The term ‘agriculture’ has progressed vertically as well as horizontally from mere production of basic food crops to a wholesome concept of production, processing, marketing and distribution of crops and allied products. This progression from subsistence to the commercial level has passed through many stages. Since the sixties, the development of agriculture particularly in the field of food grains production has been dramatic and the world knows it now as the ‘Green Revolution’ story of India especially of Punjab. This ‘new strategy’ of agricultural growth necessitated massive use of inputs. The farmer had no resources of his own to invest in such an ambitious effort. State was to become a partner with the peasant and share his burden. It must open it’s coffers for his needs and he, in turn will fill her bread basket.

‘Agriculture, like any other economic activity, needs external assistance or credit for it’s survival’. This becomes all the more important in the light of production rigidities, high dependence on natural or climatic factors, inelastic demand for agricultural products, perishability of produce and poverty stricken farming community. Capital has been always required to finance agriculture, though at subsistence level, it was mainly for consumption purposes or repayment of old debts and source of finance was mainly non-institutional. With the addition of market-oriented dimensions to agriculture in the light of ‘new strategy’, borrowing as well as lending is now aimed at ‘production motives’. Institutions have become an important part of agricultural credit. But capital would only be forthcoming if properly recompensated. Hence, the debtor must be compelled to repay capital with interest.
Issues

In the process of modernization, agriculture has become more capital intensive requiring higher use of purchased inputs. Many steps have been taken by the government from time to time to provide financial assistance to the farmers in the form of strengthening of cooperative institutions, nationalization of commercial banks, creating new credit institutions, initiating special credit linked programmes for the target group. Despite all these efforts, there is still strong presence of non-institutional sources of agricultural credit at India as well as Punjab state levels.

The finance is required not only for current inputs due to introduction of high yielding varieties, but also for lumpy investments in the light of multiple cropping, increased cropping intensity, timeliness and precision required in agricultural operations in the new strategy and increased irrigation requirements. This has led to higher private capital formation, which comprised mainly of irrigation machinery / structures, tractors and other farm implements.

The presence of non-institutional sources in the field of agricultural credit despite all the endeavours of the government points to some flaws in the institutional agricultural credit scenario. The transaction cost in this source is assumed to be higher due to lengthy procedures, documentation required, limited size of credit and delays in processing etc.

In the light of all these issues, the present study has been planned to have an indepth knowledge about farmer’s access to agricultural credit in terms of delivery of credit by various agencies overtime, to analyze the growth of short-term and long-term credit disbursal vis-à-vis use of current inputs in agriculture as well as farm investments, respectively, to study the utilization pattern of credit for various productive and consumption purposes and to estimate the cost of credit from various agencies operating in the field of agricultural credit.

Methodology

In order to achieve the stipulated objectives of the study, a multi-stage random sampling technique has been used for the collection of primary data. All the three agro-climatic zones have been taken up for the study. Hoshiarpur
district has been selected from the kandi (submountainous) zone, Ludhiana and Kapurthala districts from the second zone i.e. central plain zone, due to large area under this zone have been selected and Bathinda district has been selected from zone-III. At the second stage, two blocks, one developed block and one underdeveloped block on the basis of composite rank index constructed by taking development parameters of ESO, Punjab, are randomly selected from each selected district. Then at the third stage of sampling minimum two villages or a cluster of villages catering to the data needs have been selected from each selected block. All the cultivating households for each village were enumerated and classified into five standard categories of operational holdings as marginal holdings (≤2.5 acres), small holdings (2.51 acres to 5.00 acres), semi-medium holdings (5.01 to 10.00 acres), medium holdings (10.01 to 25.00 acres) and large holdings (>25.00 acres) at the fourth stage. Then a sample of the total operational holdings with probability proportional to the number of holdings falling in each strata have been randomly selected and a total of 320 operational holdings comprises the sample of the study. The information has been sought from selected households regarding socio-economic parameters, investments, loans obtained, utilization and diversion of loans, purposes of loans, sources of loans, terms and conditions of loans, cost of loans, lending procedures and formalities involved etc. The lending aspects have been discussed of various agencies existing in the study area i.e. village cooperative societies, commercial banks, primary agricultural development banks and regional rural banks and commission agents to represent the non-institutional sources of finance. The secondary data sources have been tapped to get information regarding growth of institutional agricultural credit both in India as well as in Punjab. The composition of agricultural credit has been studied in terms of short-term and long-term loans by relating these to inputs use in agriculture overtime and private capital investment in terms of small and large implements, tractors, tubewells, diesel and electric motors, heavy machinery etc. respectively in the state. Various statistical techniques have been employed to analyze the data both on per farm and per hectare basis. Two way tables have been constructed to interpret the results.
The analytical tools like ratios, percentages, frequencies, deflator, growth rates, correlation and regression coefficients etc. have been used to achieve the stipulated objectives.

**Results of Secondary Data**

Many steps have been undertaken by the government to increase the flow of institutional credit to the agricultural sector. Thus, it has been found that disbursement of agricultural credit at current prices has maintained an upward trend at all India level throughout the period of study except for the year 1990-91, when banking reforms were introduced. However, the loans issued as a percentage of gross domestic product (GDP) has shown a fluctuating trend. It declined after 1987-88, but has shown improvement and was 24.08 per cent in 2005-06 at current prices and 8.2 per cent at constant prices. Intensity of credit on per hectare of net sown area (NSA) has shown a growth rate of 13.66 per cent per annum at current prices and 7.70 per cent at constant prices while it grew at a rate of 13.26 per cent per annum at current prices and 7.32 per cent at constant prices on the basis of per cropped hectare basis. At all India level share of cooperatives has been found to be higher till 1993-94 (56.5%) but it declined thereafter and touched a low of 46.2 per cent in 1998-99 again started increasing over next 3 years but declined in 2002-03 and was 33.4 per cent in 2005-06. The scheduled commercial banks have been the second largest contributor of agricultural loans. Since 1990-91, the loans issued by SCBs have shown an increasing trend and grew at a rate of 13.88 per cent per annum especially after 2001-02 under the state directed higher lending programme. The contribution of regional rural banks (RRBs) have shown improvement since 1994-95 and the share of these banks in total loans issued in agriculture sector has increased to 10.6 per cent in 2005-06 from 3.9 per cent in 1980-81. The share of government loans provided to agriculture has shown a declining trend. It has declined from 4.2 per cent in 1980-81 to a mere 1.1 per cent in 2001-02.

The analysis has been undertaken in terms of loans outstanding in agriculture sector to know the overtime position of credit to this sector. The total loans outstanding has shown a persistent increase overtime and has grown at a
rate of 12.25 per cent per annum for the span of study at current prices and at 6.36 per cent per annum at constant prices. The growth rate for entire study period has been worked out at 12.23 per cent per annum on per hectare basis of net sown area at current prices and at a rate of 6.36 per cent per annum at constant prices. On the basis of gross cropped area (GCA), the overall rate of growth for the total span is 11.82 per cent per annum at current prices and 6.34 per cent per annum at constant prices. The institution-wise picture has presented a role swapping between cooperatives and scheduled commercial banks (SCBs) over time. In 1980-81, the share of cooperatives in total amount outstanding was 57.2 per cent which has declined to 34.4 per cent in 2005-06. On the other hand, the share of SCBs was 40.4 per cent in 1980-81 but has increased to 56.6 per cent in 2005-06. The third institution under study RRBs has shown as increasing trend in loan outstanding from 2.4 per cent share in 1980-81 to 8.9 per cent in 2005-06.

