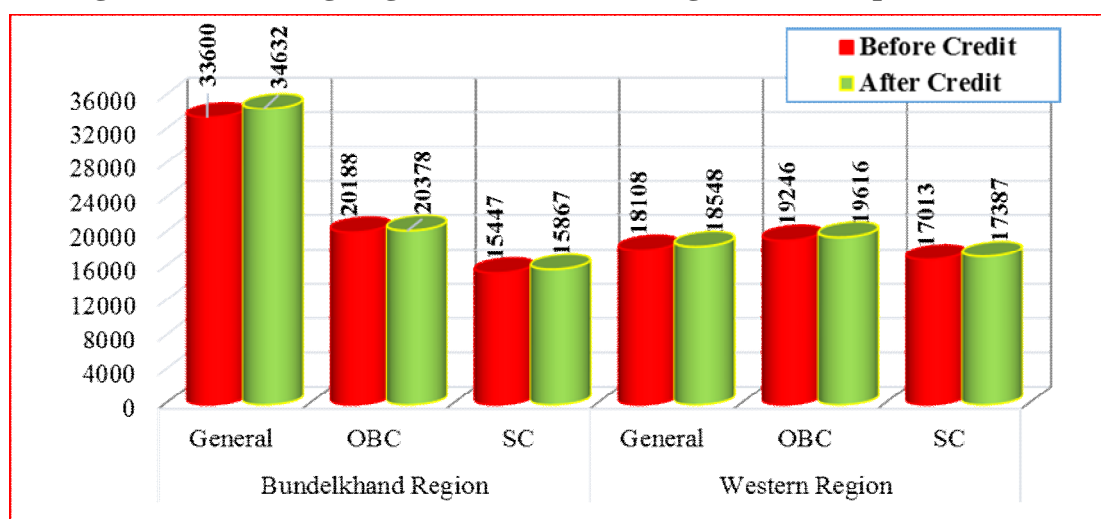


Source: Field Survey Data, 2015

It is found that agricultural credit increased net average annual agricultural income around 27.58 per cent in General, followed by 12.35 per cent in OBC and 13.47 per cent in SC farmers during the study period in Bundelkhand region while 2.58 per cent in General, 6.16 per cent in OBC and 2.13 per cent in SC farmers during the study period in western region. Overall these figures reflect that General and OBC farmers are getting benefit because of large size of land holdings and better socio-economic background in both the regions of Uttar Pradesh. The schedule cast farmers are not getting so much benefit of agricultural credit due to small size of land holdings, lack of financial assistance, lack of technical knowledge, poor economic background, and lack of agricultural equipment's the both regions. However, the impact of agricultural credit on net average annual income of small and marginal farmers or social groups had positive but negligible impact during the study period in both the regions.

The average annual costs of agriculture during cultivation i.e. (including all type of cost) are analyzed in Table 6.34 and Figure 6.34.

Figure 6.34: Average Agricultural Cost among Social Groups (in. Rs)



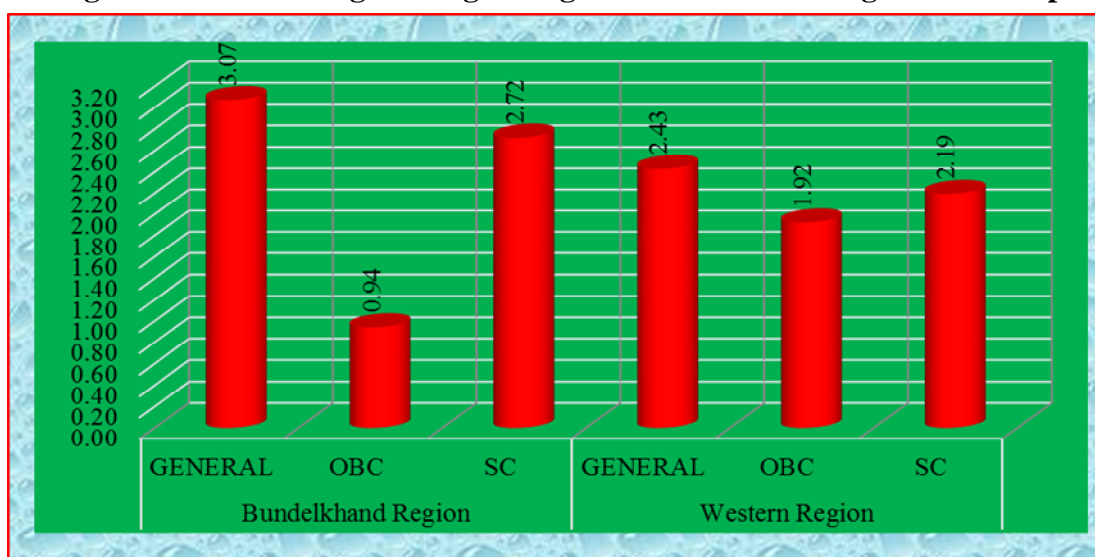
Source: Field Survey Data, 2015

It is found that the average annual cost of agriculture was Rs. 33,600 in General, followed by Rs. 20,188 in OBC, and Rs. 15,447 in SC farmers during before credit and become Rs.34,632 in General, Rs. 20,378 in OBC, and Rs. 15,867 in SC farmers after taking credit during the study period in Bundelkhand region. On the other hand, the average annual cost of agriculture was Rs. 18,108 in General, Rs. 19,246 in OBC and Rs. 17,013 in SC farmers before taking credit while after credit it

became Rs. 18,548 in General, followed by Rs. 19,616 in OBC, and Rs. 17,387 in SC farmers during the same period in the western region. It is observed that there have extensive variations in average annual cost of agriculture among social groups in both the regions. But farmers of western region are using modern inputs of cultivation, better irrigation facility, and better technology while the farmers of Bundelkhand region are using high cost inputs and technology.

The impacts of agricultural credit on agricultural cost are analyzed in Table 6.34 and Figure 6.35. The figures in the table are presented the percentage change in cost after taking credit in both the regions. It is found that agricultural credit had positive impact on average annual agricultural cost i.e. 3.07 per cent in General, followed by 0.94 per cent in OBC, and 2.72 per cent in SC farmers in Bundelkhand region whereas 2.43 per cent in General, followed by 1.92 per cent in OBC and 2.19 per cent in SC farmers during the study period in western region. It is noticed that the impact of agricultural credit on agricultural cost has positive but minor change among General, OBC and SC farmers in both the regions. It is facts that small and marginal farmers are not getting adequate and timely credit in both the region.

Figure 6.35: Percentage Change in Agricultural Cost among Social Groups

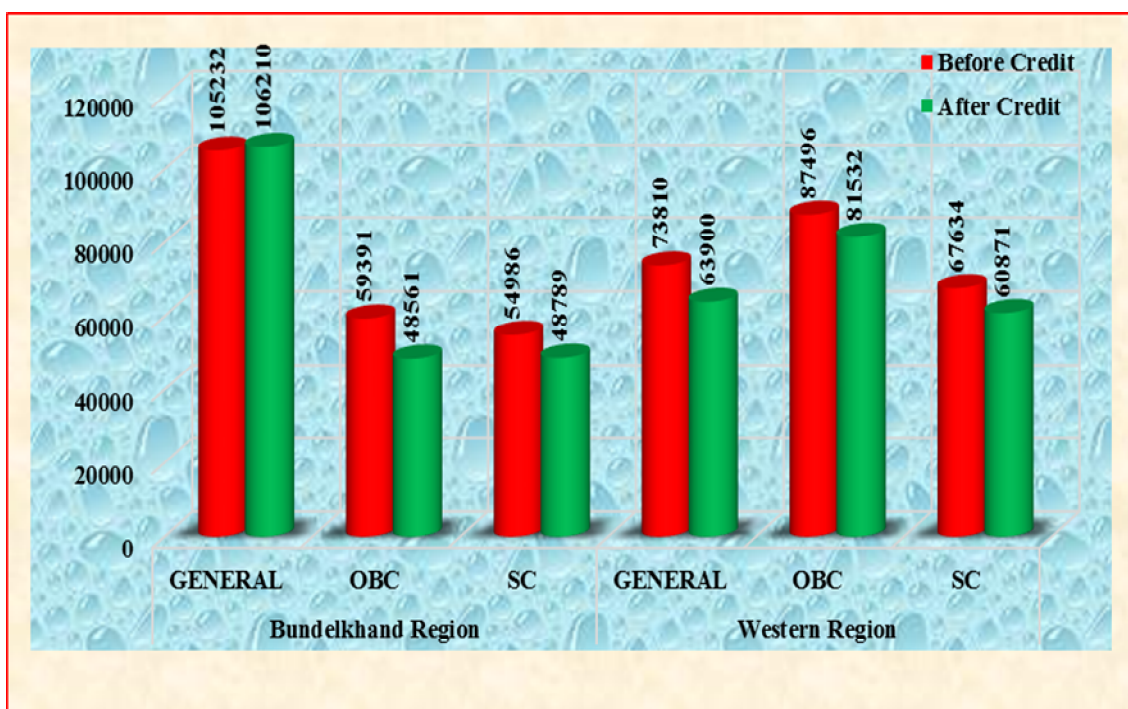


Source: Field Survey Data, 2015

The average annual consumption level per households has presented in Table 6.36 and Figure 6.36. The bar diagram shows that before credit annual consumption expenditure was Rs. 1,05,232 in General, Rs. 59,391 in OBC and Rs. 54,986 in SC farmers whereas after taking credit it become Rs. 1,06,210 in General, Rs. 48,561 in

OBC, and Rs. 48,789 in SC farmers during the study period in Bundelkhand region. With regards to western region, average annual consumption expenditure was Rs. 73,810 in General, followed by Rs. 87,496 in OBC and Rs. 67,634 in SC farmers before taking agricultural credit while it became Rs. 63,900 in General, followed by Rs. 81,532 in OBC, and Rs. 60,871 in SC farmers after taking agricultural credit in western region. It is observed that there were extensive inequalities in consumption pattern among all social groups during the study period in both the regions.

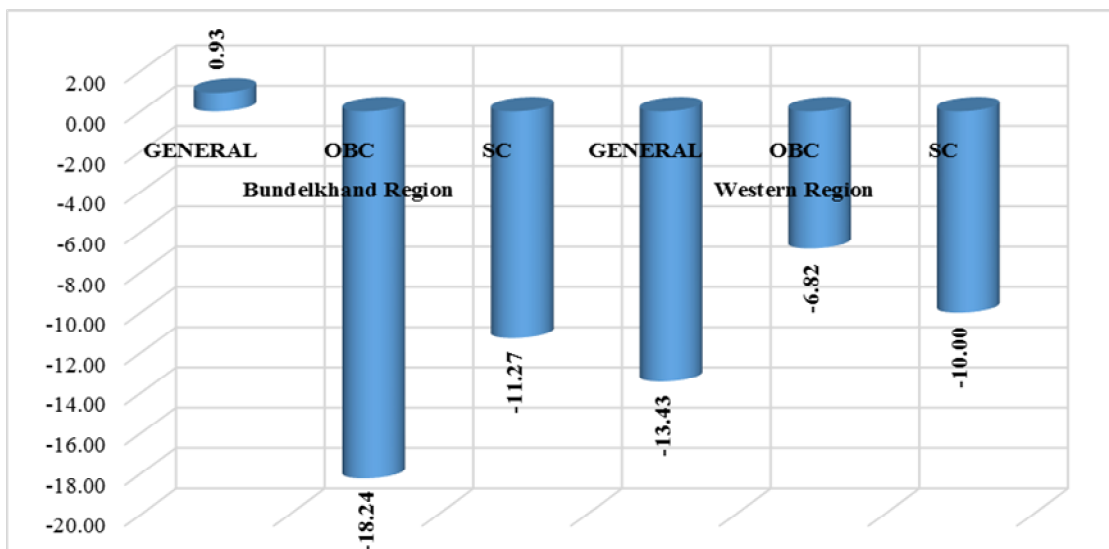
Figure 6.36: Average Annual Consumption among Social Groups (in. Rs)



Source: Field Survey Data, 2015

The impact of agricultural credit on average annual consumption among all social groups in both the regions are analysed in Table 6.37 and Figure 6.37. It is found that the impact of agricultural credit on total average consumption was 0.93 per cent in General, followed by -18.24 per cent in OBC, and -11.27 per cent in SC farmers during the study period in Bundelkhand region. Considering western region, the impact of agricultural credit on consumption was -13.43 per cent in General, followed by -6.82 per cent in OBC, and -10 per cent in SC during the same period in western region.

