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Chapter 1

Introduction

Besides the basic role of financial intermediation, credit institutions play a unique developmental role in the planned development in the country. The association was strengthened with the social control over commercial banks followed by nationalisation of major commercial banks in 1969. In the development process in agriculture, credit, as a facilitator performs an important function of providing the farmer with a requisite access to resources. The role of credit has undergone remarkable changes at each of the developmental stages. In a regime of subsistence farming, using indigenous seed, labour intensive mode of cultivation, locally available inputs, and its role of farm credit was relatively insignificant. With the modernisation of agriculture, especially, with the onset of green revolution, credit needs witnessed substantial growth. Massive public investment in irrigation structures opened avenue for complementary investment in private sector in the 1960s and 1970s. Development and innovation of various agricultural implements suitable for Indian condition, and growth of credit delivery mechanism also contributed to the enhanced investments in agriculture during this period.

1.2 The role of credit witnessed more thrust with the diversification and commercialisation of the agriculture especially during the 1990s. Pregressive change in technology in agriculture, adoption of improved seeds, package of practices, farm mechanisation, etc, necessitated substantial capital requirement per unit of land. The role and dimension of credit in agriculture and rural development was also affected substantially with the gradual exposure of agriculture to the international markets and various steps were taken for promotion of agricultural exports.

1.3 In the past, there needed around 20 years to double our per capita income. However 10^{th} Five Year Plan (FYP) visualized doubling per capita income in the next ten years as a national priority. With population expected to grow at about 1.6 per cent annually, this target requires the rate of growth of GDP at 8.7 per cent over the 10^{th} and 11th Plan periods. 10^{th} FYP had a target of 8 per cent growth in GDP while 11^{th} FYP tentatively target 8.5 per cent growth, requiring concerted action often involving a radical departure from traditional practices by various agencies and most prominent one being

the financial sector. Gross domestic fixed capital formation and efficiency of resource use are prominent in the development process. With the incremental capital output ratio (ICOR) at around 4, the investment need to achieve the targeted growth in GDP is substantial. In order to achieve 1 per cent additional growth, the required additional increase in investment is 4 per cent. In order to achieve targeted 8 per cent growth in the 10th FYP and 8.5 per cent in the 11th FYP improvements in efficiency of both in the public sector and in the private sector is of high importance. The improvement in efficiency / productivity both of the existing as well as new investments depend on involvement of banking sector especially to ensure adequate credit for the growing sectors.

1.4 Targeted 8.5 per cent growth in GDP warrant a growth of atleast 3.9 per cent by the agriculture sector. Considering the importance of private sector investment in the growth of agriculture and dominance of institutional sources in financing these investments, the likely credit flow to the sector during the plan is of high significance. The Working Group to Estimate Savings for the 11th FYP, therefore, set up a Sub-Group on Flow of Private Investment for SME and Agriculture - 11th FYP 2007-08 to 2011-12, mainly with a view to assess the resources available for private sector investment in SME and agriculture sectors. Broad terms of reference of the Sub-Group are :

- To review the developments and likely behavioural pattern during the 11th Plan period.
- To estimate resources available for private investment and the likely flows for SME and Agriculture.
- To explain the procedures followed for estimation.

1.5 The Sub-Group after a series of meeting and deliberations, has finalized the likely resources available for private investment and the likely Ground Level Credit Flow in Agriculture and SME during the 11th FYP. The report has been subdivided by 5 chapters with proper Annexure and Annexure tables. Chapter 2 of this report presents a brief account on developments and likely behavioural pattern during the 11th Plan period in respect of agriculture sector, while chapter 3 provide review of GLC during 9th and 10the FYP, chapter 4 provided methodology for various estimates made and Chapter 5 estimates made on the GLC in agriculture for the 11th FYP.

Chapter 2

Agriculture and Allied Sector

Agriculture continues to be crucial for the country's economy as it generates about 20 per cent of India's GDP and provides employment to nearly two-third of it's population. A buoyant agricultural sector is, therefore, necessary to ensure food security, provide livelihood to a large proportion of the workforce, contribute to the growth of the economy by producing wage goods, raw material for industry, goods for exports, generate surpluses and provide markets for non-agricultural goods. To achieve 11th FYP expectations of growth of Indian economy, agricultural production will have to grow steadily at the rate of 4 per cent per annum. Agriculture in India is going through a gradual transformation, reflected in changes in seasonal cropping pattern, with progressively larger areas under rabi crops, diversification of cropping pattern, with so-called commercial crops increasingly acquiring a larger share, changes in the input base of crop production and the growing importance of sub-sectors such as animal husbandry and fisheries.

Agriculture and Indian Economy: An Overview

2.2 The 10th FYP (2002-07) envisaged an average annual growth rate of 8 per cent, against which the economy has recorded growth rate of 7 per cent during the first four years of the plan period (Table 2.1). As opposed to the economy as a whole, registering an upward growth, the growth in the agriculture and allied sector has shown a secular decline after the 8th plan period. It fell from 4.7 per cent during the 8th plan period to 2.1 per cent in the 9th plan and then plummeted to 1.8 per cent in the 10th plan. The wedge between the agriculture sector and the rest of the economy measured in growth terms has been increasing over the years. One of the reasons for the low growth in agriculture sector may be the declining share of this sector from 5.2 per cent during 8th FYP to 4.9 per cent during the 9th FYP and further to 3.9 per cent in the 10th FYP in total plan allocations over the period (Table 2.2).

Table 2.1: Annual Average Growth Rates (At 1993-94 prices)

(Per cent)

Five Year Plan	GDP (overall)	GDP(Agri. &Allied Sector)
8th (1992-1997)	6.7	4.7
9th (1997-2002)	5.5	2.1
10th (2002-2007)	7.0	1.8*

Source: Economic Survey, 2005-06.

*Note: *For the period 2002-2006. The Draft Approach Paper for the 11th FYP envisages that under most favorable circumstances the average for the 10th FYP for agriculture and allied sector cannot be more than 1.8 per cent per annum.*

2.3 Although the share of agriculture sector in the gross domestic product (GDP) declined from 46.3 to 19.9 per cent between 1970-71 and 2005-06, the proportion of workforce depending on it has remained unchanged. It continues to be the single largest source of livelihood for nearly two-thirds of country's population and contributes about 15 per cent of the export earnings. Thus, a decent rate of growth in agriculture is imperative to not only provide adequate food production but also to support non-agricultural growth from the demand side, which enables generation of non-agricultural employment in rural areas. Further, agriculture is also a source of wage goods and raw materials for the industrial sector, necessitating that agriculture growth rate be stepped up. It has been recognised that if the economy has to sustain high growth rates (i.e. above 8 per cent p.a.) agriculture needs to grow at the rate of at least at 4 per cent p.a. during the 11th FYP period (Draft Approach Paper of 11th FYP). Thus the task of doubling agricultural GDP growth (during the 11th FYP) in comparison to the 10th FYP shall not be possible unless adequate agricultural credit is made available to meet the requirements of enhancing the growth rate. Apart from addressing the structural issues facing the agricultural sector one needs to also ensure timeliness of and easy access to credit.

Table 2.2: Plan Outlay in Agriculture and Allied Activities

(Rs. crore)

Plan	Total Outlay	Agriculture & Allied Sectors
8th (1992-1997)	4,34,100	22,467 (5.2)
9th (1997-2002)	8,59,200	42,462 (4.9)
10th (2002-2007)	1,52,5639	58,933 (3.9)

Source: Economic Survey, 2005-06

Figures in parentheses indicate percentage of allocations in total plan outlay to agriculture sector.

Changes in Indian Agriculture

Agrarian Structure

2.4 Indian agriculture at present is characterized by the predominance of small and marginal farmers who constitute as much as 80 per cent of the peasantry (Table 2.3). This trend towards sub-division is likely to continue and a progressively larger share of this basic resource will be in the hands of small and marginal farmers. The problems faced by such farmers are unique and they emanate from the small size of their holdings. The result is that they are disadvantageously placed with respect to access to technology and capital and support from credit and extension services. Reaching such a huge number is a challenge for the Rural Financial Institutions (RFIs) too.