The composition of agricultural credit at India level has shown that short term loans issued in this field have increased at a rate of 15.48 per cent per annum at current prices and at 9.42 per cent per annum at constant prices. Cooperatives were found to be dominant players initially with a share of 67.7 per cent in 1980-81 which has declined to 43.3 per cent in short term loans issued. On the other hand, percentage contribution of SCBs stands at 25.3 per cent in 1980-81, increased to 34.3 per cent in 1990-91, declined again and improved to 48.5 per cent in 2005-06. The share of RRBs in short term loans issued was 3.6 per cent in 1982-83, kept an increasing trend since 1993-94 and has been 13.6 per cent in 2005-06. The short term credit availability to agriculture sector has been analyzed in terms of amount outstanding also. The short term loans outstanding have shown higher growth in the third period i.e. 2000-01 to 2005-06 than in the first and second periods at current prices. At constant prices the overall rate of growth was worked out at 7.08 per cent. The relative share of cooperatives in short term loan outstanding was 58.7 per cent in 1980-81 but declines to 31.6 per cent in 2005-06. While the share of SCBs has been 35.8 per cent in 1980-81 in short term loans outstanding, stood at 55.5 per cent in 2005-
So far as the position of RRBs is concerned, the share of these was mere 3 per cent in 1982-83 but increased to 12.9 per cent in 2005-06. Thus short term loans issued and loans outstanding have grown overtime both at current as well as constant prices. The position of cooperatives and SCBs has been reversed in the process of growth. RRBs, though a late entrant in field has shown impressive growth under the span of study.

The long term loans issued at all India level for investment purposes in the field of agriculture have registered a growth rate of 12.59 per cent per annum from 1980-81 through 2005-06 at current prices and 5.89 per cent per annum at constant prices. The institution-wise split of long term loans issued shows that share of cooperatives was 46.3 per cent in 1980-81 declined to 32.6 per cent in 1990-91 but again increased to 57 per cent in 2001-02 and declined again to 25 per cent in 2005-06. While the share of SCBs was 53.7 per cent in 1980-81, kept on increasing and was 69.9 per cent in 2005-06. The loans issued by SCBs grew at 12.07 per cent per annum at current prices and at 6.19 per cent per annum at constant prices. The share of RRBs in loans issued for long term hovered between 4.9 per cent and 8.6 per cent. The analysis of long term or investment loans in terms of amount outstanding shows a growth rate of 11.74 percent per annum at current prices and 5.89 per cent per annum at constant prices. The position of institutions in long term loans outstanding shows that cooperatives were having a percentage share of 56.1 per cent in 1980-81, which declined to 27.7 per cent in relative terms in 1990-91 and stands at 36.7 per cent in 2005-06. On the other hand, the share of SCBs has been low initially, but increased later on. It was 43.9 per cent in 1980-81 and increased to 57.5 per cent in 2005-06 in total terms loan outstanding. RRBs, the third institution involved in term loans has a rising share in total term loans outstanding i.e. from 4.6 per cent in 1982-83 to a peak of 9.3 per cent in 1989-90 but settles at 5.8 per cent in 2005-06.

Thus credit availability and credit outstanding in agriculture sector in India has shown an increasing trend in terms of total loans as well as split up of short term and long term loans both at current as well as constant prices.
The estimates of non-institutional credit availability at all India level have been included in the study to gauge the overall agricultural credit availability in the country. The share has been estimated at 93 per cent in 1950-51, has shown a declining trend and stands at 42.5 per cent in 2003 as per NSSO figures, thus indicating as increasing share of institutional sources of finance.

In Punjab, institutional credit availability has shown significant growth at a rate of 16.09 per cent per annum under the total span of study. It increased from Rs. 234.67 crore in 1980-81 to 15608.83 crore in 2005-06 at current prices. However, at constant prices the credit availability in state increased at a rate of 9.43 per cent per annum. This is impressive in the light that in the first period i.e. 1980-81 to 1989-90 the green revolution technology was being stabilized, in the second period from 1990-91 to 1999-2000 higher inputs were being used to arrest the tapering yield levels and in the third period i.e. 2000-01 to 2005-06, institutional factors have pushed the credit disbursements in agriculture.

The analysis of comparative position of different institution in the field of agricultural credit in the state shows that cooperative institutions have been the major player in Punjab till 2000-01 with a share of more than 55 per cent in total credit availability. The credit disbursed by these institutions has shown a growth rate of 14.28 per cent per annum at current prices. However, share of cooperative credit has shown a declining trend in the recent years and it stands at 38 per cent in 2005-06.

On the other hand, the scheduled commercial banks have occupied the second position in the state till recently. The credit disbursement by SCBs has increased in absolute as well as relative terms. For the total span of study, commercial banks direct advances to agriculture sector has increased from Rs. 90 crore in 1980-81 to Rs. 9154.89 crore. This growth in credit disbursement has not been persistent. After the initial push, under the government directions SCBs contribution started declining in the field of agricultural credit. However, a deliberate push has been again provided by the government since 2000-01, which has led to a marked increase in this field.
The third institution, regional rural banks (RRBs) have been created later on and that too mainly for the rural poor and weaker sections of the society. So, their area of operation has remained limited. The share of these institutions in total credit disbursement though has shown an increase in absolute terms i.e. from Rs. 9.98 crore in 1985-86 to Rs. 559.34 crore in 2005-06, but in relative terms it has increased from 1.52 per cent in 1985-86 to 9.5 per cent in 1993-94 but dropping to 3.6 per cent in 2005-06.

Though, institutional agricultural credit has shown tremendous growth in the state overtime, but as a percentage of GSDP in agriculture, it has shown a decline after 1985-86. But since 2000-01, it has registered a high growth and reached at 47.29 per cent of GSDP in 2005-06.

The agricultural credit availability on per unit area basis is the real indicator of growth. On per hectare of net sown area it has increased at a rate of 16.06 per cent per annum at current prices and at 9.36 per cent per annum at constant prices.

In the light of increased cropping intensity in the state the credit disbursal has also been examined on per cropped hectare basis. The agricultural advances on this basis have shown a growth rate of 14.71 per cent per annum at current prices and 8.32 per cent per annum at constant prices.

In the field of agricultural credit loan outstandings is a better measure to know the level of credit contribution overtime instead of just one year as indicated by loans advanced during the year. The total amount outstanding in agriculture sector has increased at a rate of 13.15 per cent per annum at current prices and at 6.77 per cent per annum at constant prices in Punjab. On per hectare of net sown area, these have increased from Rs. 938 in 1980-81 to Rs. 31887 per hectare in 2005-06 at current prices. At constant prices, the growth rate has been 6.76 per cent per annum. When examined, the amount outstanding in terms of gross cropped area (GCA), the growth rate has been 12.25 per cent per annum at current prices and 5.99 per cent per annum at constant prices in the state.
The trend in institutional credit in the state has been justified according to theoretical aspects. When new technology / strategy happens in the field, farmers need financial support to adopt it due to lack of evidence of its success. Thus, agricultural credit supply increases with adoption of new technology. But once the gains of new technology have stabilized, the need of subsidized credit declines as incomes of farmers have increased due to adoption of new techniques. Thus a decline is witnessed in credit supply by institutions. However, at a later stage, stagnation sets in the production and productivity levels due to lack of new technological breakthrough. In the process, the cost of cultivation goes up due to intensive use of inputs to maintain the productivity levels. So, once again a deliberate push is required on the part of institutions till some new breakthrough happens in the field.