Figure 6.37: Percentage change in Average Annual Consumption among Social Groups

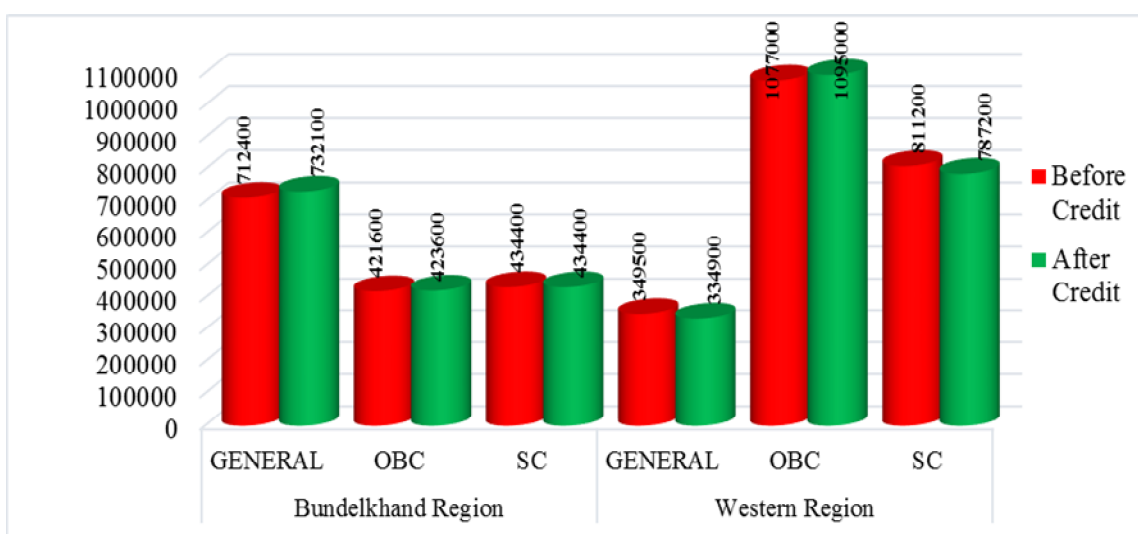


Source: Field Survey Data, 2015

The social category wise total annual expenditure on education in both the regions of Uttar Pradesh is analyzed in Table 38 and Figure 38. The bar diagram highlights that before credit the annual expenditure on education was Rs. 7,12,400 in General, followed by Rs. 4,21,600 in OBC and Rs. 4,34,400 in SC farmers and after taking credit education expenditure has become Rs. 7,32,100 in General, followed by Rs. 4,23,600 in OBC, and Rs. 4,34,400 in SC Farmers during the study period in Bundelkhand region.

Figure 6.38: Region wise Expenditure on Education among Social Groups

(in. Rs)

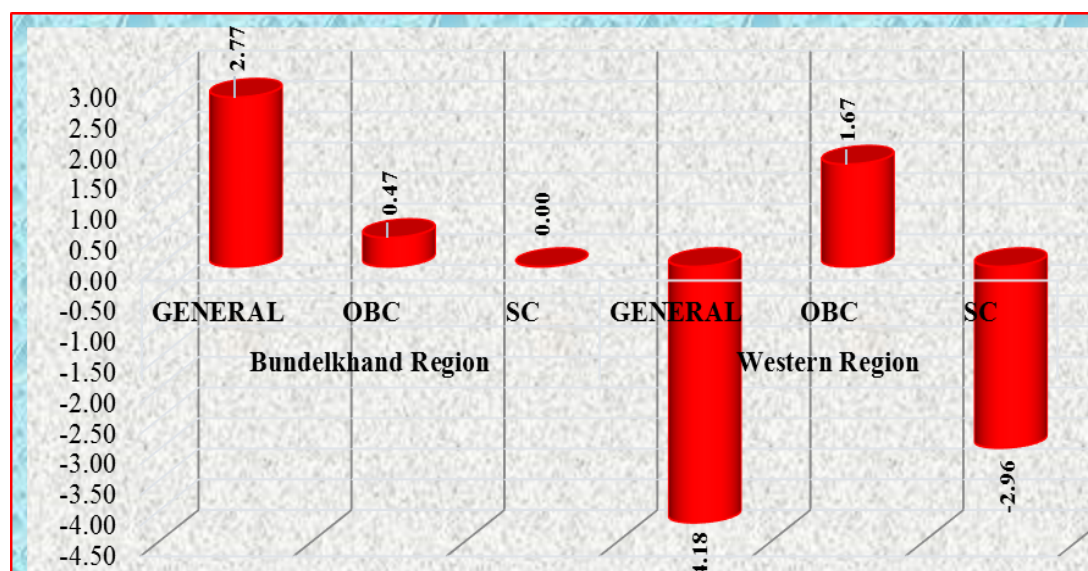


Source: Field Survey Data, 2015

Regarding western region, annual expenditure on education was Rs. 3, 49,500 in General, followed by Rs. 10, 77,000 in OBC and Rs. 8, 11,200 in SC farmers and after taking credit the annual expenditure on education has become Rs. 3,34,900 in General, Rs. 10,95,000 and Rs. 7,87,200 in SC farmers during the study period. It is observed that the farmers of western region are expending more on education compared to the farmers of Bundelkhand region. The quality and quantity of education is high in western region compared to Bundelkhand region. But, the educational expenditure of schedule cast farmers in western region are higher compared to Schedule cast farmers of Bundelkhand region. There is need to improve the quality as well as infrastructure facility of education in the Bundelkhand region.

The percentage change in expenditure on education among social groups in the regions of Uttar Pradesh are analyzed in Table 39 and Figure 39. The bar diagram reveals that agricultural credit has influenced educational expenditure among social groups or small and marginal farmers during the study period in both the regions.

Figure 6.39: Percentage change in Expenditure on Education among Social Groups



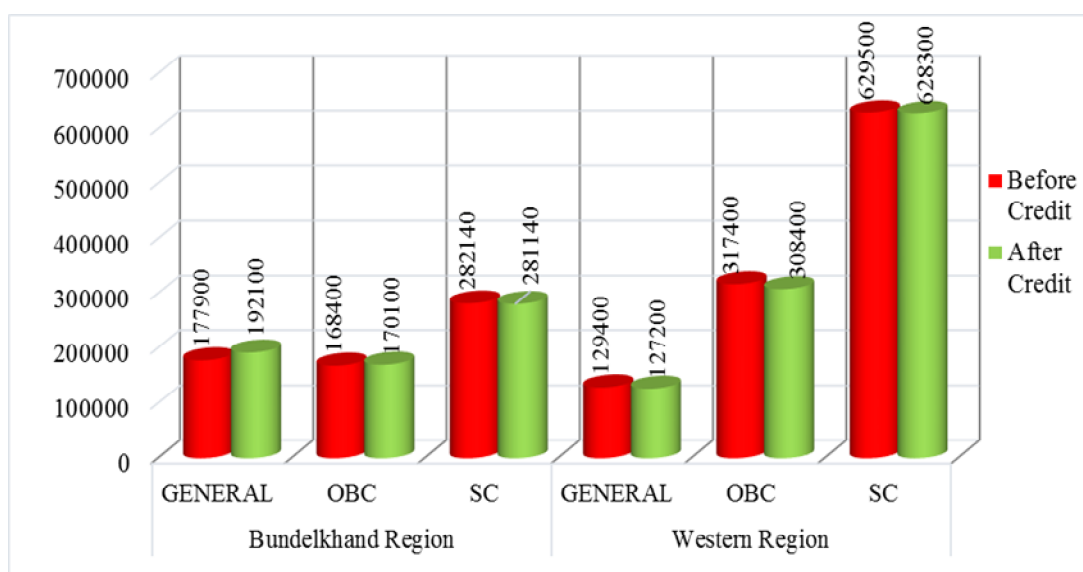
Source: Field Survey Data, 2015

It is found that the impact of agricultural credit was marginal on education expenditure i.e. 2.77 per cent in General and 0.47 per cent in OBC farmers in Bundelkhand region while agricultural credit has no effect on schedule cast farmers in the same region. Regarding western region, agricultural credit has negative impact on educational expenditure among social group's i.e. - 4.18 per cent in General and -

2.96 per cent in SC farmers whereas it has marginal positive impact on OBC farmers i.e. 1.67 per cent during the study period in western region. Overall from the analysis, it is observed that the impact of agricultural credit on education expenditure among social groups has widespread variations during the study period in both the regions of Uttar Pradesh. However, agriculture credit has minor positive impact on General and OBC farmers and stagnant in the case of SC farmers in the Bundelkhand region. On the other hand, the impact of agricultural credit has negative impact on General and SC farmers and has positive impact on OBC farmers of western region.

The annual expenditure of social groups on Health in the regions are presented in Table 6.40 and Figure 6.40. It is found that before credit the expenditure on education was Rs. 1, 77,900 in General, followed by Rs. 1, 68,400 in OBC and Rs. 2, 82,140 in SC farmers and after it has become Rs. 1, 92,100 in General, with Rs. 1, 70,100 in OBC and Rs. 2, 81,140 in SC farmers during the study period in Bundelkhand region. On the other hand, before credit the expenditure on health was Rs. 1, 29,400 in General, followed by Rs. 3, 17,400 in OBC and Rs. 6, 29,500 SC farmers and become Rs. 1, 27,200 in General, Rs. 3, 08,400 in OBC and Rs. 6, 28,300 in SC farmers after taking credit during the same period in western region.

Figure 6.40: Region wise total Annual Expenditure on Health among Social Groups (in. Rs)



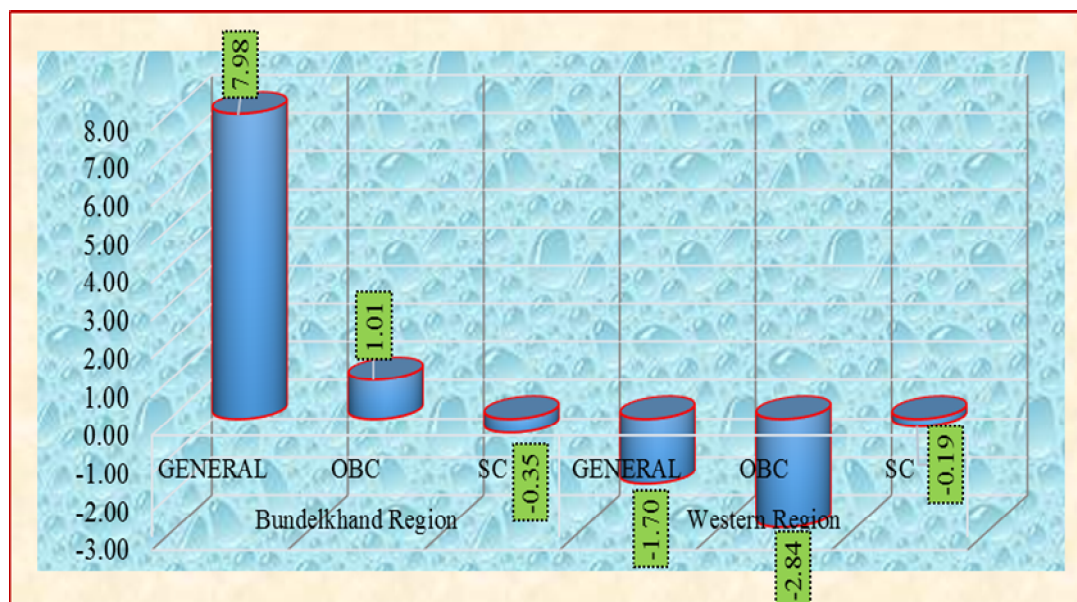
Source: Field Survey data, 2015

It is observed that farmers of western region are expending larger amount on health compared to the farmers of Bundelkhand region. Western region is also better in term

of having hospital infrastructure as well as improved technology compared to in Bundelkhand region. It is facts from the field data that farmers of Bundelkhand region have to go about 10 to 15 kilometers for better treatment. On the other hand, majority of the farmers are suffering from acute diseases which results they are converting in Christian. But conversion is mostly happening in SC farmers because of poor socio-economic conditions and lacks of programmes and policies in Bundelkhand region.

The social category wise change in expenditure on health after taking credit in both the regions is analyzed in Table 6.41 and Figure 6.41. The bar diagram reveals that agricultural credit is influencing health expenditure during the study period in both the regions. It is found that agricultural credit has increased the health expenditure of General and OBC farmers while decreased in the case of SC farmers in Bundelkhand region. It is observed that agricultural credit increased health expenditure i.e. 7.98 per cent in General, followed by 1.01 per cent in OBC whereas decreased -0.35 per cent in SC farmers in the region of Bundelkhand. On the other hand, the farmers of western region are negatively affected by agricultural credit. Agricultural credit has decreased health expenditure i.e. -1.70 per cent in General, followed by -2.84 per cent in OBC and -0.19 per cent in SC farmers in the western region.