Table 2.3 : Changes in distribution of Operational Holdings

(Per cent)

Land size group	*1981-82*		*1991-92*		*1995-96*	
	No.	*Area*	*No.*	*Area*	*No.*	*Area*
Marginal	*56.0*	*11.5*	*62.8*	*15.6*	*61.6*	*17.2*
Small	*19.3*	*16.6*	*17.8*	*18.7*	*18.7*	*18.8*
Semi medium	*14.2*	*23.5*	*12.0*	*24.1*	*12.3*	*23.9*
Medium	*8.6*	*30.2*	*6.1*	*26.4*	*6.2*	*25.3*
Large	*1.9*	*18.2*	*1.3*	*15.2*	*1.2*	*14.8*
Total	*100*	*100*	*100*	*100*	*100*	*100*

Source: NIRD, India Development Report

2.5 Tenants/sharecroppers account for 8.3 per cent of the cultivated area, share being much higher in Haryana (33.74%), Punjab (18.83%), Uttar Pradesh (18.74%), Tamil Nadu (13.01%), West Bengal (10.01%) and Andhra Pradesh (9.57%). Recognising the need for providing credit to tenants/sharecroppers, RBI in 1972 laid down the procedure to be followed, while financing such farmers. However, as per available evidences, except West Bengal and to some extent in Haryana (where co-operatives finance such type of cultivators), their credit needs are not met by the formal credit system. The problem is further compounded due to absence of proper land records and title deeds, especially, in the NER, where cultivable land is under community ownership and is leased out for cultivation. Further, the requirement of credit of small/marginal and tenant farmers and landless labourers tends to be small because of traditional forms of

cultivation in terms of cropping pattern, irrigation and use of other inputs and seasonality conditions.

Rural Poverty

2.6 So far, the main thrust of various poverty alleviation programmes has been on providing assets to the poor with capital subsidy and credit. As a result success has eluded us and impact has been diluted. Though rural poverty declined from 53.1 per cent during 1977-78 to 27.1 per cent during 1999-2000, 193 million people still live below poverty line. The 10th FYP targeted to further reduce this percentage to 21.1 (150 million), i.e., to bring 43 million people above poverty line. Efforts are needed to develop thrift habits, capacity to absorb credit and improve access to credit of the rural poor.

2.7 Of the rural households, landless households constitute 11.3 per cent and along with SF/MFs and rural artisans face seasonal unemployment/underemployment. Though the share of agriculture sector in total employment declined from 68.45 per cent (1983) to 59.84 per cent (1999-2000), 60 per cent of the population continues to depend on agriculture for livelihood. The current backlog of unemployment is around 9 per cent or equivalent to 35 million persons and this is far too high. On the basis of Prime Minister's vision of creating 100 million employment opportunities over the next ten years, unemployment is likely to decline to 5 per cent by the end of the 10th plan. To be able to realise this target, the focus will have to be on wide range of sectors in the rural area, such as agriculture and allied, service activities, SSI including micro enterprises, retail trade, etc., requiring a larger flow of credit to support them.

Irrigation and Water Management

2.8 During 2002-03, only about 40 per cent of the net cropped areas was under irrigation. While area under irrigation in case of wheat, sugarcane and mustard/rapeseed stood at 89, 96 and 64 per cent in respect of coarse cereals like jowar and maize and oilseeds like groundnut was only 8, 20 and 17 per cent, respectively. Since 1998-99, the net irrigated and gross irrigated area has fluctuated between 53 to 54 million ha. and 72 to 78 million ha., respectively, as a result of which the irrigation intensity also remained

range bound between 136 and 140 per cent (Table 2.4). Though the plan outlay under irrigation and flood control increased from Rs.16,589 crore (7th FYP) to Rs.1,03,315 crore (10th FYP), the share of public expenditure on irrigation and flood control to total expenditure has declined from 10 per cent during the 6th FYP period (1980-85) to 7.6 per cent during the 7th FYP period (1985-90) and further to 6.5 per cent during the 9th FYP period (1997-2002). During 10th FYP period (2002-07), the share remained at around 6.8 per cent (Table 2.5).

Table 2.4 : Trends in net and gross Irrigated Area

(Million ha)

Year	Net Irrigated Area	Gross Irrigated Area	Irrigation Intensity	Irrigation Ratio*
1998-99	57.07	75.95	131.77	39.20
1999-00	56.00	76.40	136.43	39.44
2000-01	54.68	75.14	137.42	38.75
2001-02	55.85	78.32	140.23	39.50
2002-03	53.13	72.58	136.61	40.01

** Net Irrigated Area /Net Cropped Area*

Source: CMIE, various Issues

2.9 Although the country's irrigation potential has been assessed at 139.89 m.ha, so far only 68 per cent of which has been harnessed. Average annual growth in creation of irrigation potential at about 1.5 m. ha. per annum upto 8th plan (1992-97) was proposed to increase to 3.4 m.ha. annually by the end 9th plan (1997-02). However, the actual growth was much slower at 1.80-1.85 m.ha. during 9th plan also. Large investment would be required to complete several hundred irrigation projects left unfinished for years because of severe resources constraints. Additional resources for projects nearing completion is expected to bring high returns to investments already made. Further, the lack of expansion and improvement in irrigation and poor water management have been impediments to agricultural development. Therefore, development of irrigation must occupy a central place in Indian agricultural development strategy.

Table 2.5: Plan Outlay under Irrigation & Flood Control

(Rs. crore)

Plan Period	Outlay	% to total outlay
7th Plan(1985-90)	16,589	7.6
8th (1992-1997)	32,525	7.5
9th (1997-2002)	55,420	6.5
10th (2002-2007)	1,03,315	6.8

Source: Economic Survey, 2005-06

2.10 To provide a 'big push' to irrigation the GoI under the Irrigation Component of Bharat Nirman, has set a target of creating additional irrigation potential of 10 million ha. during the four year period (2005-09). To achieve the above, the pace of potential creation will have to be scaled up from 1.42 million ha. per annum in recent years to 2.5 million ha. per annum. A total of about 11 million ha. of new potential can be expected in the 11th FYP period consisting of 5.5 million ha. in major and medium irrigation, 3.5 million ha. through minor irrigation and about 2 million ha. through ground water development (11th FYP document). To achieve this private investment has to be substantially called up during the 11th FYP period.

2.11 Alongwith development of irrigation potential, ground water management is critical, as 60 per cent of cultivable land is unirrigated and rainfed and, therefore, need much more focused attention. As per the Central Ground Water Board, Ministry of Water Resources, GoI ,out of 4,884 blocks in the country, 839 are over-exploited, 226 critical, 550 semi-critical, 30 saline and 4,078 safe blocks/mandals/watersheds in the country. Thus, the ground water position in the country is deteriorating. Continued provision of free power by some states and highly subsidized power by all states is leading to an increase in over exploitation of groundwater. Although efforts are already underway to ensure judicious use of the same, further concerted efforts by all the stakeholders are necessary. Additional investments have to be made so that proper treatment of affected areas is undertaken.

Dryland Agriculture

2.12 Dependence on monsoon is another feature of Indian agriculture. About 89 million ha. of cultivable land (63% of NSA) in the country is under dry land farming. Even after completely developing the irrigation potential, around 50 per cent of cropped area will continue to be rainfed. Most of these areas receive rainfall less than 700 mm., have very fragile resource base and low crop productivity in the absence of assured irrigation facilities. These dry land tracts need greater attention, as they are spread over vast areas of the country covering around 50 per cent of the population. Dry land

agriculture is considered as highly risky due to vagaries of nature. Low risk-bearing ability also prohibits farmers from making investments and adopting of new technology. RFIs are averse to lending because of their past experiences of high NPAs and low recoveries, as also, small per household requirement increases their transaction costs.