The scheduled commercial banks are found to be the dominant institution in total amount outstanding in the state. Their share has been as high as 61.3 per cent in 2005-06. On the other hand the share of cooperative institution has been declining since 1999-2000. The estimates of non-institutional credit availability in the state have also been gathered. In 1991-92, the proportionate share of non-institutional sources has been estimated at 40.74 per cent. A study undertaken in 1997 has put it at 53.44 per cent. However, NSSO estimates of 2003 have shown a contribution of 46.18 per cent of informer sources of finance. Another field study has indicated a decline in the share of these at 38.06 per cent in 2005-06. As per the present study, the share of non-institutional sources has been estimated at 27.35 per cent of the total loans obtained in 2005-06.

Equitable distribution of agricultural credit is equally important as the availability of credit. The equity issue becomes all the more important when studied in reference to small and marginal farmers who fail to generate sufficient economic surpluses to avail the gains of new technology. So, size-wise flow of institutional agricultural credit in Punjab has been undertaken. In 1980-81, the supply of credit to small and marginal farmers has been Rs. 846.2 per hectare of NSA, where as for large farmers it has been Rs. 4041.2. This amount increased to Rs. 39087 per hectare for small and Rs. 115434 per hectare for large farmers.
in 2001-02. In 1980-81, small farmers have been allocated only 17.31 per cent of total credit advanced. The share of these in cooperative credit is estimated at 30.75 per cent and in case of SCBs at 10.19 per cent. The share in total credit increased to 26.70 per cent in 1990-91. But again declined in 2001-02 due to drastic cut by SCBs to rural poor in the post-reform scenario. However, the situation has improved in 2005-06 and share of small farmers has increased to 30.95 per cent in total agricultural credit supplied. A marked increase has been observed in allocation of SCBs.

Thus, Punjab has shown a tremendous increase in credit availability on current as well as constant prices. A role swapping between cooperatives and SCBs has been witnessed in the field of agricultural credit in recent years due to stress by the Government on multi-agency approach and thus, large scale participation of commercial banks in the field. On the other hand, cooperatives are diversifying their activities in the non-farm sector. The role of RRBs so far has been limited in the field due to operational difficulties. However, credit availability has increased on per hectare basis of NSA as well as GCA. Also, the credit supplied has become more equitable over the years under the government sponsored directed lending programmes.

Production credit is a short-term credit provided for purchase of cash inputs, twice in a year. Punjab has not witnessed a persistent increase in production credit over the period of two and a half decades. It has been Rs. 154.37 crore in 1980-81 at current prices, increased to Rs. 667.62 crore in 1989-90, declined in 1990-91, but has shown a persistent increase afterwards and is Rs. 9173.96 crore in 2004-05. At current prices, the rate of growth has been 17.10 per cent per annum and 10.40 per cent per annum at constant prices. As regarding the participation of institutions is concerned, primary agricultural cooperative societies (PACSs) have been the key players in the field till recently, but now the place has been taken over by the commercial banks. The overall compound rate of cooperatives in disbursal of short-term credit has been worked out at 14.42 per cent per annum at current prices. The relative share of cooperative in total production credit has been varying over time and has shown
a declining trend with being 92.4 per cent in 1981-82 to 43.9 per cent in 2004-05. On the other hand, the contribution of commercial banks in short-term credit availability has been increasing in absolute as well as in relative terms. The overall rate of growth for production credit disbursed by SCBs has been calculated at 23.81 per cent per annum. The relative share of SCBs has increased from a low of 7.6 per cent in 1981-82 to as high as 56.1 per cent in 2004-05.

The short-term credit availability on the basis of per hectare of net sown area is an indicator of credit intensity. It has increased from Rs. 369 per hectare in 1980-81 to Rs. 21843 per hectare at nominal prices, at a growth rate of 17.07 per cent per annum. On the other hand at constant prices, the intensity has gone up from Rs. 493 per hectare in 1980-81 to Rs. 7851 in 2004-05 at a rate of 10.34 per cent per annum.

Production credit is for the purpose of acquiring current inputs of agriculture. Over a span of two and a half decades i.e. 1980-81 to 2004-05, short-term institutional credit has increased by sixteen times in the state of Punjab. On the other hand, use of current inputs i.e. fertilizer consumption has increased by two times, pesticide consumption more than two times, diesel consumption for agricultural purposes by almost three times during this time period. Thus growth in credit availability has been much higher than the growth of inputs use in Punjab.

This growth has also been analyzed by developing indices of variables with base triennium ending 1982-83 taken as 100. The short-term credit supply index has been 83.1 in 1980-81 increased to 270.8 in 1989-90, declined in 1990-91, but has shown a continuous increase since 1993-94 and is 1330.4 in 2004-05.

On the other hand, indices of fertilizer consumption increased from 92.7 in 1980-81 to 153.5 in 1991-92. The consumption increased to maintain the yield levels. Thus indices have been 176.1 in 1999-2000, declined in 2000-01, but increased to 189.7 in 2004-05. The indices for pesticide consumption has shown a steady growth from 81.7 in 1980-81 to 183.9 in 1997-98, declined later on but
increased to 186.5 in 2002-03. Pest attacks on cotton crop in the state has led to higher pesticide use.

With agricultural operations becoming more mechanized and availability of new inventions in various agricultural fields, fuel consumption in agriculture has gone up. The indices of fuel consumption has shown more or less steady growth during the study period. It has been observed that indices of growth in production credit have been higher than the indices of growth in inputs in Punjab, more so in recent years.

Investment credit or long-term credit is provided for making capital investments on the farm in order to purchase farm machinery, develop private irrigation facilities, cure of problematic soils, livestock purchase etc. Total investment credit in Punjab has been Rs. 80.30 crore in 1980-81 increased to Rs. 250.07 crore in 1989-90. A higher growth has been observed in the next decade. It has shown a large decline in 2000-01, but increased again to Rs. 2149.43 crore in 2004-05. Overall rate of growth in the study period has been 13.50 per cent per annum at current prices and 6.87 per cent per annum at constant prices in the state.

The institution-wise split up highlights the dominance of scheduled commercial banks from the beginning of the study period. In 1980-81, share of SCBs has been 72 per cent. After a brief period of decline, it has shown an increasing trend since 1984-85. Maximum growth has been shown by SCBs in the disbursal of term credit between 2000-01 to 2004-05 due to state directed lending policies. The rate of growth for the total span of study has been calculated at 13.10 per cent per annum.

The cooperative institutions contribution in terms of credit availability in the state has increased in absolute terms. The overall rate of growth for entire span of study comes to be 13.75 per cent per annum. The relative share of cooperatives has been 28 per cent in total investment credit in 1980-81 with wide fluctuations in between, some increase has been observed during nineties, but has declined again in recent years. The reason can be traced to deliberate focus of SCBs on term credit after their introduction in the field of agricultural credit due
to more secured, big loans which were less in number. So, PADBs have been pushed to second position in the state.

Easy and higher availability of term credit has led to intensive mechanization in state, thus making it more capital intensive. Flawed policy of electricity pricing, technical and social compulsions of owning tractor, spread of mono-culture in crop cultivation have been the other factors responsible for this trend.