Figure 6.41: Percentage change in Health Expenditure among Social Groups

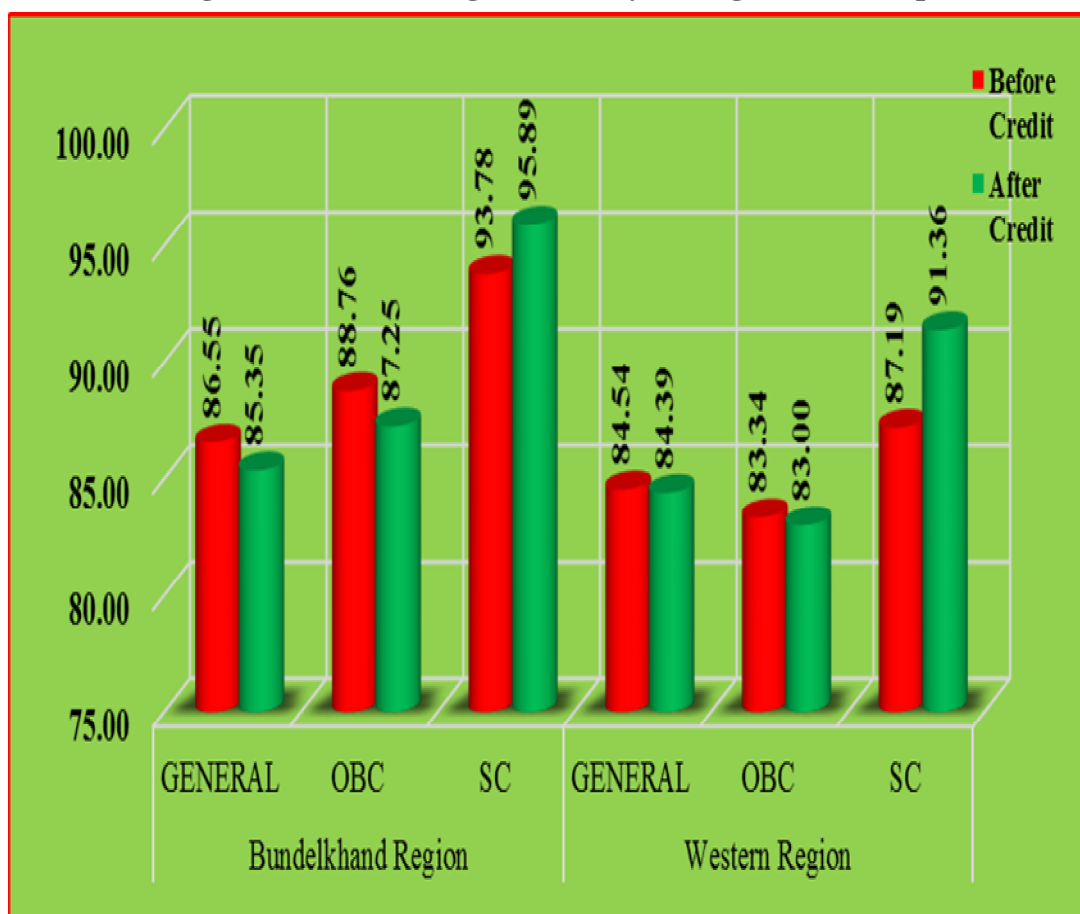


Source: Field Survey data, 2015

Uttar Pradesh is most populous state in the country. Majority of the population are suffering from acute poverty in the state. Poverty is one of the important indicators of

the standard of living of the people. Poverty is defined based on several aspects such as monthly consumption expenditure, income, and calorie intake. Poverty means that where people's basic needs like food, clothe, and shelter are not sufficient. According to the United Nations, poverty is the inability of having choices and opportunities. It means that lack of basic capacity to participate effectively in society and not having enough to food, clothe, a school, clinic, land, and credit. According to the World Bank, poverty is pronounced deprivation in well-being. It includes low incomes and the inability to acquire the basic goods and services for survival. It also includes low levels of health, education, poor access to clean water, poor sanitation facility, and inadequate physical security, lack of voice, insufficient capacity, and opportunity to better one's life. The method of estimation of poverty is based on consumption expenditure. The level of per capita consumption expenditure per day will decide the poverty level. According to the Rangarajan methodology, if the per capita consumption expenditure of the farmers per month is Rs 972 for rural areas and Rs 1,407 for urban areas treated as the poverty line at the all-India level. The percentage of poverty among three groups is analysed in the Table 6.42 and Figure 6.42. It is found that the percentage of poverty was 86.55 per cent in General, followed by 88.76 per cent in OBC and 93.78 per cent in SC category farmers before taking agricultural credit and become 85.35 per cent in General, 87.25 per cent in OBC and 95.89 per cent in SC farmers after taking agricultural credit during the study period in Bundelkhand region. On the other hand, the percentage of poverty was 84.54 per cent in General, followed by 83.34 per cent in OBC and 87.19 per cent in SC category farmers before taking agricultural credit and become 84.39 per cent in General, 83 per cent in OBC and 91.36 per cent in SC category farmers after taking agricultural credit during the study period in western region. It is found that the impact of agricultural credit on General and OBC category farmers is positive whereas it has the negative impact on SC category farmers in both regions. The condition of SC category farmers is more miserable due lack of education, lack of resources, and lack of proper coordination of the Banks. It is found that the mostly the farmers of Bundelkhand region are living below poverty line. However, the conditions of General, OBC category farmers are better compared to SC category small and marginal farmers in both the regions.

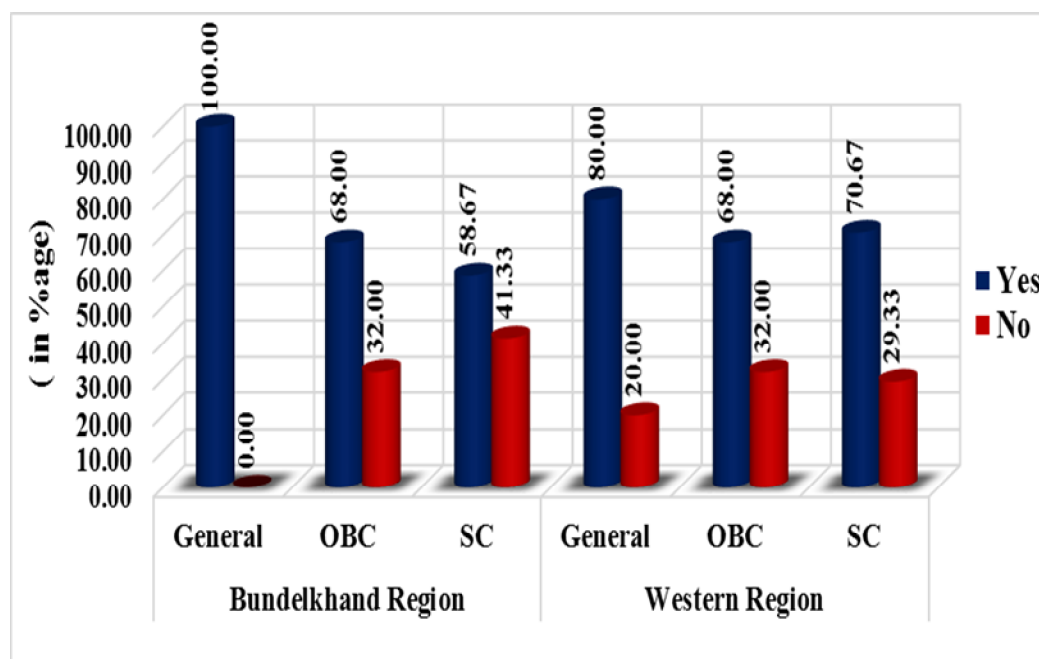
Figure 6.42: Percentage of Poverty among Social Groups



Source: Field Survey Data, 2015

The flow of credit among social groups in depends on benefits and effective financial services in both regions of Uttar Pradesh. The percentage of farmers denied to take credit in future during the study period in the both regions is presented in Table 6.43 and Figure 6.43. It is found from the filed survey data that the percentage of farmers will take credit in future was hundred percent in General, followed by 68 per cent in OBC and around 59 per cent in SC category farmers in Bundelkhand region while it was 80 per cent in General, followed by 68 per cent in OBC and around 70 per cent in SC in western region. On the other hand, the percentage of farmers will not take credit in future was negligible in General, followed by 32 per cent in OBC and 41 per cent in SC category farmers in Bundelkhand region while it was 20 per cent in General, 32 per cent in OBC and 29 per cent in SC category small and marginal farmers in Western region.

Figure 6.43: Percentage of Farmers will take Credit in Future



Source: Field Survey Data, 2015

Overall, it is clear that farmers are suffering from low productivity, low income and climatic variability in both regions. They are not able to repay the credit. Therefore, there is need to support small and marginal farmers particularly SC farmers to increase better coordination of Banks and effective programmes and policies in both the regions.

CONCLUSION AND SUGGESTIONS

Agriculture sector plays very important role in term of increasing income, employment and food security at state level and national level. Majority of the rural population are depend on agriculture sector for their livilihood. However, agricultlural sector is facing several problems such as low production, productivity, low income, small size of land holdigs, lack of improved irrigation facility, lack of inputs, lack of financial services and technology in both the regions. It is found that the socio-economic conditions of the small and marginal farmers have widespread variations duiring the study period in both the regions. The conditons of Geneal and OBC farmers in both regions are better compared to the SC farmers in both the regions. But the socio-economic conditons of small and marginal farmers in western region are better compared to Bundelhand region. Schedule cast farmers of western region are

more prosperous compared to the schedule cast farmers of Bundelkhand region. It is seen that Dalit farmers are more social and economically suffering in both the regions of Uttar Pradesh. Agriculture credit has been influencing the socio-economic conditions of small and marginal framers or social groups i.e. General, OBC and SC farmers in both the regions. However, it is found from the analysis that the impact of agriculture credit on socio-economic conditons of small and marginal farmers is negligible in both the regions. Small and marginal farmers are suffering from low productivity, low income, low consumption, acute poverty, structural changes in occupation, impressive inequities and other socio-economic constraints. The schedule cast farmers are deprived to take the advantage of the programs and policies in both the regions. It is found that in filed survery that the schedule cast farmers are converting into Chritian due to poverty and poor socio-economic conditions in Bundelkhnad region. The government of Uttar Pradesh should implement programmes and policies to improve the socio-economic conditons of small and marginal farners in both regions.

Table 6.1: House Details of Farmers

Name of Region	Category of Farmers		Kuchha House	Semi-Pucca	Pucca
Bundelkhand Region	GENERAL	N=25 (%)	3 (12.00)	8 (32.00)	14 (56.00)
	OBC	N=50 (%)	5 (10.00)	17 (34.00)	28 (56.00)
	SC	N=75 (%)	43 (57.33)	23 (30.67)	9 (12.00)
Western Region	GENERAL	N=25 (%)	3 (12.00)	4 (16.00)	18 (72.00)
	OBC	N=50 (%)	8 (16.00)	11 (22.00)	31 (62.00)
	SC	N=75 (%)	15 (20.00)	23 (30.67)	37 (49.33)

Source: Field Survey Data, 2015

Table 6.2: Source of Drinking Water of Farmers

Name of Region	Category of Household		Well	Hand Pump	Others
Bundelkhand Region	GENERAL	N=25 (%)	0 (0.00)	22 (88.00)	3 (12.00)
	OBC	N=50 (%)	2 (4.00)	40 (80.00)	8 (16.00)
	SC	N=75 (%)	20 (26.67)	40 (53.33)	15 (20.00)
Western Region	GENERAL	N=25 (%)	0 (0.00)	23 (92.00)	2 (8.00)
	OBC	N=50 (%)	0 (0.00)	45 (90.00)	5 (10.00)
	SC	N=75 (%)	0 (0.00)	72 (96.00)	3 (4.00)

Source: Field Survey Data, 2015

Table 6.3: Source of Sanitation Facility of Farmers

Name of Region	Category of Household		Flush Toilet	Temporary Toilet	Open Field
	Category	N (%)			
Bundelkhand Region	GENERAL	N=25 (%)	4 (16.00)	3 (12.00)	18 (72.00)
	OBC	N=50 (%)	6 (12.00)	4 (8.00)	40 (80.00)
	SC	N=75 (%)	2 (2.67)	10 (13.33)	63 (84.00)
Western Region	GENERAL	N=25 (%)	10 (40.00)	5 (20.00)	10 (40.00)
	OBC	N=50 (%)	14 (28.00)	10 (20.00)	26 (52.00)
	SC	N=75 (%)	6 (8.00)	19 (25.33)	50 (66.67)

Source: Field Survey Data, 2015

Table 6.4: Use of Vehicle among Social Groups

Name of Region	Category of Household		Car	Tractor	Motorcycle	Cycle
	Category	N (%)				
Bundelkhand Region	GENERAL	N=25 (%)	2 (8.00)	6 (24.00)	15 (60.00)	2 (8.00)
	OBC	N=50 (%)	1 (2.00)	2 (4.00)	22 (44.00)	25 (50.00)
	SC	N=75 (%)	0 (0.00)	0 (0.00)	25 (33.33)	28 (37.33)
Western Region	GENERAL	N=25 (%)	3 (12.00)	5 (20.00)	14 (56.00)	3 (12.00)
	OBC	N=50 (%)	4 (8.00)	4 (8.00)	26 (52.00)	16 (32.00)
	SC	N=75 (%)	1 (1.33)	1 (1.33)	35 (46.67)	25 (33.33)

Source: Field Survey Data, 2015

Table 6.5: Source of Cooking Food among Social Groups

Name of Region	Category of Household		Wood	LPG	Both Wood and LPG
Bundelkhand Region	GENERAL	N=25 (%)	20 (80.00)	0 (0.00)	5 (20.00)
	OBC	N=50 (%)	50 (100.00)	0 (0.00)	0 (0.00)
	SC	N=75 (%)	72 (96.00)	0 (0.00)	3 (4.00)
Western Region	GENERAL	N=25 (%)	22(88.00)	0(0.00)	3(12.00)
	OBC	N=50 (%)	40 (80.00)	1 (2.00)	9 (18.00)
	SC	N=75 (%)	71 (94.67)	2 (2.67)	2 (2.67)