2.13 The new 'watershed plus' approach to watershed development envisaged in 10th FYP document, seeks to ensure convergence of all other programmes that promote economic activities and generate employment opportunities. Conscious efforts to promote non-farm employment and increased land access for the landless as well as promotion of SHGs form part of the new approach and will require rural credit support. Rain water conservation and harvesting hold the key to sustainable development of rainfed areas. Watershed management, rainwater harvesting and ground water recharge can help augment water availability in rainfed areas. Building structures for water management and managing them will also provide opportunities for employment generation in rural areas. The National Rainfed Area Authority to be set up during the year will provide a vehicle for developing concerted action plans for rainfed areas. It is estimated that to treat about 80 million ha. of such land with an average expenditure of Rs.10,000 per ha. Rs.80,000 crore will be required.

Wasteland Development

2.14 Considering the limited scope for expansion of cultivable land, utilisation of wastelands assumes importance. Out of the estimated area of 107 million ha. of degraded land, 64 million ha. are categorised as wastelands. All such lands under the control of Governments or Panchayats would be parcelled out in viable units and allotted to landless/ sharecroppers and tribal families, SF/ MFs, etc., for cultivation.

2.15 Organic farming is also assuming importance in view of changing domestic consumption habits of elite group and also export potentials. Most of these, thrust areas of rural development need credit support and therefore the loan-portfolio of rural credit institutions should begin to reflect the more diversified credit products supporting these emerging areas.

Diversification of Agriculture

2.16 Changes in Indian agriculture are also becoming apparent, with increased diversification towards commercial and horticulture crops, high value cereals, etc., changes in the input base of crop production and rise in per hectare value of agricultural produce. The share of non-food crops in cultivated area increased from 26.3 per cent during 1980-81 to 35.4 per cent during 2000-2001. Similarly, among cereals, coarse cereals are being replaced by fine cereals (Table 2.6), while soyabean is getting larger share among oilseeds and the area under fruits and vegetables is increasing significantly. The area under fruits increased from 3.7 million ha. (1997-98) to 4.8 million ha. (2003-04) and it is estimated at 5.2 million ha. by 2005-06, under vegetables it increased from 4.1 million ha. to 5.9 million ha. The commercialisation of agriculture, particularly, increasing importance of cash crops and introduction of new crops in cropping pattern will have effect on demand for credit, both production and investment.

Table No. 2.6 : Changes in Cropping Pattern

(Per cent)

Triennium ending	Total Cereals	Course Cereals	Total foodgrains	Oilseeds	Sugarcane	Cotton	Other crops
1980-81	60.5	40.1	73.7	10.1	1.6	4.6	10.0
1990-91	56.6	36.2	69.5	12.5	1.9	4.1	12.0
2000-01	53.2	29.2	64.6	12.8	2.2	4.6	15.8

2.17 The National Horticulture Mission (NHM) launched in May 2005 intends to increase the pace of development of the horticulture sector in the coming years so as to take advantage of the growing demand for these products both internally and externally. The requirements of credit (both production and investment) for horticulture crops along with plantation crops are to be largely met from the banking sector. The projections have taken into account the above emerging shifts in favour of commercial agriculture.

High Value Agriculture

2.18 The demand for credit, arises not only from changing production patterns but also to adjust to the changing consumption patterns. This can be attributed to availability of new technology, changes in consumption and trade / marketing patterns that have made a

subtle but strong impact on the agricultural production processes. Given sustained increase in per capita income of about 4 per cent per annum during the past two decades, the consumption basket too in terms of the dietary mix and the tastes of the Indian consumer (rural consumer in particular) is witnessing a significant shift towards fruits, vegetables, meat and milk products, etc., from cereals (Table 2.7). This changing pattern of growth in Indian agriculture presumably speaks of increasing diversification in the production basket, being guided by the pattern of expenditure elasticities in the consumption basket with rising levels of income and urbanisation. With increasing urbanisation the shift in the consumption basket becomes more pronounced in the urban and near-urban areas. The result is that diversification in cropping pattern is better sighted in rural tracts surrounding such pockets. This is owing to higher per capita income in general and emergence of pockets of affluence in particular. It is, therefore, imperative that such a trend be encouraged in a manner that it achieves a wide spread effect. Increasing income levels realise creation of new market segments and also drives both the 'push' and the 'pull' demand. Apart from this, structural shift in Indian diet, the new export opportunities for many of the same products, owing to trade liberalization adds to match between the demands of the market and the needs for farmers to diversify into higher-value activities. Further, high value agricultural products have higher employment elasticities and can be suitable for small holders.

Table 2.7: Consumption Expenditure on Foodgrains, Fruits & Vegetables & Other Food Items

(Per cent)

Year (NSS round)	Foodgrains		Fruits & Vegetables		Milk, Meat,Egg & Fish	
	Rural	Urban	Rural	Urban	Rural	Urban
1972-73 (27th)	63.1	42.0	10.2	9.9	13.4	19.5
1987-88 (43th	47.8	33.2	12.7	13.8	18.6	23.2
1993-94 (50th)	44.8	31.6	14.4	15.0	20.3	24.1
1999-00 (55th)	44.1	31.8	14.5	15.6	20.4	24.5

Source: Economic Survey, 2001-02, Government of India.

Commercialisation of Inputs

2.19 The proportion of purchased inputs in total inputs in agriculture can be taken as a fair indicator of commercialization of agriculture. The share of the value of purchased agricultural inputs, *viz.,* fertilizers, electricity, diesel, irrigation and insecticides and pesticides in the value of total agriculture inputs (excluding labour) increased from 26.8 per cent during 1970-71 to 40.3 per cent during 1980-81 and further to 52.6 per cent during 1990-91 and stands at 56.5 per cent during 2002-03 (Table 2.8). Thus, the period of 1990s also witnessed increased commercialization of agricultural inputs. The ratio of agricultural inputs, both purchased and total, to gross value of output emanating from agriculture also show an increasing trend. The rise in the ratio of purchased inputs to gross value of output from agriculture is relatively faster. The proportion of the value of inputs covered by the institutional credit increased from 31 per cent (2000-01) to 56.3 per cent during 2002-03 reflecting credit widening. The above evidence clearly indicates the growing importance of the purchased inputs and thereby the importance of credit which has been taken into account while making projections for credit flow during 11th plan.

Table 2.8 : Share of purchased Inputs in Total Value of Inputs and Value of Output (At 1993-94 prices)

(Per cent)

Ratio	1970-71	1980-81	1990-91	2000-01	2001-02	2002-03
Purchased agri. inputs to Total agri. Inputs	26.8	40.3	52.58	56.6	56.4	56.3
Agri. inputs to gross value of agri. Output	9.3	12.6	16.13	16.9	16.0	17.0
Purchased agri. inputs to gross value of agri. output	2.5	5.1	8.5	9.57	9.0	9.6

Source: National Accounts Statistics of India, EPW Research Foundation, 2004, Mumbai.

Agricultural Productivity and Production

2.20 The magnitude of future foodgrains requirement looks quite formidable. Even modest projections of demand for cereals in 2020 place the estimate at 260 million tonnes, as compared to the production level of 191.2 million tonnes during 2004-05. The demand for foodgrains may further go up in view of the changing structure of agriculture and allied sector. The enormous gap to be bridged between demand and supply is

obvious. The sustainability of a high growth rate of 8 per cent envisaged in the 11th FYP is also contingent upon agriculture posting a growth of 4 per cent in sharp contrast to a growth of only 2.1 per cent recorded in 9th FYP and present growth rate of 1.8 per cent achieved during the first four years of 10th FYP. Such acceleration in agricultural growth needs to be supported by large flow of rural credit.

2.21 In terms of agriculture productivity, India lagged far behind, not only from major developed economies but also from most of the other developing economies within South Asia (Table 2.9). For instance, it was less than half in case of paddy in India, compared to China, USA and Japan and two-third of Indonesia. The productivity of paddy, maize and groundnut was much lower, i.e., 23, 62 and 21 per cent, respectively, in India as compared to the world levels.