A comparison has been drawn between the cumulative growth in investment credit and cumulative value of machinery to gauge the direction of term credit vis-à-vis capital investments in state agriculture. The indices of term credit have increased from 89 in 1980-81 to 641.7 in 2004-05. On the other hand, the indices of cumulative value of machinery increased from 48.8 in 1980-81 to 2349.7 in 2004-05 showing an ever increasing trend over time. Thus, it has been observed that institutional term lending has played some role in mechanization trend in state agriculture, but whole of it cannot be attributed to growth of investment credit.

The correlation coefficient between short-term credit and fertilizer use has been as high as 0.86 and between production credit and pesticide consumption at 0.44 and that of with fuel consumption in agriculture at 0.67, thus hinting at positive contribution of short-term institutional credit towards variable inputs use. Similarly, the correlation coefficient of term credit and cumulative value of all machinery in state agriculture is 0.986 indicating strong association.

Higher productivity, assured prices as well as markets and subsidized input prices has influenced the agriculture production in the state. The elasticity of value of agriculture output to productivity index has been estimated at 0.57 and that of output-input price ratio at 0.63. The productivity in turn is assumed to grow due to capital investments and higher use of variable inputs. The elasticity of productivity due to impact of capital investment has been measured at a positive 0.67, which is statistically significant. However, the marginal productivity of variable inputs use has been found to be negative but non-significant, thus hinting at overuse of inputs in state agriculture. This higher use of inputs has
been encouraged by favourable input-output pricing policy and easy and subsidized availability of short-term credit in the state. The elasticity of inputs use to input output price ratio has been (-) 0.39 indicating one per cent relative decline in input prices causes higher use of variable inputs by 0.39 per cent. The elasticity of private investments to input (capital formation) - output price ratio has been (-) 1.49.

The contribution of institutional credit in promoting use of modern production inputs and private capital investments has been found to be significantly positive. The increase in short-term institutional credit by one rupee resulted in higher use of inputs by Rs. 0.37, while one rupee increase in term credit leads to private capital formation by Rs. 4.10. The elasticity of inputs use to short-term credit was 0.07 and that of private capital investments to long-term credit was 0.42.

The value of correlation coefficient between growth of short-term institutional credit and that of long-term institutional credit has been measured at 0.97 at current prices and 0.81 at constant prices in case of Punjab. At all India level, these correlation coefficients have been worked out to be 0.93 at current prices and 0.82 at constant prices, thus indicating a high degree of positive relationship between two components of institutional agricultural credit. But this relationship between short-term and long-term institutional credit has been found to be dubious in case of Punjab as indicated by D-W coefficient value 2.305 at current prices and 1.868 at constant prices and both these values are non-significant. This indicates that the high value of $R^2$ is due to presence of the trend and not due to a true relationship between the two. But at all India level, the value of D-W coefficient has been 1.120 at current prices and 1.307 at constant prices and both the values are significant thus, suggesting a long run equilibrium relationship between the two series.

**Brief results of primary study**

The primary data have been collected from four districts across the three agroclimatic zones. Overall in the state, 11.88 per cent farmers in total sample have been included in marginal, 20 per cent in small, 26.88 per cent each in
semi-medium and medium categories and 14.38 per cent are included in the large sized category in Punjab. For the total sample size of study, the average family size for state is 6.51. The largest family size is found to be existing in large farm size category at 8.26 and smallest for small farm size category at 5.64. The family size is found to be large in zone-I as compared to other zones. For the total sampled farmers, the average family labour participation is 1.90 in absolute terms, maximum being for large farm at 2.31 and minimum for the marginal farm size category at 1.40 indicating higher family labour participation with the size of the farms. But in proportional terms maximum family labour participation of the family size is 31.62 per cent in semi-medium farms and minimum for marginal sized farms at 22.87 per cent. For the state as a whole, this proportionate share has been 29.19 per cent, maximum being in zone-III and minimum in zone-I (size being large, proportion can be less).

The overall farm size of the sampled farmers is worked out to be 1.97 acres in marginal category, 4.20 acres in small, 8.07 acres in semi-medium, 19.88 acres in medium category and 29.17 acres in large category farms, respectively. Overall average holding size is 12.78 acres or 5.17 hectares for the state. The educational level of the farmers revealed that 14.38 per cent of the farmers are illiterate in the state, 47.19 per cent of the farmers have studied upto 10th (10+2 level) only 7.5 per cent are graduates. Literacy rate is found to be increasing with the size of land holding except for the large category. Farmers’ participation in decision making institutions and social groups has been found to be less among marginal and small farm categories. Only 8.13 per cent of respondents are panchayat representatives while 78.44 per cent are members of village cooperative societies. Family labour participation is found to be increasing increase in the farm size in the state, except in zone-III, where its participation was more on marginal and large farms. Use of permanent labour is found to be increasing with increase in farm size. No case of crop sharing labour was found in the sample.
In zone-I, *kharif*-cropping pattern include maize, paddy, vegetables and sugarcane. In zone-II, it was paddy and sugarcane in small extent. In zone-III, it was cotton and paddy. Overall, it was paddy, cotton and maize.

The *rabi* cropping pattern of zone-I, revealed wheat, vegetables and sugarcane. In zone-II, it was wheat. In zone-III, again wheat was main *rabi* crop. So, for the state, it was wheat, vegetables and sugarcane crops, respectively.

Cost of inputs forms a major part of the total cost of production. For the state as a whole, per hectare farm expenditure increases with increase in farm size. Item-wise, hired labour is most expensive (Rs. 4536 per hectare) followed by fertilizers and FYM (Rs. 4029 per hectare) and expenses on seed (Rs. 2227 per hectare). But in marginal and small farmers, it is hiring-in of machinery at third place. Farm inventory on major capital heads is an important indicator of investment expenditure on farm. For the state as a whole as well as across the zones, the farm inventory in value terms is found to be directly related to the size of the farm holding. Farm inventory is found to be maximum in zone-II and minimum in zone-I. The value of inventory was maximum in terms of farm machinery and implements (except in marginal and small categories) followed by farm buildings and irrigation structures and machinery. The income analysis of sampled farmer revealed that in case of marginal category farms, dairying has emerged as the main source of farm income (31.94%) followed by crops (30.68%) and service sector (23.31%), respectively. In all other categories, income from crops cultivation is the major source of income and its proportionate share is found to be increasing with the size of the farm, while proportionate share of dairying was found to be declining with the size of the farm. Income from service sector comprises a significant proportion in marginal, small and semi-medium categories, but declined in medium and large sized categories. Per hectare average income of zone-II was highest and minimum in zone-III.

Similarly, expenditure analysis has also been carried out on sampled farmers. Expenditure on food items is the main item head in all categories across the zones as well as for the state. However, it declined proportionately with the size of the land holding, while expenditure on other item heads like
education, medicine and vehicle expenses was high. Certain item heads like telephone bills, electricity bills, vehicular expenses were found to be more in zone-I while item heads like intoxicants were having higher proportion in zone-III. The marginal and small farm categories are found to be deficit when income level was compared with expenditure but rest of the categories are found to be having a surplus on per annum basis. These are some general features of the sampled farmers comprising the case study.