Source: Field Survey Data, 2015

Table 6.6: Accessibility of Electricity among Social Groups

Name of Region	Category of Household		Electrified	Not Electrified
Bundelkhand Region	GENERAL	N=25(%)	25(100.00)	0(0.00)
	OBC	N=50(%)	49(98.00)	1(2.00)
	SC	N=75(%)	66(88.00)	9(12.00)
Western Region	GENERAL	N=25(%)	25(100.00)	0(0.00)
	OBC	N=50(%)	50(100.00)	0(0.00)
	SC	N=75(%)	63(84.00)	12(16.00)

Source: Field Survey Data, 2015

Table 6.7: Educational Level among Social Groups

Name of Region	Category of Household		Illiterate	Primary	Higher secondary	Graduate
Bundelkhand Region	GENERAL	N=25 (%)	16 (10.00)	9 (5.63)	31 (19.38)	27 (16.88)
	OBC	N=50 (%)	12 (3.90)	48 (15.58)	35 (11.36)	9 (2.92)
	SC	N=75 (%)	66 (14.29)	61 (13.20)	25 (5.41)	13 (2.81)
Western Region	GENERAL	N=25 (%)	1 (0.92)	4 (3.67)	18 (16.51)	15 (13.76)
	OBC	N=50 (%)	1 (0.38)	16 (6.04)	36 (13.58)	15 (5.66)
	SC	N=75 (%)	33 (8.38)	51 (12.94)	42 (10.66)	33 (8.38)

Source: Field Survey Data, 2015

Table 6.8: Region wise Occupational distribution among Social Groups

Name of Region	Category of Occupations	General	OBC	SC
Bundelkhand Region	Self-employment	5 (3.13)	1(0.32)	1(0.22)
	Agriculture	42(26.25)	79(25.65)	121(26.19)
	Agricultural Labour	0(0.00)	2(0.65)	3(0.65)
	Non-Agricultural Labour	0(0.00)	3(0.97)	13(2.81)
	Private sector	2(1.25)	3(0.97)	8(1.73)
	Public sector	5(3.13)	10(3.25)	6(1.30)
	Unemployed	0(0.00)	3(0.97)	6(1.30)
	Domestic work	0(0.00)	8(2.60)	28(6.06)
Western Region	Self-employment	1(0.92)	1(0.38)	2(0.51)
	Agriculture	37(33.94)	69(26.04)	79(20.05)
	Agricultural Labour	0(0.00)	0(0.00)	3(0.76)
	Non-Agricultural Labour	0(0.00)	2(0.75)	50(12.69)
	Private Sector	4(3.67)	13(4.91)	9(2.28)
	Public Sector	8(7.34)	9(3.40)	6(1.52)
	Domestic Work	0(0.00)	5(1.89)	9(2.28)

Source: Field Survey Data, 2015

Table 6.9: Land Distribution among Social Groups (in hectare)

Name of Region	Category of Household		Mean	Total
Bundelkhand Region	GENERAL	N=25	1.26	31.47
	OBC	N=50	0.88	44.15
	SC	N=75	0.65	48.81
Western Region	GENERAL	N=25	1.02	25.53
	OBC	N=50	1.04	51.94
	SC	N=75	0.88	65.91

Source: Field Survey Data, 2015

Table 6.10: Average Value of Land (in Lakh)

Name of Region	Category of Farmers		Mean	Total
Bundelkhand Region	GENERAL	N=25	33.24	831.00
	OBC	N=50	20.78	1039.25
	SC	N=75	16.17	1212.50
Western Region	GENERAL	N=25	27.39	684.85
	OBC	N=50	23.52	1176.15
	SC	N=75	16.71	1253.65

Source: Field Survey Data, 2015

Table 6.11: Category wise type of Farmers

Name of Region	Category of Household		Marginal	Small
Bundelkhand Region	GENERAL	N=25 (%)	8 (32.00)	17 (68.00)
	OBC	N=50 (%)	32 (64.00)	18 (36.00)
	SC	N=75 (%)	66 (88.00)	9 (12.00)
Western Region	GENERAL	N=25 (%)	15 (60.00)	10 (40.00)
	OBC	N=50 (%)	24 (48.00)	26 (52.00)
	SC	N=75 (%)	52 (69.33)	23 (30.67)

Source: Field Survey Data, 2015

Table 6.12: Source of Irrigation among Social Groups

Region	Category of Household		Canal	Tube wells (Electric Motor)	Pond/well(Diesel Pumping Set)
Bundelkhand Region	GENERAL	N=25 (%)	13 (52.00)	0 (0.00)	12 (48.00)
	OBC	N=50 (%)	8 (16.00)	0 (0.00)	42 (84.00)
	SC	N=75 (%)	11 (14.67)	0 (0.00)	64 (85.33)
Western Region	GENERAL	N=25 (%)	4 (16.00)	21 (84.00)	0 (0.00)
	OBC	N=50 (%)	3 (6.00)	47 (94.00)	0 (0.00)
	SC	N=75 (%)	3 (4.00)	72 (96.00)	0 (0.00)

Source: Field Survey Data, 2015

Table 6.13: Type of Irrigated Land among Social Groups

Name of Region	Category of Household		Self	Rent
Bundelkhand Region	GENERAL	N=25 (%)	10 (40.00)	15 (60.00)
	OBC	N=50 (%)	10 (20.00)	40 (80.00)
	SC	N=75 (%)	6 (8.00)	69 (92.00)
Western Region	GENERAL	N=25 (%)	3 (12.00)	22 (88.00)
	OBC	N=50 (%)	18 (36.00)	32 (64.00)
	SC	N=75 (%)	9 (12.00)	66 (88.00)

Source: Field Survey Data, 2015

Table 6.14: Percentage of Irrigated Land to Total Land

Name of Region	Category of Households		Own Land (in hectare)	Own Irrigated Land (in hectare)	% of Irrigated Land to Total Own Land
Bundelkhand Region	GENERAL	N=25	31.47	31.47	100.00
	OBC	N=50	44.15	43.4	98.29
	SC	N=75	48.81	47.69	97.71
Western Region	GENERAL	N=25	25.53	25.53	100.00
	OBC	N=50	51.94	51.94	100.00
	SC	N=75	65.91	65.91	100.00

Source: Field Survey Data, 2015

Table 6. 15: Irrigation Cost among Social Groups

Name of Region	Category of Households		Mean	Total	Ratio of Irrigation Cost to Total Irrigation Cost
Bundelkhand Region	GENERAL	N=25	5340.00	133500	19.38
	OBC	N=50	5553.40	277670	40.30
	SC	N=75	3703.67	277775	40.32
Western Region	GENERAL	N=25	2074.55	45640	21.38
	OBC	N=50	1593.51	58960	27.62
	SC	N=75	1624.78	108860	51.00

Source: Field Survey Data, 2015

Table 6.16: Livestocks among Social Groups

Name of Region	Category of Household	Cow	Buffalo	Draught Animal (Bullock)	Draught Animal (Buffalo)	Goat/ Sheep	Pigs	Others (Horse, Donkey)	Total
Bundelkhand Region	General	76 (34.55)	120 (54.55)	0 (0.00)	20 (9.09)	0 (0.00)	0 (0.00)	4 (1.82)	220 (100.00)
	OBC	124 (35.63)	200 (57.47)	16 (4.60)	4 (1.15)	0 (0.00)	0 (0.00)	0 (0.00)	348 (100.00)
	SC	136 (44.16)	176 (57.14)	4 (1.30)	0 (0.00)	8 (2.60)	0 (0.00)	0 (0.00)	308 (100.00)
Western Region	General	48 (33.33)	100 (69.44)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	144 (100.00)
	OBC	64 (21.92)	220 (75.34)	4 (1.37)	8 (2.74)	0 (0.00)	0 (0.00)	0 (0.00)	292 (100.00)
	SC	84 (15.56)	324 (60.00)	8 (1.48)	4 (0.74)	96 (17.78)	48 (8.89)	0 (0.00)	540 (100.00)

Source: Field Survey Data, 2015

Table 6.17: Average Value of Livestock Owned Per Households (in Rs)

Name of Region	Category of Household	Cow	Buffalo	Draught Animal Bullock	Draught Animal Buffalo	Goat/ Sheep	Pigs	Others Horse/Donkey	Total Amount (in. Rs)
Bundelkhand Region	General	3480	47000	0.00	8000	0.00	0.00	1600	60280
	OBC	1140	37260	1320	800	0.00	0.00	0.00	39800
	SC	560	17413	400	0.00	107	0.00	0.00	18547
Western Region	General	2920	38000	0.00	0.00	0.00	0.00	0.00	40920
	OBC	2580	39680	600	1800	0.00	0.00	0.00	45060
	SC	1627	38000	600	400	573	160	0.00	41360

Source: Field Survey Data, 2015

Table 6.18: Source of Agricultural Credit among Social Groups

Name of Regions	Category of Farmers		Formal Source	Informal Source	Formal and Informal Source
Bundelkhand Region	General	N=25 (%)	18 (72.00)	7 (28.00)	0 (0.00)
	OBC	N=50 (%)	38 (76.00)	11 (22.00)	1 (2.00)
	SC	N=75 (%)	36 (48.00)	38 (50.67)	1 (1.33)
Western Region	General	N=25 (%)	15 (60.00)	8 (32.00)	2 (8.00)
	OBC	N=50 (%)	36 (72.00)	11 (22.00)	3 (6.00)
	SC	N=75 (%)	42 (56.00)	27 (36.00)	6 (8.00)

Source: Field Survey Data, 2015

Table 6.19: Repaying Capacity of Agricultural Credit among Social Groups

Name of Region	Category of Household		Yes	No
Bundelkhand Region	GENERAL	N=25 (%)	18 (72.00)	7 (28.00)
	OBC	N=50(%)	33(66.00)	17(34.00)
	SC	N=75(%)	23(30.67)	52(69.33)
Western Region	GENERAL	N=25(%)	14(56.00)	11(44.00)
	OBC	N=50(%)	33(66.00)	17(34.00)
	SC	N=75(%)	31(41.33)	44(58.67)

Source: Field Survey Data, 2015

Table 6.20: Main causes for not repay the Agricultural Credit among Social Groups

Name of Region	Category of Household	Harvest Failure	Low Productivity	High Rate of Interest	Harvest Failure and Low Productivity	Others	Total
Bundelkhand Region	General	0(0.00)	0(0.00)	0(0.00)	7(100.00)	0(0.00)	7(100.00)
	OBC	0(0.00)	1(5.88)	0(0.00)	16(94.12)	0(0.00)	17(100.00)
	SC	0(0.00)	0(0.00)	0(0.00)	52(100.00)	0(0.00)	52(100.00)
Western Region	General	1(9.09)	6(54.55)	0(0.00)	3(27.27)	1(9.09)	11(100.00)
	OBC	4(23.53)	13(76.47)	0(0.00)	0(0.00)	0(0.00)	17(100.00)
	SC	6(13.64)	28(63.64)	2(4.55)	6(13.64)	2(4.55)	44(100.00)

Source: Field Survey Data, 2015

Table 6.21: Banks Actions among Social Groups

Name of Region	Category of Household		Yes	No
Bundelkhand Region	GENERAL	N=25 (%)	7 (28.00)	18 (72.00)
	OBC	N=50 (%)	11 (22.00)	39 (78.00)
	SC	N=75 (%)	46 (61.33)	29 (38.67)
Western Region	GENERAL	N=25 (%)	6 (24.00)	19 (76.00)
	OBC	N=50 (%)	13 (26.00)	37 (74.00)
	SC	N=75 (%)	44 (58.67)	31 (41.33)

Source: Field Survey Data, 2015

Table 6.22: Banks Fallow Discrimination during Sanctioning Credit

Name of Region	Category of Household		Yes	No
Bundelkhand Region	GENERAL	N=25 (%)	0 (0.00)	25 (100.00)
	OBC	N=50 (%)	0 (0.00)	50 (100.00)
	SC	N=75 (%)	50 (66.70)	25 (33.30)
Western Region	GENERAL	N=25 (%)	0 (0.00)	25 (100.00)
	OBC	N=50 (%)	0 (0.00)	50 (100.00)
	SC	N=75 (%)	30 (40.00)	45 (60.00)

Source: Field Survey Data, 2015

Table 6. 23: Flow of Average Agricultural Credit (in. Rs)

Name of Region	Category of Farmers		Co-operative Banks	Commercial Banks	Money-Lenders	Friends	Relatives
Bundelkhand Region	GENERAL	N=25	0.000	74,760	16,000	0.00	1600
	OBC	N=50	2000	37,360	4,700	300	120
	SC	N=75	133	17,173	5,108	1000	840
Western Region	GENERAL	N=25	1600	57,000	2,520	4840	1800
	OBC	N=50	2170	57,580	3,600	600	1600
	SC	N=75	333	47,947	13,600	973	267

Source: Field Survey Data, 2015

Table 6.24: Flow of Agricultural Credit among Social Groups

Name of Region	Category of Farmers		Total Net Amount (in. Rs)	Average Amount (in. Rs)
Bundelkhand Region	GENERAL	N= 25	2292250	91690
	OBC	N=50	2192210	43844
	SC	N=75	1787770	23837
Western Region	GENERAL	N= 25	1669000	66760
	OBC	N=50	3208650	64173
	SC	N=75	4644550	61927