Table 2.9 : Crop Productivity in some of the South Asian and Developed Countries

(kg/ha.)

Country	Rice	Wheat	Maize	Sugarcane	Groundnut
India	2,890	2,578	1,613	66,919	1,025
China	6,059	3,667	5,210	71,317	2,584
Indonesia	4,174	---	2,624	67,484	1,521
USA	6,354	2,907	8,439	80,237	2,986
Japan	6,219	---	---	---	2,452
World	3,747	2,624	4,395	64,423	1,301

Source: FAO Production Year Book.

2.22 Foodgrain production grew at CAGR of 2.85 per cent on account of increase in productivity during the eighties but the growth rate declined to 1.66 per cent in the nineties (lower than the population growth recorded during the nineties) as the growth in yield rates declined to almost half during this period. Among the foodgrains, the situation regarding pulses was very alarming as production has shown negative growth rate in the nineties and the yield had also grown at a meager 0.55 per cent. Growth rates of production as well as productivity of wheat and paddy declined significantly in nineties and in subsequent years (Table 2.10).

Table 2.10 : Trend Growth Rates of Production and Yield

(Per cent)

Crop	1980-81 to 1990-91		1990-91 to 2000-01		2000-01 to 2004-05	
	Prod	Yield	Prod	Yield	Prod	Yield
Paddy	3.56	3.47	1.74	0.92	- 0.45	1.27
Wheat	3.57	3.10	3.27	2.21	0.57	- 0.11
Coarse Cereals	0.40	1.62	-0.54	1.18	- 4.40	1.52
Total Cereals	3.03	2.90	1.86	1.38	0.33	1.11
Total Pulses	1.52	1.61	-0.04	0.55	3.35	2.79
Foodgrains	2.85	2.74	1.66	1.28		
Sugarcane	2.70	1.24	2.70	0.82	- 6.80	- 2.70
Oilseeds	5.20	2.43	1.62	1.04	8.40	4.86
Cotton	2.80	4.10	1.37	-0.94		
Non-foodgrain	3.77	2.30	2.41	0.86		
All crops	3.19	2.56	1.96	1.09	1.64	1.96

Source: Agricultural Statistics at a Glance, Ministry of Agriculture, GoI.

2.23 Decline in growth rates of productivity of Indian agriculture is a worrisome trend. The area under cultivation is restricted as there is limitation on cultivable land; hence agricultural growth has to be centred on productivity increase to keep pace with the growth in population as well as meeting the demand from other allied sectors.

2.24 It has been argued and rightly so that the share of foodgrain consumption comes down with increases in income level (Engle's Law) as demand for foodgrains comes down while that of high value food items go up. The Indian Economy is also seeing such a shift in the consumption pattern in the recent decades. However, with more than 40 per cent of the expenditure in rural areas being on foodgrains and around 75 per cent of the population living in the countryside the concerns of food security and subsequently foodgrain production cannot be wished away. The trend of declining production and yield rates need to be urgently arrested and reversed. With not much scope left for increases in area, the rise in production is largely dependent on yield increases. The low rates of increase in yield levels are mainly due to technological slack, weak input delivery services and poor infrastructure. To tackle this, investment in the sector needs to be

scaled up in a major way and simultaneously address the need of effective agricultural extension mechanisms.

2.25 The discussion of the issues elaborated in the previous paragraphs all point out to the pressing need to increase capital formation in agriculture, i.e., private and public investment.

2.26 Capital formation (both private and public) plays a crucial role in improving productivity and overall development of the agriculture sector. The share of gross capital formation (GCF) in agriculture in total GDP, which hovered around 2 per cent during the period 1999-2004, had declined to 1.7 per cent during 2004-05 (Table 2.11). The share of public investments in total investment in agriculture has been declining since 1980-81 and fluctuated between 17.1 and 18.4 per cent during the nineties. However, there are signs of reversal and public sector capital formation has started rising and stood at Rs.12,591 crore during 2004-05, as also its share in GCF in agriculture increased to 29.2 per cent.

Table 2.11 : Gross Capital Formation in Indian Agriculture (At 1999-2000 prices)

(Rs. crore)

Year	Public Sector	Private Sector	Total	*GCF in Agriculture to*	
				Agri GDP (%)	Total GDP (%)
1999-00	7,754	35,719	43,473	9.6	2.2
2000-01	7,018	31,158	38,176	8.4	1.9
2001-02	8,529	38,215	46,744	9.7	2.2
2002-03	7,849	38,018	45,867	10.2	2.1
2003-04	12,809	35,024	47,833	9.7	2.0
2004-05*	12,591	30,532	43,123	8.7	1.7

**Quick Estimates Source: Economic Survey 2005-2006*
Figures in parentheses indicate percentage to total

Diversification within Agriculture & Allied Sectors

2.27 The shift in the cropping pattern in the agriculture sector is also reflected in the compositional changes taking place in value terms. There has been a gradual change in the structure of agricultural production in India, particularly since the 1990s. Within

agriculture, the share of the crop sector increased till 1980-81 and has then shown a decline. During 1990-91 the crop sector accounted for 69.5 per cent of the value of the output emanating from agriculture and allied activities, which declined to 67.4 per cent during 2001-02 and to 64.5 per cent during 2002-03 (Table 2.12). The allied sector, led by animal husbandry and fisheries, grew much faster than the crop sector which is reflected in the rising share in the value of the output. The share of the forestry and logging has, however, shown a secular decline in percentage terms. The livestock sector accounted for a little more than a quarter per cent of the value of output from agriculture during 2002-03. The rising share of both livestock and fishing implies that the demand for credit from such sectors would increase in the future.

Table 2.12: Changing Pattern of Production

(Per cent)

Year	*Sectoral Shares (Agriculture and Allied Activities)*						
	Cereals	*Non-Cereals Food*	*Cash Crops*	*Crop Sector*	*Livestock and Fishing*	*Forestry and Logging*	*Ag. And Allied (Rs.crore)*
1960-61	31.7	33.6	4.9	70.2	20.3	9.5	1,32,292
1970-71	31.4	34.9	4.8	70.9	20.1	8.8	1,69,066
1980-81	30.4	36.2	4.4	71.0	23.4	5.7	2,26,719
1990-91	28.6	36.4	4.5	69.5	26.2	4.3	3,10,165
2000-01	26.1	37.6	3.9	67.6	28.3	4.2	3,48,790
2001-02	26.9	36.6	3.9	67.4	28.5	4.0	3,67,994
2002-03	23.3	36.9	4.3	64.5	31.5	4.3	3,46,110
2003-04	25.9	35.7	5.0	66.6	29.5	4.0	3,77,522

Source: National Accounts Statistics, various issues.

Livestock Sector

2.28 India became the largest producer of milk in the world with the total production at 81 million tonnes during 2000-01 which has further increased to 91 million tonnes during 2004-05. Milk availability per capita per day has increased from 112 grams during 1970-71 to 232 grams during 2004-05. However, it is still lower than the minimum consumption requirement of 250 gms per day. The National Vision is to produce 96 million tonnes by 2010. The ground level credit flow from the RFIs has steadily increased from Rs.1,763 crore during 1997-98 to 2,221 crore during 2001-02 and further to Rs.3,097 crore during 2004-05 for this sector.

2.29 The growth rate of 4.5 per cent per annum in milk production in the country against the world average growth of 1.5 per cent, and its static growth in most milk producing countries indicates the potential of India to emerge as a major player in the export of milk products like whole milk powder, skimmed milk powder, butter, cheese, etc., in the rising markets for these products in South East Asian countries and Middle East. Therefore, there is a need to improve the productivity of Indian livestock so as to make the products internationally competitive both on price and quality front for countering imports while trying opportunities in select export markets.