The amount of loan is found to be increasing with size of category of operational holding in all the zones as well as state. However, inter-zonal comparison showed that loan amount is maximum in zone-II, followed by zone-III and zone-I, respectively. The observations also revealed that loans obtained from institutional sources are higher as compared to non-institutional sources. In case of zone-I, cooperatives are the dominant formal agency, while in zone-II and zone-III, commercial banks are the main providers of institutional finance. In case of informal agencies, relatives / friends are the main sources of finance in zone-I, while in zone-II and III, commission agents are at number one position. Landlords are found to be providing loans in marginal and small farm categories only. Share of non-institutional sources is maximum in zone-III, followed by zone-II and zone-I. Commission agents with a share at 40.49 per cent are found to be dominant players in zone-III, ahead of even commercial banks and cooperative institutions.

Borrowed funds are found to be maximum in zone-II, followed by zone-III and in zone-I. In zone-I, share of institutional sources is maximum i.e. 94 per cent, while in zone-III, share of non-institutional sources is maximum which is 44.70 per cent. In the purpose-wise classification, the loan amount is maximum for purchase of land in all the three zones. In zone-I, the number two highest rank is borrowing for submersible pump in case of farm investment. While in zone-II and III, it is for the tractors. At number III, it is tractors in zone-I, submersible pumps in zone-II and cattle sheds in zone-III respectively.

‘Utilization’ of credit has a bearing on the debt position of the farmer. If it is properly utilized, it not only increases the returns to the farmer, but helps in
creation of repaying capacity of the loan as well. So, it is rightly stressed that the problem of agricultural credit is not to find more money for the peasant but to teach him to use it economically and productively. In the wake of new production technology, farm investment has increased not only on divisible inputs, but also on durable assets.

Land is an important form of long-term investment. In the state, 43 per cent of total investment for this purpose has been comprised of borrowed funds and 42 per cent of these funds have been utilized for land purchase in the state. Only 1 per cent of borrowed amount for the purpose of land purchase has been diverted to other purposes. The area purchased has been found to be increasing with the size of the farm category.

On an average, Rs. 7775 per farm and Rs. 1436 per hectare were invested for the purpose of land leveling in the state. The area leveled has been found to be increasing with the size of categories. The average investment is found to be maximum in zone-I (Rs. 10244 per farm) as it is a submountainous zone with unleveled topography. However, maximum amount borrowed has been found in zone-II (Rs. 5736 per farm). No diversion of borrowed amount has been observed here.

On the whole, in state Rs. 4403 per farm have been invested on water channels. The borrowed amount comprised 48.38 per cent of amount invested as well as amount utilized for investment, as no amount of borrowed funds has been diverted for other purposes. Per farm investment as well as per farm borrowed amount has been maximum in zone-I. Only on marginal and small farms of zone-II, self-financed investment for this purpose has been reported.

Dairy has emerged an important enterprise in Punjab agriculture. This leads to investment on cattle sheds. Rs. 18206 per farm or Rs. 3363 per hectare have been the reported investment on cattle sheds in the state. 52.95 per cent of this investment has been comprised of borrowed funds. But utilization of borrowed funds for investment has been 49.51 per cent as 7 per cent of these borrowed funds have been diverted for other uses.
In case of implement sheds, Rs. 3747 per farm and Rs. 692 per hectare have been invested in the state as a whole. 64.39 per cent of borrowed amount has comprised this investment as negligible amount (0.25%) has been diverted on other purposes. Investment for this purpose is found to be nil on marginal farm category of the state.

Irrigation is the basic input for agricultural growth. The average investment on electric motors has been calculated at Rs. 2913 per farm for the sample of state. 60.70 per cent of this amount is borrowed. However, actual proportion comes at 58.49 per cent as 4 per cent of borrowed funds have been diverted for other purposes, so amount utilized for this purpose is 96 per cent.

Diesel engine is another component of irrigation machinery as well as for other purposes on the farm. In case of sampled farms, Rs. 2543 per farm have been invested, with maximum investment in marginal category, due to borrowing under the schemes. The extent of diversion is high i.e. 13 per cent of borrowed funds. Thus, on an average, 56.04 per cent of invested amount for the said purpose comprised of credit amount.

The major part of lumpy investment in Punjab agriculture has been tractor. Easy credit availability for this purpose has further encouraged the trend. On the whole, Rs. 34468 per farm have been invested by total sampled farmers on the said purpose. 62.35 per cent of invested amount has been borrowed. But 1 per cent of borrowed funds have been diverted and 99 per cent have been utilized. This has caused actual share of borrowed amount in investment as 61.98 per cent.

Farm machinery has gained importance with increase in mechanized operations on the farm. For the state as a whole, Rs. 8800 per farm have been invested on farm machinery and implements, 59.87 per cent of invested amount has been borrowed, but 1 per cent of it has been diverted to other motives. Thus, share of borrowed funds in actual investment has decreased to 59.11 per cent for the said purpose.

Dairying has emerged as a major allied activity in the agriculture sector of state. The average investment on cattle in the state has been put at Rs. 9175
per farm. Funds to the extent of 61.17 per cent of this investment have been borrowed. But 3 per cent of the credit has been reported as diverted to other purposes. Thus share of loan amount in invested funds has declined to 59.82 per cent. Per farm investment on cattle is found to be maximum in zone-II and minimum in zone-I. But utilization of borrowed funds is maximum in zone-III and minimum in zone-I.

The problem of falling ground water table has led to huge investment on deepening of wells and installation of submersible pumps in the state. For the state as a whole, Rs. 6455 per farm and Rs. 1793 per hectare have been invested on deepening of wells. 50.10 per cent of invested amount has been comprised of borrowed funds. However, 4 per cent of the borrowings have been diverted, thus declining actual share of borrowing in amount invested to 48.12 per cent for this purpose.

On the other hand Rs. 32422 per farm have been invested on submersible pumps on the state sample. 51.92 per cent of it has been borrowed. Due to diversion of borrowed funds to the extent of 1 per cent, the actual share of loan amount in investment has decreased to 51.65 per cent for the said purpose. The zone-wise analysis has shown that per farm investment has been maximum in zone-I and minimum in zone-III. Overall diversion of credit is found to be more in zone-II. Marginal farm category of only zone-II has reported investment for this purpose, but credit diversion rate is found to be high (13%) here.

Thus for the state as a whole, sampled farmers have invested maximum amount on land purchase (45.81%), followed by tractor (15.76%), submersible pumps (12.34%), cattle sheds (7.07%) and purchase of cattle (4.11%). The average amount invested has been found to increase with increasing size of farm category in the state.

'Consumption' purpose is another major item head of expenditure by the farmer. The average investment in sampled household has been Rs. 118865 per household in Punjab state for the purpose of construction of dwelling house. For this purpose, 36.77 per cent of investment has been borrowed. But actual utilization of borrowed funds comes at 34.57 per cent as 5.96 per cent of credit
amount has been utilized for other purposes. The average per household investment for the purpose is found to be maximum in zone-I and minimum in zone-III. The utilization of credit for this purpose has been maximum in zone-III and minimum in zone-I. And the diversion of borrowed funds for the said purpose has been maximum in zone-II, but almost negligible in zone-I.

With increased participation of private sector in the field, education especially the professional courses have become very expensive. The average amount invested for this purpose has been calculated at Rs. 4218 per household in the state. The share of borrowed funds in this is worked out as 21.11 per cent, with maximum in zone-III (58.42%) and minimum in zone-I (12.82%). The diversion of credit amount has been to the tune of 12.50 per cent in the state.