Source: Field Survey Data, 2015

Table 6.25: Cost incurred during Sanctioning Agricultural Credit

Name of Region	Category of Farmers		Total Cost (in. Rs)	Average Cost (in.Rs)
Bundelkhand Region	GENERAL	N= 25	16750	670
	OBC	N=50	31790	636
	SC	N=75	26230	350
Western Region	GENERAL	N= 25	25000	1000
	OBC	N=50	68850	1377
	SC	N=75	89450	1193

Source: Field Survey Data, 2015

Table 6.26: Flow of Agricultural Credit by Formal and Informal Sources

Name of Region	Category of Household	Co-operative Banks	Commercial Banks	Money-Lenders	Friends	Relatives
Bundelkhand Region	GENERAL	0 (0.00) (0.00)	1869000 (80.94) (37.19)	400000 (17.32) 39.49)	0 (0.00) (0.00)	40000 (1.73) (36.70)
	OBC	100000 (4.50) (90.91)	1868000 (83.99) (37.17)	235000 (10.57) (23.20)	15000 (0.67) (16.67)	6000 (0.27) (5.50)
	SC	10000 (0.55) (9.09)	1288000 (71.00) (25.63)	378000 (20.84) (37.31)	75000 (4.13) (83.33)	63000 (3.47) (57.80)
Western Region	GENERAL	40000 (2.36) (23.05)	1425000 (84.12) (18.04)	63000 (3.72) (4.99)	121000 (7.14) (54.02)	45000 (2.66) (31.03)
	OBC	108500 (3.31) (62.54)	2879000 (87.84) (36.44)	180000 (5.49) (14.25)	30000 (0.92) (13.39)	80000 (2.44) (55.17)
	SC	25000 (0.53) (14.41)	3596000 (75.96) (45.52)	1020000 (21.55) (80.76)	73000 (1.54) (32.59)	20000 (0.42) (13.79)

Source: Field Survey Data, 2015

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Table 6.27: Share of Agricultural Credit in Formal and Informal Sources

Name of Region	Category of Farmers		Formal Source	Informal Source
Bundelkhand Region	GENERAL	N=25 (%)	1869000 (80.94)	440000 (19.06)
	OBC	N=50 (%)	1968000 (88.49)	256000 (11.51)
	SC	N=75 (%)	1298000 (71.55)	516000 (28.45)
Western Region	GENERAL	N=25 (%)	1465000 (86.48)	229000 (13.52)
	OBC	N=50 (%)	2987500 (91.15)	290000 (8.85)
	SC	N=75 (%)	3621000 (76.49)	1113000 (23.51)

Source: Field Survey Data, 2015

Table 6.28: Average Annual Income from All Source (in. Rs)

Name of Region	Category of Household		Average Annual Income
Bundelkhand Region	GENERAL	N=25	79846
	OBC	N=50	87034
	SC	N=75	72496
Western Region	GENERAL	N=25	193998
	OBC	N=50	193833
	SC	N=75	128235

Source: Field Survey Data, 2015

Table 6.29: Average Annual Expenditure of Farmers (in Rs)

Name of Region	Category of Household		Average Expenditure
Bundelkhand Region	GENERAL	N=25	105232
	OBC	N=50	59391
	SC	N=75	54986
Western Region	GENERAL	N=25	73810
	OBC	N=50	87496
	SC	N=75	67634

Source: Field Survey Data, 2015

Figure 6.30: Region wise total Agricultural Production among Social Groups (in. quintal)

Name of Region	Category of Households		Before Credit	After Credit
Bundelkhand Region	General	N=25	912	1021
	OBC	N=50	1022	1069
	SC	N=75	1191	1266
Western Region	General	N=25	2909	2974
	OBC	N=50	5540	6051
	SC	N=75	5024	5171

Source: Field Survey data, 2015

Figure 6.31: Percentage change in Agricultural Production (in. quintal)

Name of Region	Category of Households		Percentage Change in Agricultural Production
Bundelkhand Region	General	N=25	11.95
	OBC	N=50	4.60
	SC	N=75	6.30
Western Region	General	N=25	2.23
	OBC	N=50	9.22
	SC	N=75	2.93

Source: Field Survey Data, 2015

Table 6.32: Net Average Agricultural Income among Social Groups (in. Rs)

Name of Region	Category of Households		Before Credit	After Credit
Bundelkhand Region	GENERAL	N=25	18986	24222
	OBC	N=50	9501	10674
	SC	N=75	7751	8795
Western Region	GENERAL	N=25	37210	38171
	OBC	N=50	40296	42780
	SC	N=75	27561	28147

Source: Field Survey Data, 2015

Table 6.33: Percentage change in Agricultural Income among Social Groups

Name of Region	Category of Households		Percentage Change in Agricultural income
Bundelkhand Region	GENERAL	N=25	27.58
	OBC	N=50	12.35
	SC	N=75	13.47
Western Region	GENERAL	N=25	2.58
	OBC	N=50	6.16
	SC	N=75	2.13

Source: Field Survey Data, 2015

Table 6.34: Average Agricultural Cost among Social Groups (in Rs)

Name of Region	Category of Households		Before Credit	After Credit
Bundelkhand Region	GENERAL	N=25	33600	34632
	OBC	N=50	20188	20378
	SC	N=75	15447	15867
Western Region	General	N=25	18108	18548
	OBC	N=50	19246	19616
	SC	N=75	17013	17387

Source: Field Survey Data, 2015

Table 6.35: Percentage change in Agricultural Cost among Social Groups

Name of Region	Category of Households		Percentage Change in Agricultural Cost
Bundelkhand Region	GENERAL	N=25	3.07
	OBC	N=50	0.94
	SC	N=75	2.72
Western Region	GENERAL	N=25	2.43
	OBC	N=50	1.92
	SC	N=75	2.19

Source: Field Survey Data, 2015

Table 6.36: Average Annual Consumption among Social Groups (in. Rs)

Name of Region	Category of Households		Before Credit	After Credit
Bundelkhand Region	GENERAL	N=25	105232	106210
	OBC	N=50	59391	48561
	SC	N=75	54986	48789
Western Region	GENERAL	N=25	73810	63900
	OBC	N=50	87496	81532
	SC	N=75	67634	60871

Source: Field Survey Data, 2015

Table 6.37: Percentage change in Consumption among Social Groups

Name of Region	Category of Farmers		Percentage Change in Consumption
Bundelkhand Region	GENERAL	N=25	00.93
	OBC	N=50	-18.24
	SC	N=75	-11.27
Western Region	GENERAL	N=25	-13.43
	OBC	N=50	-6.820
	SC	N=75	-10.00

Source: Field Survey Data, 2015

Table 6.38: Region wise Expenditure on Education among Social Groups (in Rs)

Name of Region	Category of Households		Before Credit	After Credit
Bundelkhand Region	GENERAL	N=25	712400	732100
	OBC	N=50	421600	423600
	SC	N=75	434400	434400
Western Region	GENERAL	N=25	349500	334900
	OBC	N=50	1077000	1095000
	SC	N=75	811200	787200

Source: Field Survey Data, 2015

Table 6.39: Percentage Change in Expenditure on Education

Name of Region	Category of Households	Percentage Change in Credit
Bundelkhand Region	GENERAL	2.77
	OBC	0.47
	SC	0.00
Western Region	GENERAL	-4.18
	OBC	1.67
	SC	-2.96

Source: Field Survey Data, 2015

Table 6.40: Expenditure on Health among Social Groups (in. Rs)

Name of Region	Category of Households		Before Credit	After Credit
Bundelkhand Region	GENERAL	N=25	177900	192100
	OBC	N=50	168400	170100
	SC	N=75	282140	281140
Western Region	GENERAL	N=25	129400	127200
	OBC	N=50	317400	308400
	SC	N=75	629500	628300

Source: Field Survey Data, 2015

Table 6.41: Percentage change in Health Expenditure among Social Groups

Name of Region	Category of Households		Percentage Change in Health Expenditure
	Category	N	
Bundelkhand Region	GENERAL	N=25	7.98
	OBC	N=50	1.01
	SC	N=75	-0.35
Western Region	GENERAL	N=25	-1.70
	OBC	N=50	-2.84
	SC	N=75	-0.19

Source: Field Survey Data, 2015

Table 6.42: Region wise percentage of Poverty among Social Groups

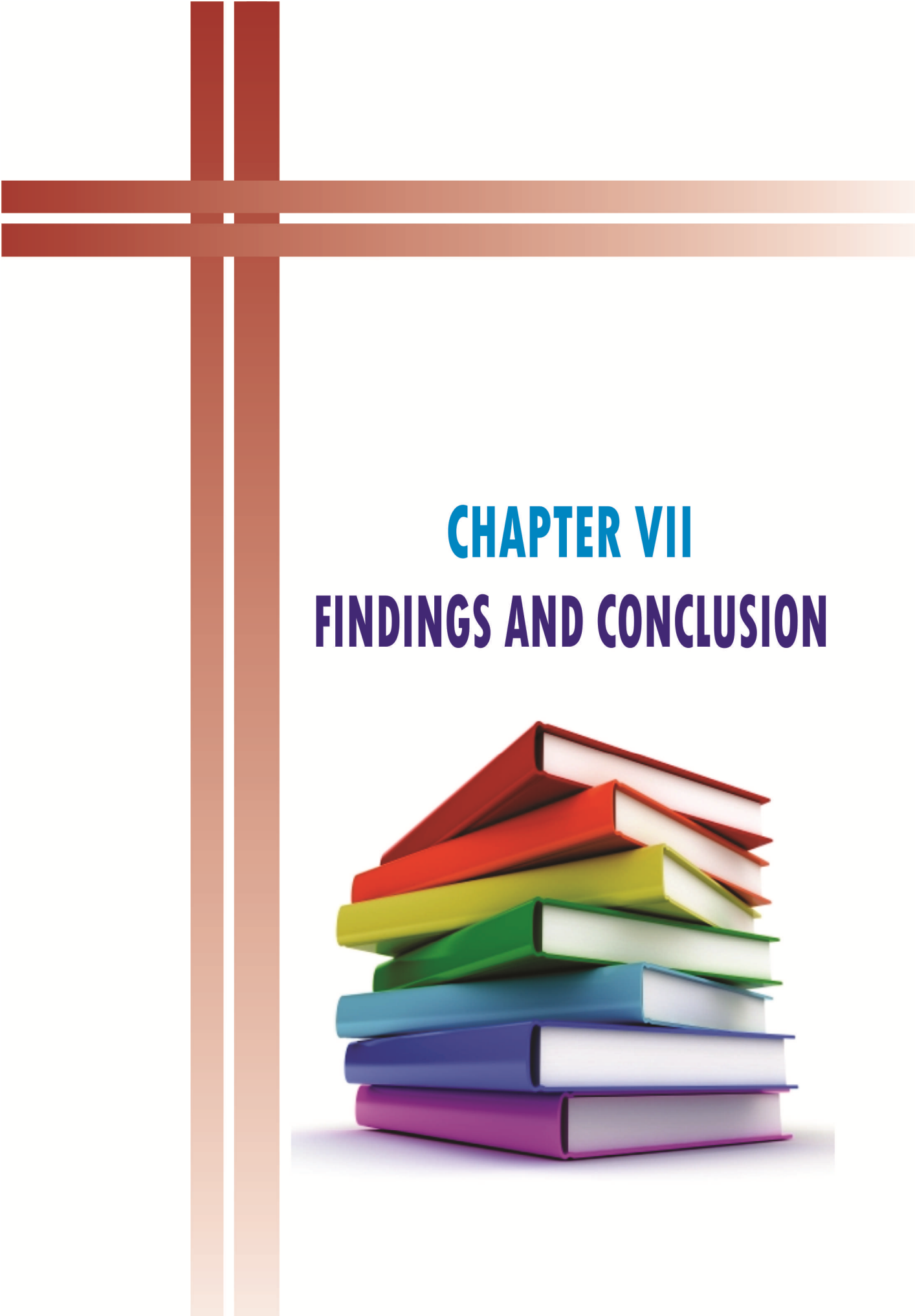
Name of Region	Category of Farmers	Before Credit	After Credit
Bundelkhand Region	GENERAL	86.55	85.35
	OBC	88.76	87.25
	SC	93.78	95.89
Western Region	GENERAL	84.54	84.39
	OBC	83.34	83.00
	SC	87.19	91.36

Source: Field Survey Data, 2015

Figure 6.43: Percentage of Social Groups will take Agricultural Credit in Future

Name of Region	Category of Farmers		Yes	No
	Category	Percentage		
Bundelkhand Region	General	25%	25(100.00)	0(0.00)
	OBC	50%	34 (68.00)	16 (32.00)
	SC	75%	44(58.67)	31(41.33)
Western Region	General	25%	20 (80.00)	5 (20.00)
	OBC	50%	34 (68.00)	16 (32.00)
	SC	75%	53 (70.67)	22(29.33)

Source: Field Survey Data, 2015



CHAPTER VII

FINDINGS AND CONCLUSION



Agriculture plays an important role in the state economy. Majority of the population are dependent on agriculture sector for their livelihood. However, agriculture sector has been facing several problems such as small size of land holdings, low productivity, and lack of irrigation facility, lack of agricultural inputs, lack of credit facility, indebtedness, floods, drought, and poor technology. The state has launched several programs and policies to improve the conditions of small and marginal farmers as well as agriculture sector. Therefore, this effort made a lot of progress in agriculture sector since independence in terms of growth of production, productivity, area under crops, and improves the socio-economic conditions of small and marginal farmers. But still, it is facing regional disparities in production, productivity, and agricultural credit at state level.