2.30 Non-availability of quality animals, poor management and low productivity, poor animal health care infrastructure, inadequate fodder resources and processing facilities, etc., are some of the constraints affecting this sector. Establishment of breeding centres, bull mother farms, mobile AI units, liquid nitrogen production units, commercial calf rearing schemes, disease diagnostic centres, etc., are needed on massive scale preferably by attracting private entrepreneurs.

2.31 Meat and meat products from buffalo, sheep and goat have major export potential. Some private state-of-art abattoir-cum-meat processing plants have established a niche in international markets covering the Philippines, Malaysia, Iran, Egypt, Gulf and the Middle East countries. Meat export can be further accelerated by moderinising more meat plants with world class sanitary and phytosanitary conditions, by establishing disease-free zones for meat animals and by vertically integrating production of meat animals with meat processing.

2.32 Landless labourers often derive more than 50 per cent of their income from livestock, especially poultry. The value of output from poultry sector is nearly Rs.15,000 crore and the sector provides direct or indirect employment to over two million people. With output of 45 billion eggs during 2004-05, India ranks among top six egg producing countries in the world. However, the per capita availability of 34 eggs and 790 gms of poultry meat in India is too low as compared to world average per capita consumption of 205 eggs and 15 kg of poultry meat per annum. This is indicative of the significant potential of the sector. The problem in India is poor performance of small poultry farms

due to poor quality feed, high cost of health care, poor price realisation, etc. There is need for poultry market and processing infrastructure in potential areas, besides disease surveillance and monitoring.

Fisheries Sector

2.33 India is the third largest producer of fish in the world after China and Japan and second in inland fish production after China. The fisheries sector contributes about 1 per cent to the total GDP and 4.7 per cent to the GDP from agricultural sector. Though export earnings from marine products increased from Rs. 8.93 billion during 1990-91 to Rs. 62.96 billion during 2000-01, it remained almost stagnant thereafter and was at Rs.61.88 billion during 2004-05. India produces about 6.3 million tonnes of fish at present, while total production potential is estimated at 8.4 million tonnes. While in the case of marine fisheries nearly three fourth of the production potential has been exploited, that of inland fisheries is only around 55 per cent. Inadequate ancillary facilities like Mini Fish Seed Hatcheries, rearing of fingerlings, processing units, market yards, fish feed plants, etc., are major constraints in horizontal expansion of aquaculture.

2.34 It is estimated that the existing reservoir fishery resources can yield more than 0.2 million tonnes per annum if properly harnessed. Though the country has nearly 0.8 million ha. of large water bodies like flood plain lakes, they are highly underutilised at present and will require proper credit support from RFIs for fisheries development in these water bodies. Efforts are also being made in many land locked states like Punjab, Haryana and Madhya Pradesh for culture of fresh water prawn. About 1.2 million ha. of potential resource is available in India, of which only 0.1 million has so far been developed for brackish water aquaculture. After liberalisation, Aquaculture Authority set up for regulating this sector has started issuing licenses to brackish water shrimp farms. The trade liberalisation also provided stimulus to the ground level credit flow to the fisheries sector that increased from Rs.338 crore during 1997-98 to Rs.508 crore during 2001-02 and further to Rs.1,301 crore during 2004-05.

2.35 Keeping these development trends in view in the post-liberalisation scenario, the RFIs would be required to focus their attention to the developmental needs of this sector.

In the case of Inland Fishery, financing would require to be strengthened for the renovation of a large number of small water bodies like village tanks and ponds that are lying in derelict and semi-derelict form to make possible "composite fish-culture". The high growth rate in the volume and value of marine products in general and frozen fish and shrimp in particular during recent years is indicative of the export potential of marine products from India. With the liberalised policy, fish-processing sector has been attracting more foreign investments. There is, however, an urgent need for India to modernise processing facilities to maintain international quality standards and meet the stringent quality standards of importing countries. Providing on-line information about international market trends, prices, etc., to sea food exporters of our country will further help to boost exports.

Infrastructure

2.36 With changes in the consumption basket, there has been expansion in the food chain also. This is evident from the growing importance being given to processing and packaging of agricultural produce with greater emphasis on quality. There are marked indications towards segmentation of urban and semi-urban markets linked to price and quality of products. There has also been massive expansion of exports of high value commodities, necessitating development of supporting infrastructure for better forward linkages. The agriculture production process is also witnessing new linkages/ configurations. Contract farming, for example, is developing as an efficient production-marketing link with minimal loss of value taking place in the entire process. It also has the potential to achieve a vertical integration by linking small and marginal farmers with the markets, thereby obtaining an optimal matrix solution.

2.37 Infrastructure- adequate, cost effective and accessible is the most important driver on the supply side. Promoting such diversification to high-value crops and supplementary sectors would necessitate improved infrastructure support in terms of improved irrigation and farm mechanisation, larger doses of working capital to meet the increased use of purchased inputs and the subsequent cost of production. It would also imply that the scale of finance per unit of cropped land would continue to rise. Therefore, qualitative changes in the operations of credit institutions would be needed to meet these demands

effectively. It would also require greater coordination between extension, input supply and marketing services. To ensure sustenance of the changing dynamics, it is imperative that adequate forward linkages (post harvest/agro-processing facilities and other support systems) be developed. High transaction costs and leakages in the value chain adversely affect the relative profitability of diverse production patterns and needs to be addressed urgently.

2.38 The availability of credit is crucial for agriculture to diversify into areas like horticulture, floriculture, animal husbandry, fisheries, cultivation of medicinal and aromatic plants, etc. If this takes place then private investment in agriculture shall increase which in turn through the multiplier effect will also generate employment. Further, in years to come the major areas from which demand for credit is expected to emanate are the post harvest management, agro and food processing and value addition. One may, therefore, conclude that the future of Indian agriculture lies in putting in place a vibrant and dynamic agro-processing sector.

Agro and Food Processing Sector

2.39 Despite being one of the world's major food producers, India accounts for less than 1.5 per cent of international food trade. The food processing sector in India covers fruits and vegetables, meat and poultry, milk and milk products, fisheries, plantation, grain processing and other consumer product groups. During 2004-05 around 10 per cent (i.e. 17.8 million ha.) of the country's gross cropped area was under 'horticulture' crops with total production of 164.1 million tonnes. Though India is the second largest producer of fruits and vegetables in the world, only 2 per cent of the fruits and vegetables are being processed in the country as against 35-40 per cent for countries like Brazil. Thus, tremendous scope exists for both investors and exporters in the field of food processing sector.

2.40 The Food Processing Industry was estimated to grow at 9-12 per cent, on the basis of an estimated GDP growth rate of 6-8 per cent, during the 10^{th} plan period. It is expected that the value addition of food products will increase from the current 8 per cent to 35 per cent by the end of 2025, specially fruits and vegetable processing is expected to

increase to 10 per cent by 2010 and to 25 per cent by 2025. The Food Industry which employs 1.6 million workers directly at present is expected to provide jobs to 37 million workers by 2025. But the above 'potential' can be realised only if a conducive policy climate is created which encourages the growth of this capital intensive sector.

2.41 After liberalisation, food processing and agro industries have been accorded high priority with several policy measures and a number of important reliefs and incentives, *viz.,* (a) exempting majority of food processing activities from the provisions of industrial licensing except for beer and alcoholic drinks and the items reserved for small-scale sector like vinegar, bread and other bakery products, (b) automatic approval available for raising 100 per cent foreign equity in the case of the majority of food items, (c) most of the fruit and vegetable products have been exempted from excise duty, etc. to promote the sector. These incentives are expected to given an impetus to the flow of investment to food and agro-processing sector supported by adequate credit flow. The share of processed food exports to total agro-exports have increased significantly from 18.3 per cent (1991-92) to 36.0 per cent (1999-2000). However, there are still certain impediments which are slowing down the pace of development of this sector.