No doubt medical science has achieved wonders in various fields, but treatment is very expensive most of the times. On the whole, an amount of Rs. 25175 per household has been the expenditure on treatment of a sick in the family in the state. 56.79 per cent of it has been reported as borrowed funds. The per household expenditure for the said purpose is found to be maximum in zone-II and minimum in zone-I. The minor diversion of credit amount has been found in zone-II only.

Under social compulsions, expenditure on marriage ceremonies involve huge amount. On the basis of sampled farmers, the average amount spent for this purpose comes at Rs. 100578 per household. 41.70 per cent of the expenditure comes through borrowed funds. But 1.99 per cent of loan amount has been diverted to other purposes. Thus, 40.87 per cent of loan amount accounts for actual expenditure on the wedding ceremonies in Punjab.

Overall analysis of the state shows that 28.44 per cent of the total sample size has reported to be indulged in diversion of borrowed funds. Construction of dwelling house has emerged as a major cause of diversion of loan amount followed by consumption needs, social / religious ceremonies and medical expenses. Zone-wise diversions have been maximum in case of zone-II (35%), followed by zone-I (26.25%) and zone-III (17.5%). Apart of construction of dwelling house, in zone-I, maximum number of diversions have been reported for
the purpose of installation of submersible pumps, in zone-II, it is consumption purpose and in zone-III, medical treatment expenses have been quoted as the main reason. Immigration expenses is one of the reasons of diversion in zone-I and zone-II, but does not figure in zone-III. The expenditure on social, religious ceremonies is a prominent reason in zone-III (35.71%), followed by zone-II (26.79%) and least in zone-I (23.81%) of total diversions, respectively.

The regression analysis carried out to identify the factors of diversion has brought out that farm size, education status of the borrower and non-farm income are significant factors to cause a decline in the diversion of loan, while long-term loan provides more chances for diversion of loan compared to short-term loan. Household expenditure is another factor in zone-III, the expenditure on social ceremonies is significant in zone-II, zone-III as well as state which causes increased diversion of loan. However, source of loan as well as cost of loan have emerged as non-significant factors to affect the diversion of credit amount.

Cost of credit has a bearing on source of credit. Farmers may find their loans costly, moderately priced or relatively cheap depending upon the magnitude of cost of credit. For all practical purposes, rate of interest is considered as a measure of cost of obtaining credit. But another component of this cost is the transaction cost i.e. the expenditure incurred on the formalities of obtaining credit. This has been further split into two parts namely incidental cost / transaction cost and social cost.

For the state as a whole, average transaction cost is calculated at Rs. 861 per farm. Out of this amount, maximum is paid in the form of bribe, at various stages of the loan case, followed by food expenses while visiting the lending agencies, legal charges and application formalities which include procurement and filling of application form and its submission etc., then procurement of documents and miscellaneous items like quotation charges, photograph charges etc. Last in the list is the follow up and collection of the loan amount. This cost is less for lower category of farms. The transaction cost is found to be increasing with increase in the size of farm category.
The inter-zonal comparison has shown that transaction cost of obtaining agricultural credit is maximum in zone-II (Rs. 893 per farm), followed by zone-III (Rs. 866 per farm) and zone-I (Rs. 793 per farm). In all the zones bribe paid is the most expensive item head of cost. Zone-wise, it is maximum in zone-III and minimum in zone-I. The expenditure on procurement of documents is also maximum in zone-III. However, food expenditure is found to be maximum in zone-II and minimum in zone-I. The legal cost is almost equal in zone-II and zone-III, but less in zone-I. Also, cost of application formalities is less in zone-I. While cost of follow up of the loan case and collection of loan is much higher in zone-II than other zones. So, it is found that it is costly to borrow in zone-II and zone-III, than the state average, but less costly in zone-I.

When compared with loan obtained by sampled farmers in each zone, the average cost of obtaining a loan of Rs. 1000 in zone-I is Rs. 5.21, Rs. 6.32 in zone-II and Rs. 6.20 in zone-III. The overall state average comes at Rs. 5.83 per thousand rupees of the loan. The transaction cost per thousand rupees of loan is found to be decreasing with increase in the size of the category.

When rate of interest is included in this transaction cost, total borrowing cost from institutional sources comes at 9.98 per cent of loan. While, for the same amount borrowed from non-institutional sources, the cost comes to be 15.10 per cent of loan. The difference between total borrowing cost of these sources is statistically significant except for the large farm category. This seems to convey that despite the higher transaction cost incurred by the borrower farmer while borrowing from institutional agencies, the cost borne by the farmer is significantly lesser than non-institutional agencies. This is on account of higher interest rates involved in borrowing from informal agencies of finance. However, the incidental transaction cost paid by the borrower farmer is one time cost, when he takes a loan. So, cost of borrowing per 100 rupees of loan has been compared with that of non-institutional sources in the state over synthetic situations assuming different tenures of loan. The difference in total cost is found to be insignificant between the two sources if the term of loan is six months. But, as the tenure of loan increases, the magnitude of t-value i.e. level of significance
also increases showing the widening of the gap in the sense that non-institutional sources become more costly due to exorbitant rates of interest. So, it is profitable to borrow long-term loans from institutional sources despite the higher transaction cost of borrowing.

A comparison has been also drawn between transaction cost incurred while borrowing from cooperatives and that from commercial banks. The total cost comes to be Rs. 4.16 per 100 rupees of loan incase of cooperatives and Rs. 6.40 per 100 rupees of loan in case of commercial banks. Thus, the cost of borrowing is found to be significantly less in case of cooperatives as compared to commercial banks. The cooperatives being located in close vicinity, cause lesser number of trips, lesser expenditure on food items etc., thus leading to lesser initial transaction cost.

For the state as a whole a farmer had to undertake 5.49 trips to the institutional source and on an average 18.15 days are taken to complete the loan procedure while borrowing from institutional sources. On the other hand, the time taken to get the loan from these informal sources was 2.55 days in zone-I, 3.64 days in zone-II and 4.52 days in zone-III. For the state as a whole, the farmer had to undertake 1.17 trips and average time to acquire loan was 3.59 days from non-institutional sources of finance. This shows the ease, timeliness, convenience attached to informal sources of finance and explains the reason for their non-elimination from agricultural credit scenario.

Out of the total sample of farmers, 88.75 per cent responded inconvenience, 87.50 per cent sacrifice in terms of time and money, 80.31 per cent of humiliation and 75.63 per cent bribe payment accounted for the social cost of borrowing from the institutional sources.

Easy accessibility has been cited as the dominant reason for preferring a particular source of credit by 73.44 per cent of the respondents. But in case of zone-I, an old account with the landing source is the cause of preference. A credit limit with the agency is given as the third factor, followed by lesser formalities (55.31%), timeliness of operations (53.75%), lower rate of interest (39.69%), personal relations in lending agency (26.25%), scheme sponsored
loans (10.94%), supply of inputs (10.31%) and secrecy of borrowing (7.50%), respectively are the reasons for preferring a particular source of credit. Out of all these lower rates of interest goes in favour of institutional sources of finance, while timeliness and less formalities are in favour of either PACSs or non-institutional sources of credit. Secrecy of borrowing is totally in favour of non-institutional sources, while personal relations can be in both institutional as well as non-institutional sources.