The performance of agriculture sector depends on credit and capital formation. Credit plays very impressive role to improve the socio-economic conditions of small and marginal farmers and purchase inputs like fertilizers, high yielding varieties seeds, pesticides, land improvement, raising productivity, income, employment, to build farm structures, soil fertility, decrease the regional disparities, solve the problem of the food security, development of the irrigation facilities, water management, land development, saving and improve the standard of the living of the small and marginal farmers in the state. It also useful to drive day to day consumption, paying for medical, educational, social and religious purposes, for enhancing economic activities, support to farmers for better protection as well as making balance in the economy. Hence, an attempt is made here to study the 'The Impact of Agricultural Credit on Socio-Economic Conditions of Small and Marginal Farmers in Uttar Pradesh. The study is based on primary survey. The present chapter aims to sum up the work that has been done in the preceding chapters and presents the conclusions obtained from the empirical analysis. This chapter is divided into two sections. Section I presents the main findings and conclusion of the study. Section II highlights the suitable policy suggestions of the present study.

The growth of agriculture sector enhances the economic development at state level. It is not only a major source of livelihoods, but also back bone of the state economy. Around 60 per cent of the total work force is engaged in agriculture for employment of the nation. It also plays a significant role in reducing poverty, increasing income, generating employment, government revenue, and maintains the price fluctuation in the economy. However, agriculture sector is facing several

problems. Agricultural credit is one of the very important remedies to remove the several problems of agriculture sector. It is found that the facility of the agricultural credit is not sufficient to increase the growth of the agriculture sector and improve the conditions of small and marginal farmers.

Several developmental theories have highlighted the significance of credit/capital for agricultural development. The Interlinkage of theoretical approaches are very crucial to improve the growth of agriculture and raise socio-economic conditions of the farmers. Institutional or formal sources consist of cooperatives, commercial banks, and regional rural banks. Non-institutional or informal sources include moneylenders, landlords, traders, friends, and relatives. These two sources have been providing agricultural credit for increasing productivity of agriculture and improve the standard of living of the farmers. But still our agriculture is backward, faces several institutional and non-institutional problems. It is clear in various approaches of agricultural credit. It is found that tenancy contracts are interlocked with transactions in other market like credit, labour and marketing of crop produce. In the agriculture sector, the mode of production is feudalistic and capitalistic. In the feudalistic mode of production, there is social relationship between lenders and tenants but in capitalistic mode of the production there is bondage between lenders and tenants. The implication of interlinking of factor markets and its impacts on farm economy are viewed differently by neoclassical and the Marxist. Neoclassical said that interlinking factors increase the efficiency in the economy but Marxists has noted that such interlinking of markets increases the exploitative power. On the other hand, tenancy play an important role in a credit system of the landlord providing production loans to the resources poor tenants to undertake cultivation has been emphasized by many starting from classical writers like smith and neoclassical writers Marshal, Braverman and Stiglitz (1982) and Marx (1974). A tenants receiving consumption loan from the landowner at times of need thus tenancy acting as an insurance against hunger has been depicted by Scott (1976). There are several other theories such as Interlinking between labour and Credit, Interlinkage between Credit and Produce, Risk and Uncertainty Theory of Agriculture Credit, Business vs. Social and Moral Theory of Agricultural Finance. Theories of agricultural credit and linked with agriculture development is very important. The implication of credit on agricultural development need to be strengthens in the state. The Government of India made several committees, commissions, Acts, programmes and policies to increase the flow

of credit and reduce the exploitative nature of the moneylenders. But, these efforts are not sufficient to prevent exploitative nature of the moneylenders. On the other hand, the recommendations of the committees, government policy and programmes are modelled such a way which can provide maximum social justice, equality and benefits among small and marginal framers.

Agriculture sector is one of the major GDP contributors in the state economy. However, agriculture sector is facing drastic changes like cropping pattern, farming system, commercialization of crops, and size of the land, technology utilization and labour relations in rural areas. Agriculture sector has been facing several constraints such as decreasing holding size, increasing fragmented land, increasing number of small and marginal farmers, lack of improved quality seeds, low seed replacement rate and non-availability of seeds and lack of finance. It is clear that 69 per cent of the available land in Uttar Pradesh has been allocated to the agriculture. There is huge possibility of agricultural development through increase in net area sown and intensity. There is also huge scope of multiple cropping to increase agricultural productivity at state level. It is clear that majority of farmers in Uttar Pradesh are small and marginal farmers. The number of marginal holdings was 66.83 per cent in 1970-71 controlling 21.08 per cent of area and further the number of marginal holdings increased to 79.23 per cent in 2010-11 controlling 39.27 per cent of area at state level. With regards to small holdings, the number was at 17.19 per cent in 1970-71 controlling 20.39 per cent of area and become 13.14 per cent in 2010-11 controlling 24.57 per cent of area in the state. On the other hand, the average size of land holdings was 1.16 in 1970-71 and decreased to 0.75 per cent in 2010-11. It is found that the average size of the land holdings has been continuously decreasing during the study period at state level.

Diversification of crops from food grains to non-food grains are increasing in Uttar Pradesh. As results, contract and corporate farming are emerging due to the higher profitability of non- food grains at state level. It is found that the average productivity (yield) of the commercial crops is sharply increasing while average productivity of sugarcane and potatos are also increasing during 1950-51 to 2010-11. On the other hand, use of nitrogenous and potasic fertilisers has gone down while phosphatic fertilizers has increased respectively during the period same period at state level.

The regression result shows that the impact of productivity of food grain was positive and significant impact on net state domestic while the impact of food grains productivity was positive and significant impact on food grains production during the study period at national level. On the other hand, it is also found that net area irrigated and cropping intensity had positive and significant impact on NSDP whereas agricultural expenditure had very negligible positive impact on NSDP. Similarly, net area irrigated and cropping intensity had positive and significant impact on production of food grains whereas agricultural expenditure had negative and insignificant impact on production of food grains during the study period at state level. Overall from the regression results, it is observed that agricultural expenditure at the farmer's level and government level are very low which would affect the growth of food grain production and productivity at state level. There is need to increase agricultural expenditure, intensification of land use, improved irrigation facilities and availability of financial services at state level.

Uttar Pradesh is most populous state of India. Majority of the people are dependent on agriculture sector for their livelihood. It is found that the growth of agriculture sector was not impressive during independence at state level. Green revolution brought a new direction in agriculture sector at state level. The cultivation of high yielding varieties of seeds at recommended dosages of fertilizers increased the productivity of agricultural crops in the state. However, the number and area of small and marginal farmers are increasing. They are suffering from small size of land holdings, low productivity, low value of output, low income, low consumption pattern, lack of inputs, inadequate credit, lack of irrigation facility, and indebtedness. The small and marginal holdings have become very complex for agriculture at state level.

Agriculture credit plays an important role in improving agriculture production, productivity and mitigating the distress conditions of small and marginal farmers. The total agriculture credit disbursement by the institutional agencies was Rs. 6,442 crores in 2002-03 and increased to Rs. 56,219 crores in 2013-14. The short term and long term credit was Rs. 3,636 crores, and Rs.2,806 crores and increased to Rs. 41,375 crores, and Rs.14,844 crores in 2013-14. The share of short term and long term credit was 56.4 per cent, 43.6 per cent in 2002-03 and become 73.6 per cent, 26.4 per cent in 2013-14 in the state. On the other hand, compound annual growth rate (CAGR) for short term and long term credit was 22 per cent and 15 per cent during last 12 years.

The share of agriculture credit to agriculture GDP was 15.62 per cent and increased to 60 per cent in 2013-14 per cent in Uttar Pradesh. It is found that out of 27 public sector banks, ten public sector banks had more than 93 per cent share of direct and 91 per cent share of indirect agricultural credit in 2015 in Uttar Pradesh. On the other hand, out of 27 public sector banks, three public sector banks had more than 53 per cent share of direct agricultural credit in the state. It is clear that very few public sector banks are dominant to provide agriculture credit in rural areas of the state. It is also found that out of 11 private sector banks only 5 banks had more than 94 per cent share of total agricultural credit in Uttar Pradesh. The regression result shows that the effect of agricultural credit is positive and significant impact on net state domestic product and the effect of agricultural credit on yield of food grains is positive and significant during the study period.

The performance of public and private banks was not significant during the study period at state level. It is found that out of 27 public sector banks, three public sector banks had more than 51 per cent share of agricultural credit. The share of others public sector banks to flow the direct and indirect credit was not impressive during the year at state level. On the other hand, it is noticed that out of 11 private sector banks only 5 banks had more than 94 per cent share of total agricultural credit. Private sector banks opened the bank branches to provide agriculture credit and agriculture development. But the performance of the private sectors banks to provide agricultural credit is not satisfactory at state level.

It is found that the share of direct agricultural credit flow by cooperatives banks was 7.52 per cent while indirect credit was negligible in 2015 at state level. With regards to public sector banks, the share of direct and indirect agricultural credit was 65.20 per cent and 92.5 per cent in 2015. On the other hand, the share private sector banks in term of direct and indirect were 2.95 per cent and 3.3 per cent in 2015 at state level. The share of direct agricultural credit by regional rural banks was 24.2 per cent, followed by 4.2 per cent for indirect in 2015. Regarding the share of total agricultural credit by cooperatives banks, public sector banks, private sector banks and regional rural banks was 6.65 per cent, 68.30 per cent, 3.0 per cent, and 22.04 per cent during 2015 at state level.

The average amount of outstanding loan per agricultural household was Rs.47,000 in 2013. It is found that Andhra Pradesh had the highest share of indebted agricultural households in the country i.e. 92.9 per cent, followed by 89.1 per cent in

Telangana, 82.5 per cent in Tamil Nadu in the year 2013. On the other hand, the percentage of indebted households was 37.2 per cent in Chhattisgarh, followed by 28.9 per cent in Jharkhand, 17.5 per cent in Assam during the same year. The average amount of outstanding loan was highest i.e. Rs. 2, 13,600 in Kerala, followed by Rs. 1, 23,400 in Andhra Pradesh, Rs. 1, 19,500 in Punjab, Rs. 10, 200 in Chhattisgarh, around Rs. 5, 700 in Jharkhand, and Rs. 3, 400 in Assam in the year 2013. With regards to Uttar Pradesh, the share of indebted agricultural households was 43.8 per cent and the average amount of outstanding loan among all classes was Rs.27, 300 in 2013.

The regression results show that net irrigated area had positive and significant impact on NSDP whereas agricultural credit had negative but significant impact on NSDP during the study period at state level. On the other hand, consumption of fertilisers had negative and insignificant impact on NSDP during same period in the state. On the other hand, NIA had positive and significant impact whereas agricultural credit had negative but significant impact on production of foodgrain during the study period. Consumption of fertilisers had positive and insignificant impact on production of food grain during the study period. Regarding productivity of foodgrain, NIA had positive and significant impact while FERC had positive but insignificant impact during the study period. Agricultural credit had negative but significant impact on productivity of food grain during the study period at state level.

The impact of agricultural credit on socio-economic conditions of small and marginal farmers in Uttar Pradesh are analysed with the help of primary data. It is found that around 3 (12 per cent), 8(32 per cent) and 14(56 per cent) General farmers are living in Kuchha house, semi-pucca house and pucca house whereas 5(10 per cent), 17(34 per cent) and 28(56 per cent) OBC farmers are living kuccha house, semi-pucca house and pucca house respectively. Similarly, 43(57.33 per cent), 23(30.67 per cent) and 9(12 per cent) SC farmers are living in kuccha house, semi-pucca house and pucca house in the village of Bundelkhand region. On the other hand, 3(12per cent), 4(16 per cent) and 18(72per cent) General farmers are living in kuccha house, semi-pucca house and pucca house whereas 8(16 per cent), 11(22 per cent) and 31(62per cent) OBC farmers are living kuccha house, semi-pucca house and pucca house respectively. In the same way, 15(20per cent), 23(30.67 per cent) and 37(49.33per cent) SC farmers are living in kuccha house, semi-pucca house and pucca

house in the village of western region. It is noticed that there is widespread variations in term of accessing house facility among social groups in Uttar Pradesh.

It is found that most of the farmers are used hand pump facility for drinking water during the study period in both the regions at state level. In case of General category farmers, almost 22(88 per cent) used hand pump and 3(12 per cent) used others source for drinking water whereas the used Well for drinking water was negligible during the study period in Bundelkhand region. Similarly, 2(4 per cent), 40(80 per cent) and 8(16 per cent) OBC farmers have been used Well, Hand pump, and others sources of drinking water whereas 20(26.67 per cent), 40(53.33 per cent) and 15(20 per cent) SC farmers have been used well, Hand pump and others sources of drinking water in Bundelkhand region. On the other hand, the percentage of General farmers used hand pump was 23(92 per cent) whereas 2(8 per cent) used 'others' sources for drinking water. Similarly, 45(90 per cent) and 5(10 per cent) OBC farmers have been used hand pump and 'others' sources for drinking water whereas 72(96 per cent), 3(4 per cent) SC farmers used hand pump and 'others' sources for drinking water in western region.