2.42 The Sub-Group on Investment, Credit, Financial and Marketing Support for promotion of Agro-processing Industry, constituted by Ministry of Food Processing Industry, GoI, in 2004, has estimated total investment requirements for strengthening connectivity, post harvest handling, agri-marketing, storage, processing and agri-export infrastructure during the 10^{th} plan period at Rs.62,105 crore. The group indicated that credit flow to food processing sector has not been commensurate with the potential and as a sequel, linkages between production, marketing, post-harvest and export largely remain weak. Fund requirement for capital formation in the industry is generally long-term in nature while banks prefer giving short-term loans as it suits their asset-liability profile better. As a result, agro-processing is not getting its due share of financial assistance from banks. In view of the fact that any investment in this industry would benefit the farmers in better realisation of value of their produce, advances to food and agro-based processing sector should be considered for quantification under direct agriculture of priority sector lending obligation.

Agriculture Marketing and Infrastructure

2.43 As on 31 March 2005, there were 7,521 regulated agricultural markets and 27,294 rural periodic markets. Only 15 per cent of the rural periodic markets function under the umbrella of regulation. At present, more than 1,270 markets have been provided with computer facilities and the same are progressively being networked. Marketing of agricultural produce in the context of commercialisation of agriculture has become more important. The challenges emerging from liberalisation and globalisation in the post WTO environment necessitate a free, competitive and assimilative marketing structure. An Inter-Ministerial Task Force to strengthen and develop agricultural marketing set up by GoI (Ministry of Agriculture) in its Report submitted in 2002, suggested various reform measures to further support this sector including amendment of State Agricultural Produce Marketing Committee (APMC) Acts for promotion of direct marketing and contract farming, development of agricultural markets in private and co-operative sectors, stepping-up of pledge financing, expansion of futures trading to cover all agricultural commodities, introduction of negotiable warehouse receipt system and use of Information Technology (IT) to provide market-led extension services to farmers. Seven states have so far amended/reformed APMC Acts as suggested in the Model Central Act, 2003, GoI.

2.44 The challenges emerging out of liberalization and globalization in the post WTO period requires a vibrant, dynamic and assimilative marketing structure and system. The goal should be a free marketing system which is vibrant, competitive and all existing policies, rules and regulations should act as lubricant to such a system.

Cold Storage Infrastructure

2.45 The cold storage capacity created in the country for use was around 19.5 million tonnes as on 31 December 2004, which is adequate to hold 40 per cent of the total produce. The growth in storage capacity has been more than the growth in units thereby indicating that units with higher capacities have come up during recent times. The establishment of cold storages has picked up since the mid nineties (Table 2.14), and this can be attributed to various incentives being offered by the GoI for their establishment.

Table 2.14: **Progress of Cold Storage Units**

Years	Units (No.)	Storage capacity (lakh tonnes)
1981	2370	43.75
1985	2522	50.99
1991	2970	77.88
1995	3167	85.80
2001	4146	149.52
2003	4541	182.09
2004	4748	195.52

2.46 Commodity-wise distribution of cold storage infrastructure reveals that its usage is skwened in favour of potato (Table 2.15). Around 80 per cent of the installed capacity is being used for storing potatoes while for fruits and vegetables it is far less than 0.5 per cent of the total capacity in the country. The thrust being given to development of horticulture and vegetable production since the 10^{th} plan makes it imperative that this capacity be increased. This would require additional investment both for conversion of existing cold storages to suit fruits and vegetables storage and for creation of additional capacity. Similarly, in the case of milk and milk products, these investments have to be largely financed through the banking sector.

Table 2.15: Commodity-wise distribution of Cold Storages

	Number	%	Capacity (000 MT)	%
Potatoes	2,800	59.12	15,968.08	81.70
Multipurpose	1,073	22.66	3265.93	16.71
Fruits & Vegetable	123	2.60	44.42	0.23
Meat & Fish	445	9.40	172.2	0.88
Milk & Milk products	209	4.41	79.4	0.41
Others	86	1.82	15.89	0.08
Total	**4,736**	100	**19,545.9**	100.00

Source: Directorate of Marketing & Inspection

2.47 The country needs much more storage facilities than what is available, especially for hilly and remote areas. It is estimated that an additional 20 m storage capacity needs to be created for which the investment required will be to the tune of Rs.5,400 crore. India is the world second largest producer of fruits and vegetables but only about 2 to 3 per cent is processed. It goes without saying that the processing function adds value to

the products and enhances the incomes of the farmers in addition to generating employment in the economy. The thrust on horticulture products and commercial agriculture requires a forward processing linkage if the benefits have to be fully internalized. It has been estimated that investments of around Rs.1,50,000 crore in processing and of Rs.1,18,742 crore for developing rural roads, market yards, cold storages, refrigerated supply chains, etc., are required. It is well recognized that high investment with entrepreneurial skills are required for creating and managing these infrastructure. This necessitates private investment. The private sector has to take the responsibility along with the public sector to fulfill this gap. The Chinese experience in attracting FDI for creation of marketing infrastructure is also good example of synergising the public-private sector partnership.

Specialized Markets: Its Growing Importance

2.48 Apart from general purpose markets, there is need for developing specialized markets, for fruits and vegetables, floriculture, cattles, medicinal plants, herbs, etc., if commercial agriculture is to be expended on a large scale. Likewise, encouragement may be given for promoting marketing for other organically growing produce. Apart from the credit demand emanating from the above it shall also require establishing new institutions and legal mechanisms.

Marketing Credit

2.49 The other aspect that concerns the agricultural marketing system in the country relates to credit flow. It is well known that poor credit flow has an adverse affect on the development of agricultural marketing. With a view to improving credit delivery, better loan recovery and convenience in asset management, there should be adequate number of Certified Warehouses and a system of negotiable warehouse receipts. This area should be opened up to private operators since they also provide storage services. The warehouse receipt system can be institutionalised through the commodity exchanges. Besides, pledge financing should be encouraged because this enables grade produce to act as collateral base to access credit from the organized market at cheaper rates of interest. The Government's aim should, therefore, be to design a full-fledged agricultural

marketing credit policy responding to the requirements of increased production, market innovations, technologies, and other changes with respect to post WTO regime .

Rural Roads

2.50 The importance of physical infrastructure, viz., roads, bridges, ports, etc., for boosting agriculture production can hardly be overstated. The Countries that have been able to provide road connectivity from farms to markets for transportation of output as well as inputs (fertilizers, seeds, etc.) have shown higher economic development than those that have not been able to do so. Even, within a country different regions have benefited differently depending on connectivity. A better network of roads contributes immensely to the better profitability of production and the economic activity of any region as timely transportation of inputs leads to enhanced level of agricultural production. Further, transportation facilitates better marketing of the agricultural produce realizing better returns to the farmers, leading to overall economic development. The rural road development projects, in addition, generate considerable employment potential especially during the lean agriculture period. However, construction of roads and bridges involve huge investments and the 'public good' nature of the infrastructure makes it imperative that the sector has to be funded by public investment. However, the complementarily and spiraling effect of such investments are large. During 2003-04, about 61 per cent of the total villages of our country were connected by roads and the rest 39 per cent have no road connections even though India has three million kms. of roads second only to USA.

Chapter 3

Ground Level Credit Flow During 9th & 10th Five Year Plan

In the Indian context, dominance of institutional credit in addressing the credit needs of the farming community is relatively young development. Independent India saw the dominance of informal sector in fulfilling the credit requirement of the agriculture sector which has declined over the years on account of strengthened institutional banking sources (Table 3.1).

Table 3.1 : Share of borrowing of cultivator households from different sources

(per cent)

Sources of Credit	1951	1961	1971	1981	1991	2003*
A. Non-Institutional	92.7	81.3	68.3	36.8	30.6	38.9
of which (i) Money lenders	69.7	49.2	36.1	16.1	17.5	26.8
B. Institutional(of which)	7.3	18.7	31.7	63.2	69.4	61.1
(i) Cooperatives	3.3	2.6	22.9	29.9	23.6	30.2
(ii) Comm. Banks	0.9	0.6	2.6	29.4	35.2	26.3
Total	100	100	100	100	100	100

Source: All_India Debt and Investment Survey, 1991-92 - Salient Features, RBI Bulletin, (1999), May
*NSSO 59th round

3.1 From the meager 7.3 per cent share of institutional sources had improved to 69.4 per cent by 1991 but declines to 61.1 per cent as per the estimation of the NSSO 59th round. Improvement of access to credit has been a serious concern of the planners and policy makers as could be observed from a series of committees on the issue were set up by GoI / RBI on the issue.