It is common observation that procedure for applying loan and time taken in sanction of loan plays a role in deciding about the source of credit. 100 per cent of the farmers seeking credit from institutional sources have applied through prescribed format made available through lending sources. 79.05 per cent have reported the language of application as English. 98.10 per cent of the respondents have opined that size of application form is large. Filling of application forms it seems as a major problem with the respondents and 97.14 per cent got it filled by others. An average amount of Rs. 19.24 per respondent is calculated as paid for filling of forms. The mean time taken for processing of loan case in the state is 18.15 days. It is least in zone-I and maximum in zone-III. No payment is reported to be made in zone-I for filling up the application forms, but has been paid in four farm categories of zone-II and marginal and medium categories in zone-III. Average sum paid for the said purpose is higher in zone-II than in zone-III. Otherwise, procedure followed is similar across all the zones in the state.

Processing of loan case is another important aspect of agricultural credit especially from institutional sources of finance. 27.62 per cent of the respondents have reported the delays in processing of loan in the state and attribute this delay to unnecessary objections. However, requested loan amount is found to be sanctioned for the purpose for which it has been applied for (95.24%). Majority of the borrowers have no difficulty in arranging the guarantor. 78.10 per cent have to physically arrange the presence of guarantor before the lending source. Despite this, 51.43 per cent of the respondents consider that guarantor is must in obtaining the loan.
Disbursement of loan, follow up, subsidiary component and technical assistance provided by the lending source are other aspects of agricultural credit. The average distance traveled by the farmer to place of loan disbursement is calculated at 3.86 kilometers for the state as a whole. It is least in zone-II. It is also found to lesser in marginal and small farm categories of holdings as they avail the credit facilities locally available or nearby locations. It is maximum for medium and large farm categories. 60.43 per cent of the respondents have availed the credit in kind component also. It is maximum in zone-II and minimum in zone-III. The credit disbursal through cheques is limited to tractor loans or irrigation machinery loans. 98.56 per cent of the farmers find the time of disbursal convenient to them. The subsidy component of different types of agricultural loans is almost negligible. 87.77 per cent of the respondents consider the rate of interest charged by the lending source as reasonable. However, the technical / managerial help from the lending agency is found to be almost negligible. Also, supervision of credit utilization is reported by only 15.11 per cent. Despite the lack of follow up of credit 67.27 per cent of the borrowers reported the utilization of credit for actual purpose cited for the loan.

The difficulties in availing loans from the institutional sources have been discussed with the farmers. 31.56 per cent have expressed the loan processing as delayed with these agencies. 29.68 per cent of the respondents find the loan amount sanctioned by these agencies as inadequate and thus the need to borrow from informal sources. However, farmers are by and large satisfied with the repayment plans formulated by the agencies. 22.81 per cent of the borrowers expressed that political or other influential contacts can quicken the loan process. 11.97 per cent of the sampled farmers find that these agencies do not provide full details at the time of submitting of loan applications. 10.31 per cent consider that there is lack of transparency in working of these agencies. Also, 10.31 per cent have found the borrowing costly from these agencies. 10.94 per cent consider that rate of interest charged by these agencies is high. 5.31 per cent have reported difficulties in getting records from revenue officials. And 2.19 per cent consider that arrangement of guarantor is difficult.
Problem of getting land records is reported more in zone-III and very less in zone-I. The delayed processing is also maximum in zone-III. Problems with repayment plans and arranging for security is more in zone-I. The high cost of borrowing is considered almost same across the zones. Rate of interest is considered on higher side, more in zone-III. Impact of political contacts is more in zone-II. More number of farmers doubt the working of these institutions in zone-III. So, intensity of problems varied in different zones, though nature of problems remained more or less the same.

The source of credit also bear the lending costs while supplying the credit. It is found that number of agricultural loans is higher in cooperative institutions, but amount involved is more in commercial banks.

Overall analysis of the sampled institutions clubbed together has shown the average lending cost as Rs. 6.23 lakhs per annum. Per 100 rupees of agricultural loan cost comes at Rs. 3.42 per annum. Out of this, establishment cost accounts for 87.2 per cent of total cost. This includes salary of the staff (77.3%), building rent (6.9%) and electricity expenses (3%) on per year basis. On the other hand, running expenses account for 12.8 per cent of total cost. These include vehicle / taxi (5.6%), stationery (2.7%), telephone charges (2.1%), stamps (0.5%) and miscellaneous items (2.2%). The proportion of salary of staff is maximum for PACs and minimum for PADBs. Same is true for total establishment cost. The running expenses are found to be maximum for PADBs followed by commercial banks and minimum for PACSs in absolute terms. Miscellaneous item heads includes repair charges, maintenance of buildings, equipments, expenses on newspapers, pamphlets, public announcements etc. Total cost per 100 rupees of agricultural loans is found to be maximum for RRB, followed by commercial banks, PADBs, PACSs and CCBs.

All the institutions are bound to obey certain rules and regulations. So, these follow a specific procedure / formalities while lending which includes, written application, land records, no-due certificate, photographs, identification proof, guarantors, security in some cases etc. Time taken by these institutions in sanctioning of loans varies across the institutions. The maximum time limit is in
commercial banks as well as in PADBs. And minimum time is in case of PACSs. According to the agencies, the expenses incurred by the farmers depend upon volume and purpose of loans applied. In case of PACSs, there is initial cost to the farmer. The expenses are found to be high in other agencies.

Twenty five per cent of the sampled cooperative societies are found to sanction less than the actual / requested amount. 50 per cent of the commercial banks also sanction lesser amount than requested by the farmer. Other agencies depend on the fixed credit limits. Majority of the responding agencies felt that the funds sanctioned are adequate to fulfill the requirement. The percentage of credit denial is found to be less in these agencies. The range of denial varies between 1 and 7 per cent for different agencies.

In case of PACSs and CCBs, kind component of credit is found to existing. But commercial banks and regional rural banks deal only in cash credit. Rate of interest charged by these agencies is found to be lowest in case of short term loans and maximum in case of long term loans. In majority of the institutions land is acceptable security to provide agricultural loan. In case of PACSs pernote is accepted as security and loan is provided only to members of the society. All the institutions require two witnesses to provide the loan. The witness can be a member of the agency or some known person to the lending authority. The agencies are in favour of having some guarantor mainly from social point of view.

All the agencies are providing proportionate repayment plans to the farmers, with least time in case of short term loans. As per the agencies the dates and time of installments is provided to the farmer right at the time of providing the loan.

The default rate has been different for different agencies. It is high in 12 per cent of sampled PACSs. In case of commercial banks it is less in short term loans, but high in long term loans. In case of PADBs it ranged between 12-13 per cent. However, RRB reported default rate as nil. The trend to penalize the delayed repayment is found to be less in the sampled institutions. It ranged between nil penalty to maximum of 3 per cent of the installment due.
All the sampled institutions have reported to supervise the utilization of credit. The supervision is carried out through visits and even advising the farmer. Maximum supervision cost is reported by commercial banks followed by PADBs. While PACSs have not reported any separate cost on this account.

The farmers indulge in diversion of loans ranging between 5 per cent to as high as 50 per cent of loan amount as reported by various institutions. However, the attitude of agencies is lenient towards it. These have denied any strict action against those who are indulging in diversion of loans.

No assistance is provided by the agencies in execution of farm plan after the loan is sanctioned. Any sort of help is limited to advice only. However, all the agencies are found to be providing technical guidance to the borrower farmers once in while. This guidance is through consultancy, visit, organization of camps or kisan club meetings.

The agencies have to incur a cost while recovering the loans generally twice in a year. Cost of recovery is found to be high in case of PADBs as these are involved in term loans, while it is minimum in PACSs due to routine interaction, thus, it is an advantage of good rapport with local borrowers.