Sanitation facility is very vital among social groups in both the regions. However, it found that majority of farmers are using open field for sanitation. The conditions of the SC farmers are not satisfactory in term of having good toilet facility. Western region is highly developed in term of having good sanitations facility compared to Bundelkhand region. In case of consumption of electricity, schedule cast farmers are the most vulnerable for accessing the facility of electricity in both regions. Majority of SC farmers are living without power connection. Considering the source of cooking food, it is observed that majority of the farmers are using wood for cooking food items and the use of LPG for cooking food items is negligible among all categories of farmers in both villages. With regards to the level of education, it is found that General and OBC farmers are more literate compared to schedule cast farmers in both regions. Western region has good academic infrastructure compared to the Bundelkhand region. On the other hand, there are extensive variations in occupational distribution among small and marginal farmers. Majority of the farmers are unemployed due to lack of job opportunities in Bundelkhand region. Small and marginal farmers are losing their assets and migrating to urban areas for better job opportunities in both the regions.

There is unequal distribution of land among the social groups at state level. Schedule caste (SC) is most vulnerable groups having land compared to General and OBC farmers. Obviously, land is basic economic asset but most of the SC farmers are suffering from unavailability of land in both regions. The incidence of land leasing is found very high in SC category farmers compared to General and OBC in both regions. With regards to livestock, majority of the farmers having cow and Buffalo, but Goat/Sheep, Pigs and Hen/Duck is kept by a few farmers in both the regions. Western region have highest number of all types of livestock compared to Bundelkhand region.

Irrigation development is not significant in both regions of Uttar Pradesh. However, western region is more prosperous in term of having irrigation facility. The farmers of Bundelkhand region are suffering from lack of electricity, lack of irrigation inputs, lack of modern technology, insignificant research and development, and lack developmental irrigation policies. It is found that majority farmers of Bundelkhand region are using diesel motor while farmers of western region are using electric motor for irrigation purpose. As results, farmers of Bundelkhand region are expending more on irrigation compared to western region farmers.

Credit plays very important role in the development of state economy. The growth of agriculture sector depends on the accessibility and availability of agricultural credit. It is found that the flow of agricultural credit in General farmers was 80.94 per cent from commercial banks, followed by 17.32 per cent from money lenders and 1.73 per cent from relative while the share of co-operative banks and friends was stagnant during the study period in Bundelkhand region. With regards to OBC farmers, the share of agricultural credit was 4.50 per cent from co-operative banks, followed by 84 per cent from commercial bank, 10.57 per cent from money lenders, 0.67 per cent from friends and 0.27 per cent from relatives. In case of SC farmers, the percentage of credit disbursement was 0.55 per cent by cooperative banks, 71 per cent from commercial banks, around 21 per cent from money lenders, 4.13 per cent by friends, and 3.47 per cent from relatives during the study period in Bundelkhand region.

The flow of agricultural credit among General farmers was 2.36 per cent from co-operative banks, followed by 84.12 per cent by commercial banks, 3.72 per cent from money lenders, 7.14 per cent by friends and 2.66 per cent from relatives during the study period in the western region. Regarding OBC farmers, the share of

agricultural credit disbursed by co-operative banks was 3.31 per cent, followed by 88 per cent from commercial bank, 5.49 per cent by money lenders, 0.92 per cent from friends and 2.44 per cent by relatives in the same region. In case of SC farmers, the flow of agricultural credit was 0.53 per cent from cooperative banks, around 76 per cent from commercial banks, 21.55 per cent by money lenders, 1.54 per cent from friends and 0.42 per cent by relative during the study period in western region. It is observed that Schedule cast farmers are highly deprived to take credit from formal sources compared to General and OBC farmers in both the regions. There is extensive variation among social groups in term of agricultural credit disbursed by formal and informal sources during the study period in both the regions. However, the farmers of western regions are highly advantageous in term of accessing agricultural credit in western region.

The flow of agricultural credit by co-operative banks was 90.91 per cent in OBC, 9.09 per cent SC farmers while negligible in General farmers during the study period in Bundelkhand region. With regards to commercial banks, the flow of agricultural credit was 37.19 per cent in General, followed by 37.17 per cent in OBC and 25.63 per cent in SC farmers in the same region. Considering moneylenders, the share of General category farmers was 39.49 per cent, followed by 23.20 per cent in OBC and 37.31 per cent in SC farmers during the study period. In case of friends, the flow of agricultural credit was 16.67 per cent in OBC and followed by 83.33 per cent in SC category farmers while negligible in General farmers in Bundelkhand region. Similarly, the share agricultural credit disbursed by relatives was 36.70 per cent in General, followed by 5.50 per cent in OBC and 57.80 per cent in SC during the study period in Bundelkhand region.

With regards to western region, the share of credit flow by co-operative banks in General, OBC and SC farmers was 23.05 per cent, 62.54 per cent and 14.41 per cent during the study period. Considering commercial banks, the flow of credit in General, OBC and SC farmers was 18.04 per cent, 36.44 per cent and 45.52 per cent during the same period while the share of moneylenders was 5 per cent in general, followed by 14.25 per cent in OBC and 80.76 per cent in SC category farmers. Considering friends, the share of agricultural credit in General category farmers has accounted 54.02 per cent, followed by 13.39 per cent in OBC and 32.59 per cent in SC farmers. The percentage of agricultural credit disbursed by relatives was 31.03 per cent in General, followed by 55.17 per cent in OBC and 13.79 per cent SC category

farmers during the study period in the western region. Overall from the analysis, it is observed that the flow of agricultural credit was highly impressive in General and OBC farmers while SC category farmers were most vulnerable in term of credit in both the regions of Uttar Pradesh. The state should explore the effective mechanism to increase the availability of credit as well as to reduce the regional inequalities among social groups at state level.

During the study period, it is found that the ability to repay agricultural credit of the SC farmers is more worst compared to General and OBC farmers in both the regions. Majority of the farmers are agreeing that harvest failure and low productivity are the main cause not to repay the agricultural credit in both regions. Farmers of Bundelkhand region are highly suffering from harvest failure and low productivity compared to western region farmers. Banks also follow discrimination with the poor or SC farmers in sanctioning credit in both regions.

Agricultural credit has positive but minor impact on agricultural production among social groups during the study period in both the regions. The schedule cast farmers are not getting so much benefit of agricultural credit compared to General and OBC farmers due to small size of land holdings, lack of financial assistance, lack of technical knowledge, poor economic background, and lack of agricultural equipment's in both the regions.

Agricultural credit increased net average annual agricultural income around 27.58 per cent in General, followed by 12.35 per cent in OBC and 13.47 per cent in SC farmers during the study period in Bundelkhand region while 2.58 per cent in General, 6.16 per cent in OBC and 2.13 per cent in SC farmers during the study period in western region. On the other hand agricultural credit had positive impact on average annual agricultural cost i.e. 3.07 per cent in General, followed by 0.94 per cent in OBC, and 2.72 per cent in SC farmers in Bundelkhand region whereas 2.43 per cent in General, followed by 1.92 per cent in OBC and 2.19 per cent in SC farmers during the study period in western region

The impact of agricultural credit on total average consumption was 0.93 per cent in General, followed by -18.24 per cent in OBC and -11.27 per cent in SC farmers during the study period in Bundelkhand region. Considering western region, the impact of agricultural credit on consumption was -13.43 per cent in General, followed by -6.82 per cent in OBC, and -10 per cent in SC during the same period in western region. On the other hand, the impact of agricultural credit was marginal on

education expenditure i.e. 2.77 per cent in General and 0.47 per cent in OBC farmers in Bundelkhand region while agricultural credit has no effect on schedule cast farmers in the same region. Regarding western region, agricultural credit has negative impact on educational expenditure among social group's i.e. - 4.18 per cent in General and - 2.96 per cent in SC farmers whereas it has marginal positive impact on OBC farmers i.e. 1.67 per cent during the study period in western region

Agricultural credit increased health expenditure i.e. 7.98 per cent in General, followed by 1.01 per cent in OBC whereas decreased -0.35 per cent in SC farmers in the region of Bundelkhand. On the other hand, the farmers of western region are negatively affected by agricultural credit. Agricultural credit has decreased health expenditure i.e. -1.70 per cent in General, followed by -2.84 per cent in OBC and - 0.19 per cent in SC farmers in the western region. On the other hand, the percentage of poverty was 86.55 per cent in General, followed by 88.76 per cent in OBC and 93.78 per cent in SC category farmers before taking agricultural credit and become 85.35 per cent in General, 87.25 per cent in OBC and 95.89 per cent in SC farmers after taking agricultural credit during the study period in Bundelkhand region. On the other hand, the percentage of poverty was 84.54 per cent in General, followed by 83.34 per cent in OBC and 87.19 per cent in SC category farmers before taking agricultural credit and become 84.39 per cent in General, 83 per cent in OBC and 91.36 per cent in SC category farmers after taking agricultural credit during the study period in western region. Overall from analysis, it is observed that the impact of agricultural credit in term of production, income, expenditure, consumption, education, health, poverty, and equality was negligible among small and marginal farmers during the study period in the state of Uttar Pradesh.

Small and marginal farmers are suffering from low productivity, low income, low saving, lack of credit facility, indebtedness, regional inequity, and other socio-economic constraints in the state. It is noticed that there is various socio-economic disparities among social groups such as General, OBC, and SC. It is found that schedule cast farmers are more deprived groups to take the advantage of programs and policies in the both regions. Schedule cast farmers are converting into Christian religion due to poverty and poor socio-economic background in Bundelkhand region. Dalit farmers are more social and economically depressed in both the regions.

The performance of agriculture differs in both the regions. It is found that wheat and till is the main agricultural crops in Bundelkhand region. Farmers are

suffering from heavily drought situation from many years. On the other hand, the farmers of western region are more rich and innovative. They are growing several crops such as wheat, rice, and sugarcane. It is observed that farmers are suffering from unavailability of own resources for irrigation purpose. Most of the farmers are using rental inputs for irrigation purpose.

Institutional agricultural credit agencies play very important role to improve the socio-economic conditions of the farmers. However, the flow of agricultural credit by co-operative banks, commercial banks, and regional rural banks is very poor among small and marginal farmers in both regions. The performance of cooperative banks and regional rural banks is negligible in both regions. Due to the insignificant performance of institutional agencies, farmers are taking agricultural credit from non-institutional credit agencies. They charge very high rate of interest. As results, farmers fails to repay the credit and engrossed indebtedness and further sell their land and become landless or migrate to urban areas for better livelihood. On the other hand, Institutional credit agencies are facing several problems at state level. Co-operatives banks, commercial banks, and regional rural banks are facing high cost and risky rural lending. Majority of the small and marginal farmers depend on non-institutional source of agricultural credit. Due to indebtedness and malpractices of non-institutional sources, farmers are suiciding in the state.

The government has launched several programmes and policies to increase the agricultural production and productivity. But, these programmes and policies are unable to increase the agricultural growth significantly at state level. Therefore, the state should focus in the area of changing cropping pattern, better irrigation facilities, providing bio-fertilisers, better infrastructure facilities, crop insurance facility, price stability, modern techniques to farmers, extension of technology and more government expenditure on agriculture, rural development and flood control, and promote public-private sector partnerships to increase the growth of agriculture sector among small and marginal farmers in Uttar Pradesh.

The government should be focused on soil health, water conservation management and pest management. The production model should be diversified to crops, livestock, fisheries, poultry and agro forestry; homestead gardens supported by nurseries. Farm ponds, fertilizer trees and biogas plants must be promoted in all semi-arid rain-fed areas at state level.

There needs develop area specific strategies for improving agricultural growth and need to implement new policies and programmes to boost the productivity. The government of the state must implement appropriate land laws, Irrigation policy and seed policy to boost agricultural productivity and agro-processing. There is also need to encourage private participation through contract and corporate farming at state level.

The state should be adopted pro-poor policy, basically small and marginal farms oriented agricultural growth policy since small and marginal farms are predominant in the state and farm sizes are decreasing. The productivity of small holder's agriculture is the key for promoting agricultural growth. It is crucial to expand small holder access to finance, risk management strategies, inputs, services and extension and increase investment in rural infrastructure at states level.

People participation should be ensured in formulating policies and programs. On the other hand, the government should concern on dry land farming, organic farming, farming system, irrigation facilities, use of organic fertilizers, subsidy in agriculture, storage and marketing facility, climatic variability, skill development and agricultural research institutions. There is a need to promote mixed farming among small and marginal farmers to increase standard of living and income in the state of Uttar Pradesh.

Agricultural credit market such as institutional and non-institutional, organised and unorganised, and formal and informal are very popular at state level. However, the delivery mechanism of agricultural credit for the development of agriculture is very poor and exploitive in nature. The effective delivery mechanism of agricultural credit is to develop innovations in agricultural credit markets, increase financial literacy among farmers, and training to the farmers regarding formalities of financial institutions.

The practice of credit disbursement should be made very simple so that less-educated and illiterate farmers can access institutional credit. Minimum interest rate should be charged among the farmers. The subsidies should be directed for capacity building to poor farmers. On the other hand, there is need to strengthen banking network, restructure the cooperative banks and regional rural banks in rural areas. The government should not make a uniform credit policy. It should be flexible and decentralized based on the local socio-economic conditions of the farmers. There is also need to reduce transaction cost for input supplies and output buyers.