3.2 By the early 1990s, it was resolved that the Indian banking system should adopt international standards of banking regarding capital adequacy, transparency and prudential norms. It was also felt that the operational rigidities in the system were to be removed to improve the efficiency of the sector. The banking sector reforms in the country were aimed at ensuring viability and soundness of the financial institutions and also encouraging them to contribute towards accelerating economic growth and

development. The measures initiated with financial sector reforms had shown mixed results, mostly favourably influencing the financial status of banks without having concomitant impact on the prioritised sectors of the economy.

3.3 In order to ensure adequate and timely credit to the needy and less privileged sections of the society, several measures were adopted from time to time, especially since 1970s. Despite innumerable initiatives to ensure adequate and timely credit, the reach and extend of credit from the formal banking sector to agriculture was not up to the demand. Till 2000, GLC in agriculture could not cover even 10 per cent of the GDP from that sector (Table 3.2). In order to ensure credit to the needy and weaker section of the society, priority sector stipulation (40 per cent of the net bank credit to priority sector and 18 per cent to agricultural sector-13.5% to direct agricultur and 4.5 % to indirect agriculture), was stipulated in the country. A review on the achievement, however, indicated that only 5 out of 27 public sector banks and 2 out of the 29 private sector banks could meet the target of 18 per cent to agriculture. The pace of credit disbursed to agriculture is, slowing, especially, for term loans, regional imbalances seem to be widening and the share of small farmers in the credit disbursed is declining (Vyas committee,2001).

Table 3.2 : GLC in Agriculture as share to GDP in Agriculture and overall GDP

(Per cent)

Year	Agri credit/ Agri GDP	Agri credit/ total GDP	Agri credit/ CS*
1950-51	0.5	0.3	-
1960-61	3.3	1.3	-
1970s	5.4	2.1	10.8
1980s	8.3	2.6	8.5
1990s	7.4	2.0	6.4
1999-2000	10.0	2.6	8.1
2000-01	11.3	2.8	7.9
2001-02	12.2	3.0	8.2
2002-03	13.7	3.1	7.8
2003-04	15.1	3.5	8.6

* CS refers to outstanding banks credit to Commercial Sector(proxy for total credit)

Source : Rakesh Mohan(2006), Agriculture Credit in India Status, Issues and Future Agenda, Economic and Political Weekly, March 18

3.4 Acknowledging the importance of credit for the development of agriculture sector, GoI has accorded thrust for enhancing the GLC flow. Several policy initiatives were taken to foster the credit flow including doubling of credit program, debt relief measures, etc. All these efforts from the GoI, which were implemented with equal spirit by the banking sector, had profound effect on the ground level credit flow.

Ground Level Credit Flow

3.5 Various policy measures, improvement in banking infrastructure, increased demand for credit, etc had favourable bearing on the ground level credit flow in agriculture in the country. The flow of credit to agriculture has expanded impressively over time. With a view to achieving the overall target of doubling of credit flow to agriculture within a period of three years ending 2006-07 various initiatives were taken by RBI, NABARD, and IBA to boost credit flow to agriculture during 2004-05. The improvement in GLC is considerable during the 9th and 10th FYP period(Table 3.3).

Table 3.3 : Ground Level Credit Flow during 9th and 10th FYP

(Rs. crore)

Agency	1997-98	2001-02	CAGR *(%)	2002-03	2003-04	2004-05	2005-06	CAGR **(%)
1. Crop Loan	20640	40509	18.4	45586	54977	76062		
2. Term Loan	11316	21536	17.5	23974	32004	49247		
3. Total	**31956**	**62045**	18.0	**69560**	**86981**	**125309**	**157152**	31.2
Co-opBanks	*14085*	*23604*	13.8	*23716*	*26959*	*31271*	*37252*	16.2
RRBs	*2040*	*4854*	24.2	*6070*	*7581*	*12404*	*14076*	32.4
Com. Banks	*15831*	*29333*	16.7	*39774*	*42210*	*81481*	*106152*	38.7
Others	*110*	*4254*		*5882*	*10231*	*193*	--	--

**CAGR during 1997-98 to 2001-02 period, **CAGR during 2000-03 to 2005-06 period*
Source : Annual Reports(various issues) NABARD , HO, Mumbai

3.6 Compound annual growth of ground level credit was at 18 per cent during the 9th FYP period (1997-98 to 2001-02). During the 10th FYP period GLC in agriculture was targeted to reach Rs.7,36,570 crore, which is expected to reach Rs.6,39,330 crore by registering a level of achievement of 87 per cent of the target. Production credit has grown at a rate of 18.4 per cent and investment credit has grown at a rate of 17.5 per cent

per annum during this period. Among the agencies achievement of RRBs was noticeable (24.2%), followed by commercial banks(16.7%) and relatively mediocre performance from cooperative banks(13.8%).

3.7 With the premeditated policy initiative from the GoI and the steadfast implementation of the same by the banking sector, GLC for agriculture during the 10th FYP improved substantially, especially from 2003-04 with the so called doubling of credit programme under the Common Minimum Programme of the new Union Government. GLC in agriculture during the initial 4 years of 10th FYP registered a compounded growth of more than 31 per cent per annum. Commercial banks performed exceptionally well with a more than 2.5 time increase in the agriculture loan disbursements in 4 years (CAGR of 38.7%). Almost matching performance was also observed by RRBs during the period with a CAGR of 32.4 per cent. Cooperative banks with its systemic weakness lagged behind with a 16.2 per cent growth rate.

3.8 Commercial banks in the country had almost half of the total GLC by the beginning of the 9th FYP which improved to 67.5 per cent by the end of the plan period, in the agricultural credit ; whereas, cooperative banks though had more than 60 per cent of the total credit outlets in the country shared only 25 per cent and RRBs shared roughly 10 per cent of the total agriculture credit in the country. On an average 65 per cent of the total ground level credit was disbursed to meet short-term credit requirement while the rest (35%) was to meet the long term/ investment credit requirement in the sector.

3.9 The sub-sector wise GLC flow for agriculture and allied activities during the period (Table 3.4) revealed that when compared to traditional sectors like farm mechanization(FM), animal husbandry (AH), plantation & horticulture (P&H), land development (LD), growth in flow of credit in emerging sub sectors like hi-tech agriculture, others category(which Includes disbursement under RIDF, Waste land Development(WLD)/ Forestry, Storage & Market Yards, Bullocks and Bullock carts, Biogas, etc and, etc, was considerable during the 9th FYP. However, during the 10 FYP period, along with Hi-tech agriculture and others, GLC growth in investments such as

fisheries, land development and minor irrigation were registered good growth. It is pertinent here to note that though the share of livestock sector in GDP of Agriculture sector has been on the increase and the sub-sector's importance is also growing on account of up-coming changes in the consumption pattern, growth in GLC in the sub-sector is well behind other sub-sectors and overall growth in the term credit(only 8.4% as against 43.3%).