In case of cooperative agencies maximum revenue is being earned through credit advances, while in case of commercial banks it is almost 50-50 per cent from advances as well as from other sources. But in case of RRB, revenue is more from other sources.

Non-institutional sources have a strong presence in the field of agricultural credit in the state. On an average each sampled arhtiya deals with 107 loan cases and provides services to 153 farmers out of which 79 are the borrowers. Out of the sanctioned amount 50-60 per cent is the share of consumption loans. Fertilizers, pesticides, seed purchase and farm investment are the productive motives for which the farmers borrow from these arhtiyas.

Reputation of the person seeking loan is topmost criteria of providing credit by the arhtiyas. Next basis is the size of operational holding, volume of crop, purpose of loan, income from other sources are other yardsticks to choose the borrowers. By and large arhtiyas have reported no problem in dealing with
borrowers except for some in recovery and political pressures to waive off the loans. No proper application form is found to be existing in case of this non-institutional source. Some arhtiyas are entertaining both verbal as well as written requests for loans. Some are taking only signature / thumb expression. Majority are found to be providing loans without any tangible security but some are signing pernotes as security or a common link is treated as a security. Time to sanction loan in this source of credit depends on urgency of need and amount sought. The range is between no time to maximum seven days. According to arhtiyas farmer has to undertake one to maximum of three trips to get the loan. The transaction cost is not much in these trips. In majority of the cases, they do not provide the amount requested. 35 per cent of these are providing loans both in cash as well as kind and rest were only in cash credit. These are found to be charging rate of interest between 12 and 24 per cent per annum. Generally a witness is not required while borrowing from arhtiyas except in case of new client or of one with shady reputation.

No formal repayment schedule is found to be existing. Loan is recovered through sale of the farm produce. However, for the majority of arhtiyas rate of default lies between 10 to 25 per cent. The only cost incurred on recovery of loans is transportation cost. Nearly half of the sampled arhtiyas have reported that the borrower-farmer indulges in diversion of loans, still 100 per cent of sample have denied any supervision of credit. The average lending cost of this agency comes to be Rs. 54659 per annum with maximum cost incurred on hiring the services of an accountant / munshi. To increase their grip on poor farmers, many arhtiyas indulge in some allied field. 17.65 per cent of sampled arhtiyas are found to be dealing in agricultural inputs, 11.76 per cent in clothing and 11.76 per cent in jewellery business. More than 90 per cent of the borrower farmers are found to be marketing their produce through the lender arhtiyas only. 82 per cent of the loans are recovered at that time.

A comparison of lending costs incurred by institutional and non-institutional sources has shown that administrative cost is significantly higher in case of institutional sources than non-institutional sources in case of short-term
loans. On the other hand opportunity cost forms 59.72 per cent of total transaction cost in case of institutional sources of finance, whereas in case of non-institutional sources it forms 77.90 per cent of the total transaction cost. Also between two agencies of institutional credit, administrative cost is found to be significantly higher in case of commercial banks in comparison to cooperative societies, while providing short-term loans. Similarly, in case of long-term credit administrative cost of lending is found to be significantly higher in case of formal lending agencies as compared to informal ones. Thus total transaction cost is also higher in case of institutional sources as compared to non-institutional sources. When comparison is carried out between cooperatives and commercial banks, the transaction cost comes to be Rs. 10.49 and Rs. 11.16 per 100 rupees of long-term loans, respectively.

On the basis of difference between rate of interest and transaction cost incurred by these agencies, it is found that in case of short-term loans, the interest charged is lesser than the lending cost for institutional sources. On the other hand, in case of non-institutional sources, interest charged is higher than the lending cost. These gaps in favour of interest are significantly higher in non-institutional sources as compared to institutional sources on short as well as long-term loans. It indicates that institutional sources are having losses in short-term lending, but some profit in long-term loans. While, non-institutional sources are having profits both in short-term as well as long-term lending.

Similarly, between the two formal lending agencies, it has been found that cooperatives are having profit both in short-term as well as long-term lending but commercial banks are incurring losses in providing short-term credit, but are having some profit in long-term lending. This is on account of higher administrative costs of commercial banks than cooperatives.

**POLICY RECOMMENDATIONS**

In the light of the study conducted, following suggestions need to be considered to tackle the prevailing issues regarding agricultural credit:

The recent trend of increased flow of agricultural credit needs to be maintained especially in case of small and marginal farmers. The money should
be pumped through PACSs keeping in view the easy access and lower transaction cost in these institutions.

The flow of short-term credit is found to be higher than the use of variable inputs in agriculture but it should be maintained due to positive effect on use of inputs, but of term credit should be directed towards new avenues / opportunities. The thrust should be given towards new fields like net house cultivation structure, rain water harvesting, environment friendly technologies etc. instead of traditional avenues.

The study has shown a very low level of diversion of loans due to easy availability of credit even for non-agricultural purposes. Therefore, the lending institutions should focus on curtailing the overhead lending cost particularly incurred on supervision of loan.

There should be differential rate of interest on the basis of operational holding rather than purpose of borrowing. This will hamper the flow of credit to undesirable channels by higher farm size categories and at the same time availability will increase to lower farm size categories.

Agriculture being a priority sector should have simple rate of interest in all the agencies supplying credit.

The business of non-institutional sources should be regulated under a policy framework covering their system of lending and rate of interest charged. The accounts of these should be periodically checked.

The PACSs should become multi-functional on the lines of Lambram-Kangri Society in Hoshiarpur district as well as Grameen Bank of Bangladesh indulging in activities like hiring-out of machinery, marketing of produce etc. to encourage the small and marginal farmers to cultivate corps like sugarcane, vegetables etc.

In the light of huge investment on dwelling houses and social ceremonies, farmers should be discouraged from these expenditures through community education programmes.

Local area operations approach adopted by cooperatives should be extended to other institutions to motivate the staff for the cause of local people and not only for targets.
The study has shown a good share of dairy in farmer’s income. It should be further encouraged in a big way not only through concessional credit but other aspects like subsidized cattle insurance, quality control on animal feed, milk marketing, provision of germplasm of high yielding milch cattle etc.

There is urgent need to reduce the borrowing cost of farmers in case of institutional loans. To simplify the procedure of obtaining records, the whole system of record keeping should be computerized i.e. all the documents should be available online so that institutions could easily verify the credentials of the farmers. This can discourage the prevailing corruption in a big way.

The proforma of loan application should be of reasonable size and easily understandable. It should be mandatory for the agencies to fill the form, if farmer is not able to do so himself.

The list of documents to be attached with application form should be displayed in the local language at the counter of the agency to check unnecessary harassment and to decrease borrowing cost of the farmer.

The study has shown a substantial cost on taking and entertaining the witness to the lending institution. But in case of industrial loans, only references are taken from the borrowers. Same should be applicable in case of agricultural loans.

The study has shown that technical guidance to the borrower is found to be lacking on the part of institutions. But this should be taken up by the agencies for better utilization of loans and making the farmers aware about new technologies / avenues etc.

The diversion of loans is found to be higher in case of diesel engines and cattle sheds. Therefore, loans against these two item heads should be properly scrutinized.

Non-farm income and education status of the farmer have shown a positive effect on reducing the diversion of loans. So, stress should be laid on creating non-farm income generating opportunities. Steps should also be undertaken to improve the literacy level in rural areas.