APPENDICES



Impact of Agriculture Credit on Socio-Economic Conditions of Small and Marginal Farmers in Uttar Pradesh.

Part-1

(A) Personal Profile & Household Details:

Schedule No: _____

1. Name of Respondent: Mr./Mrs. _____
2. Age (in Year): _____ 3. Sexes: Male-1, Female-2
4. Marital Status: (Married -1, Unmarried-2, Widow-3, Divorced/Sepered-4).
5. Type of Family- Joint-1, Nuclear-2 6. Village / Name: _____
7. District / Name _____

Caste & Religion:

Caste	Hindu/Sub Caste	Muslim/Sub Caste	Sikh/ Sub Caste	Christian/ Sub caste
General				
OBC				
SC				
ST				

(B) Demographic profile of household

SI No.	Name of the Family Member	Relation ship	Age (Yrs.)	Sex	Marital Status	Educational Qualification	Occupation	Monthly income (In Rs)
1								
2								
3								
4								
5								
6								
7								
8								
9								

Codes:

Male-1, Female-2 Married-1, Unmarried-2, Widow-3, Divorced/Separated-4. Child up to 5 year-1, Illiterate-2, Literate without formal schooling-3, but below primary -4, primary -5, Middle-6, Metric/ Secondary-7, HigherSecondary-8, Diploma/Certificate Course-9, Graduate(Including technical diploma)-10, Post graduate-11, other-12. Self-employment-1, Regular salary group (Both Public & Private Sector)-2, Non-agricultural labour-3, Agricultural labour-4, Unemployed-5, Domestic Work-6, Domestic work with some side work-7, Student-9, House wife-10, other please specify)-11 Specify :(retired/ Pensioner, Cultivator, Animal Husbandry, Trade Articians).

Part-2

(A) Permanent family Inventory

S.No	Permanent family Inventory	
1	House details	1 Kuchha House, 2 Semi-Pucca, 3 Pucca
2	Toilet facilities	1 Flush Toilet, 2 Temporary toilet, 3 Temporary toilet, 4 Open field,
3	Source of drinking Water	1 Supply water, 2 well ,3 Hand pump, 4 Surface water, 5 govt, 6 other-
4	Electricity:	1 Electrified, 2 Not electrified,
5	If non electrified then what is the source	1 Kerosene, 2 Others,
6	Source of cooking food	1 Wood, 2 Dung cakes, 3 Stove, 4 LPG, 5 Other
7	Vehicle	1 Car, 2 Jeep, 3 Tractor, 4 Motorcycle, 5 Cycle
8	Television	Yes = 1/ No= 2
9	Refrigerator/ Washing Machine	Yes= 1/ No =2
10	Transitor/Tape Recorder	Yes =1/ No =2
11	Telephone	Yes =1/ No= 2
12	Mobile	Yes= 1/ No =2
13	Other Durable Assets	Yes=1 No=2 If yes then specify
S.No	(B) Economic profile of Household Family	
1	Do you have own Land	Y=1, N=2
2	If yes, how much land	hec/acre/bigha
3	Agricultural Irrigated land	hec/acre/bigha
4	Value of one hec/acre/bigha of land	Rs
5	Marginal Holdings(Below 1 hec)	1
6	Small Holdings(1.0 – 2.0 hec)	2
7	Semi- Medium holdings (2.0 – 4.0 hec)	3
8	Medium Holdings (4.0 – 10.0hec)	4
9	Large Holdings (Above 10.0 hec)	5

Part-3

(A) Source of Irrigation

S.No.	Source	Self	On rent (if hired than rent in Rs.
1	Cannel		
2	Tube wells		
3	Pumping set		
4	Pond/well		
5	Motor		
5	Others		
6	How much time irrigated water has required for one crop?		
7	How much cost is required for first time irrigation?		Rs

(B) Land Use Pattern

S. No	Land Use Pattern	
1	Cultivated area of land	hec/acre/bigha
2	Uncultivated land	hec/acre/bigha
3	Reason for keeping land fellow/ or uncultivated land:	1 Lack of capital , 2 Dispute, 3 Threat of animals, 4 Non co-operation of household family members, 5 Other, 6 No credit
4	Orchard and Plantation	hec/acre/bigha
5	Total operated land	hec/acre/bigha
6	Barren land	hec/acre/bigha
7	How Much Production have you achieved hec/acre/bigha	Qtl
8	How much cost is required to grow a crop Paddy, wheat	Rs

(C) Live stock

SI. No	Type of Animals	Numbers	Value (in Rs.)
1	Cow		
2	Buffalo		
3	Draught animal (Bullock)		
4	Draught animal(Buffalo)		
5	Goat/Sheep		
6	Pigs		
7	Cock/Hen/Duck		
8	Others (horse, donkey etc)		
9	Total Amount in Rs.		

Part-4

(A) Expenditure of the Household (Annual):

(A) Essential Expenditures

SI. No	Essential Expenditures	Total amount
1	Food items	
2	Education	
3	Health/Medical	
4	Clothing and bedding	
5	Electricity	
6	Payment of interest for borrowings	
7	Maintenance of vehicle(Patrol/repairing	
8	Maintenance of house/cattle shed	
9	Maintenance of household equipments	
10	Water bill/ Rental irrigated water	
11	Social functions (marriage, birthday etc)	
12	Other	

Part-5

(A) Details of agricultural credit

(B) Have you taken the Agricultural credit?

1.1. If yes; what are the sources of credit? Which bank? _____

Source of the credit	Formal source	Informal Source	Purpose of the Credit	Rate of Interest	Amount Applied Rs	Amount sanctioned Rs
Banks						
1 Co-operatives						
2 RRBs						
3 Commercial						
4 others						
Moneylenders						
Landlord						
Friends						
Relatives						
Others						

1.2. Security offered and accepted

(a) Land..... (b) House..... (c) Crop..... (d) Jewellery..... (e) Any other (specify).....

1.4. Cost of credit (directly or indirectly)

- a) Application fee.....
- b) Service charges.....
- c) Travelling cost.....
- d) Time/how many times did you visit the bank/others.....
- e) Paid to negotiating agent.....
- f) Any other (specify).....
- g) Bribe-----

1.5. Was you loan application rejected at any time (Yes/No), if yes, Please specify-----

1.6. Is the loan amount sufficient for your purpose (Yes/No?)

1.7. If No, which source you take the credit? -----

- (a) Some other agency.....
- (b) Informal source.....
- (c) Did not cover the gap.....

1.10. What is the main reason to take the credit from the sources? -----

1.11. Which crops will you produce after receiving credit?

- 1-Wheat 2- Rice 3- Sugarcane
- 4- Pulses 5- others

1.13. What are the farmer's responsibilities under the credit agreement? -----

1.14. Are you able to repay the credit? Yes=1, No=2

1.15. If no, what are the causes for not to repay the loans?(Please tick)

- 1Harvest failure,
- 2Low productivity,
- 3Low Productivity (pests, diseases and natural disaster),
- 4Low price of the products,
- 5 Charge high rate of interest,
- 6Lack of knowledge of new agricultural technology,
- 7Others.

1.16. Is there any action charged if farmer fail to repay the loans to the banks?
Yes=1, No=2

1.17. If yes, which type of action bank has taken against the farmers?

- 1 Penalty.
- 2 bank Notice
- 3 Deny providing loans.
- 4 Police filing
- 5 Charge high rate of interest
- 6 Seize the security kept by farmers
- 7 others.

1.18. If banks seize the security kept by the farmers, then what is the alternative option for the life? (Please tick)

- 1 Taking credit from informal source
- 2 Selling Property
- 3 Suicides
- 4 Migrating other places
- 5 others.

1.19. Is there any special privilege from the banks to all farmers based on social category (SC, ST, and OBC) equally? Yes =1, No= 2, if yes then specify:

Sr. No	Social groups	Concession	Special procedure	Preference	Programmes
1	Gen				
2	OBC				
3	SC				
4	ST				

1.20. Do you think banks are following discrimination in sanctioning credit to farmers? (Yes =1, No= 2)

1.21. If yes, which type of discrimination? _____

Part-6
Socio-Economic Status of the Households:

(A) Production:

		Have agriculture credit increased production? Yes = 1, No = 2							
		Before credit							
Sr. no	Crops	Area Bigha/Acres	Cost of crops	Yield (q)	Production sold (q)	Market Price Rs/q	Selling Price Rs/q	Agency	Total Income
1	Wheat								
2	Rice								
3	Maize								
4	Sugarcane								
5	Vegetables								
6	Fruits								
7	Others								
		After credit							
Sr. no	Crops	Area Bigha/Acres	Cost of crops	Yield (q)	Production sold (q)	Market Price Rs/q	Selling Price Rs/q	Selling Agency	Total Income
1	Wheat								
2	Rice								
3	Maize								
4	Sugarcane								
5	Vegetables								
6	Fruits								
7	Others								

**Part-7
(A) Income**

Sr. No	Income	
1	After credit, your income increased?	Yes=1, No=2
2	If yes, how much it increased	
3	Total monthly income from all occupation	Rs
4	Do you save money	Yes=1, No=2, If yes then where, Bank-1, keep cash in kind-2, Money lenders-3, Chitty Remmittance
5	How much money you have saved monthly	Rs
6	How many days have you worked in a month?	Days
7	Have you another source of income except Agricultural	If yes, specify the work----- ----- -----

(B) Annual income of household from all sources:

Sr. no	Source	Net Income(in Rs)
1	Agricultural work	Rs.
2	Animal husbandry	Rs.
3	Remittances	Rs.
4	Pension	Rs.
5	Rental income(leasing out)	Rs.
6	Income from sale of irrigation water, Tractor & Agricultural equipment.	Rs.
7		
8	Interest	Rs.
9	Artisan work	Rs.
10	Business and trade	Rs.
11	Services	Rs.
12	Others	Rs.
13	Total income	Rs.

C- What was your monthly income before taking credit from the banks? Rs. --

Part-8

(A) Employment Status of the Household Family

What is your occupation at present? -----								
How many persons of your family are doing work along with you?								
	Before credit				After Credit			
S.No.	Relationship with family members	M/F	Year	Days(in month)	Relationship with family members	M/F	Year	Days(in month)
1								
2								
3								
4								
5								

(B) How many person of your family are doing another work? (Specify work)								
S.No.	Relationship with family members	M/F	Year	Days (in month)	Relationship with family members	M/F	Year	Days (in month)
1								
2								
3								
4								
5								
C								
1	What is nature of Your present occupation?	1 Permanent, 2 Long terms (less than one year) 3 Short terms, 4 Family workers without pay, 5 Self-employment, 6 Temporary basis, 7 Other						
2	What was your earlier occupation along with family							
3	How many months in a year, you are doing agricultural Work?							
4	Rest of the month of a year, How do you expand?	1 By doing non-agricultural work, 2 Migration for work from rural to urban, 3 No work at all						
5	How many days you work in Your land?							
6	How many days work as agriculture labour in others land?							
(D) Does any family member's works as agriculture laborers, if yes, how many and what is wage rate?								
Before Credit								
Sr. No	Family Member with relationship	Age	No of working days	Wage rate(in Rs)	Total Income (In Rs.)			
1								
2								
3								
4								
5								
After Credit								
Sr. No	Family Member with relationship	Age	No of working days	Wage rate(in Rs)	Total Income (In Rs.)			
1								
2								
3								
4								

E- Does any family members works as non- agriculture laborers or work under government scheme / programme? Yes=1/ No=2.

Sr. No	Family Member with relationship	Age (yrs.)	Non-Agricultural Work	Work under govt. programme	No. of Working days	Wage rate(in Rs)	Total Amount (In Rs)	Work in village outside of Village*
1								
2								
3								
4								
5								

*work in Village=1, Work in outside village=2

Part-9

(A)Consumption Expenditure:

Have agriculture credit increased consumption?			Yes=1, No=2
If yes, then how much you are expending on-			
	Before Credit		After Credit
Sr. No	Items	Expenditure(Rs)	Expenditure(Rs)
1	Food items		
2	Education		
3	Health/ Medical		
4	Clothing		
5	Social function		
6	Others		

Part-10

(A)Education

4. Have agriculture credit increased education (Yes/ No)							
If yes, then how and what is the qualification of the family							
SI No.	Name of the Family Member	M/F	Before Credit Educational Qualification	After Credit Educational Qualification	Before credit Name of the institutions & Place	After credit Name of Instituti on & place	Net Monthly Expenditure (In Rs)
1							
2							
3							
4							
5							
6							
7							

(B)What is the status of school/ college in your village/ Town?					
SI No.	School/ Institute	School (in No)	Distance of The school from the house (in km)	Private/ Govt.	Monthly fees (In Rs)
1	Primary School				
2	Secondary School				
3	Higher Secondary school				
4	Degree college				
5	Technological Institute				
6	University				
7	Other				

C- How you reach the school/ College?

Sr. No	Source of Transport	Total expenditure (in Rs.)
1	On foot	
2	Through cycle/ Motor cycle	
3	Through auto/ Taxi	
4	By Bus	
5	Other	

Part-11

Farmer's personal experience about Agriculture Credit

Sr. No	Have credit helped you?	Problems	Would you take credit in future?	Do you allow to your children to take credit in future?	Remarks
1					
2					
3					
4					

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