Table 3.4 : Sub Sector-wise Ground Level Credit Flow for Agriculture and Allied Activities

(Rs. crore)

Sector/ Sub-sector	1997-98	2001-02	CAGR * (%)	2002-03	2003-04	2004-05	CAGR **(%)
I. Crop Loan	20640	40,509	18.4	45,586	54,977	76,062	29.2
II. Term Loans	11316	21,536	17.5	23,974	32,004	49,247	43.3
i. Min. Irri.	1584	1,845	3.9	1,976	2,730	4,186	45.5
ii.Land Devt	173	307	15.4	393	579	840	46.2
iii. Farm Mech	3566	3,847	1.9	3,600	3,986	4,555	12.5
iv. Plant & Horti	755	765	0.3	1,195	1,436	1,720	20.0
v. Ani. Hus.#	1763	2,221	5.9	2,637	2,928	3,097	8.4
vi. Fisheries	338	508	10.7	539	1,142	1,301	55.4
vii. Hi-tech Agri$	1101	2,257	19.7	2,268	4,017	6,648	71.2
viii, Others@	2036	9,786	48.1	11,366	15,186	26900	53.8
III Total	31956	62,045	18.0	69,560	86,981	1,25,309	34.2

**CAGR during 1997-98 to 2001-02 period, **CAGR during 2002-03 to 2005-06 period*
 # includes DD, Poultry and SGP, $ only for commercial banks
@Includes disbursements under RIDF, WLD/ Forestry, Storage & Market Yards, Bullocks and Bullock carts, Biogas, Disbursement by private sector banks etc.

3.10 Comprehending the importance of agriculture sector in the economy and the need to provide an impetus to its growth by providing suitable liquidity through institutional agencies, the GoI, in 2004-05, came out with a package for doubling the agricultural credit within a period of three years, (as against the achievement of 2003-04 at Rs.86,981 crore), starting from 2004-05.

3.11 As suggested by GoI, various steps to achieve the target like energizing branches of commercial banks and RRBs, enhanced coverage of institutional credit through Kisan Credit Cards (KCCs) and broadening the coverage to include more of new farmers

(especially small/ marginal farmers and tenants/sharecroppers), new investment projects under direct agriculture, agri-clinics, implementing debt restructuring to farmers in distress/arrears /debt, review the scale of finance, etc were initiated.

3.12 The doubling of credit within 3 years starting from 2004-05, had profound effect on implication on the GLC in agriculture. As against the average growth of 16 to 17 per cent during the 1990s, the envisaged growth in the programme was more than 30 per cent per year. Though the level of achievement is staggering, sustainability of the pace of growth is in doubt on account of two counts viz., the capability of the sector to absorb the credit addition and the capacity of the credit purveying institutions, especially cooperative sector as a supplier. Credit absorption capacity of the rural sector depends on factors such as proper agriculture infrastructure, availability of suitable technology, extension services, marketing facilities, transportation, storage, etc. The role of state governments, therefore, is of high importance in achieving the target especially in providing suitable infrastructure/extension support for facilitating enhanced credit flow to agriculture. Considering the colossal importance of credit, especially institutional credit, suitable planning / projection of the ground level credit flow need to be addressed. The focus of the agriculture credit during the 11^{th} FYP period will be a broadbased and inclusive growth in GLC for a sustainable and technology lead growth of the sector.

Chapter 4

Approach for Estimation of Likely Credit Flow of Private Investment for SME and Agriculture Sector 11th FYP

This chapter eloborate the methodology adopted for estimation of GLC in agriculture

The following approaches were used for projecting GLC flow in Agriculture.

1. Projections based on various GDP growth rates (Term Structure wise).
2. Projections based on the capacity of the credit institutions (Credit supply constraint approach).
3. Projections based on trend (Trend rate of growth approach).
4. Projections based on trend in ratio of GLC to GDP in Agri.
5. Projections based on sectoral requirement (Sectoral approach).

In addition, likely investment in agriculture sector by agri. corporates in the sector will be taken into account while estimating likely credit flow.

Methodology

Projection Based on the Required Rates of Growth

4.1 In order to project the likely credit flow to the agriculture sector, the most prominent method is the estimate based on the envisaged growth rates of overall GDP (8.5%), GDP from Agriculture sector (3.9%), investment ratio (33.6%, etc.). Based on these predetermined growth rates, desired levels of investment were arrived at using the incremental capital output ratio(ICOR). Likely flow of investment credit were determined based on the share of public and private sector in total investments as well as the extent of institutional credit involved in the sector. Short - Term credit requirement in the sector were determined by the extent of the purchased inputs used in the crop production process and the ratio of monetisation of the same by institutional sources. The trend and degree of commercialization and technology adoption were also taken into account while estimating ST credit requirement for the plan period. The method adopted has been explained with the help of following equations:

$$GLCA_{11fyp(e)} = GLCA_{inv.c} + GLCA_{pdn.c} \quad \ldots\ldots \quad 1$$

Where :

$GLCA_{11fyp(e)}$ = *Projected ground level credit flow in agriculture during the 11th FYP*

$GLCA_{inv.c}$ = *Projected investment credit in agriculture during the 11th FYP*

$GLCA_{pdn.c}$ = *Projected production credit in agriculture during the 11th FYP.*

$$GLCA_{inv.c} = GDP_{m(cu.p)} * Ag_{(s)} * G_{ag(p)} * ICOR_{(e)} * PvtS_{(s)} * InsS_{(s)} \quad \ldots\ldots 2$$

Where: $GDP_{m(cu.p)}$ = *GDP at market price(current price).*

$Ag_{(s)}$ = *Share of Agriculture inGDP.*

$G_{ag(p)}$ = *Projected growth in agriculture sector.*

$ICOR_{(e)}$ = *Incremental capital output ratio.*

$PvtS_{i(s)}$ = *Share of private sector in total investment in agriculture.*

$InsS_{i(s)}$ = *Share of institutional credit(investment) in total investment in private sector.*

$$GLCA_{pdn.c} = Inp_{(p)ag.} * InsL_{(s)}$$

Where:

$Inp_{(p)ag.}$ = *Total value of purchased inputs used in agriculture.*

$InsL_{(s)}$ = *Share of purchased input covered with loan by institutional sources.*

Projection based on the capacity of the credit purveying institutions

4.2 With the improvement in efficiency and capacity of the institutions in credit delivery system, the combination and extent of credit support by the banking agencies also will undergo adjustments. Institution's capacity in credit expansion depends on availability of resources for which, extent of own funds, mobilized resources and their trend was assessed to determine agency-wise capabilities. Towards this end, improvement in deposit mobilization, recovery of loan, reduction in Non Performing Assets, etc. among the agencies were subjected to scrutiny.

4.3 Credit purveying capacity of the banking agencies was worked out by using agency-wise trend in the ratio of loan disbursed to their resources and projecting the same to the 11th FYP period. Resources available during the 11th FYP was estimated using linear trend during the 10th FYP were projected multiplied with the projected ratios have been reckoned as the credit purveying capacity of the banking agency. In case of cooperative banks and RRBs, own funds, total borrowings and deposits were considered as total resources whereas, in the case of commercial banks rural deposits have been considered for calculation.

Estimates based on 10th FYP achievements trend

4.4 Actual GLC flow during the 10th plan period were subjected to the detailed analysis to find out the likely flow during the 11th plan period*(*Attempts were made to include the actual GLC during 9th FYP in the analysis. However, as the GLC during 9th plan and initial years of 10th plan were low, the same dampened down the trend value, the analysis have been restricted on 10th plan achievements only).

4.5 Care has been taken to factor into the projections the unsustainability aspects of the exceptional policy initiatives like doubling of ground level agriculture credit programme. Most appropriate trend value,(using linear) were used for the agency-wise estimations. For estimation of linear trend and exponential trend the following equations were used:

Linear trend

$Y = a + bt$

Where :

Y = GLC flow during the year.

a = Y - intercept

b = The slope of the line(unit change over the year).

t = Year.

Exponential Trend

$Y_t = ab^t$

Projections based on trend in ratio of GLC to GDP in Agriculture

4.6 GLC in agriculture as a share of GDP in agriculture are showing strong correlation in the past. Total GLC in agriculture as proportion to GDP in agriculture in the country was very low till 1999-2000 when it reached 10 per cent for the first time. The ratio showed substantial growth since 1999-2000 to reach almost 24 per cent by 2005-06. Using the linear trend since 2000-01 the ratio is likely to grow and reach almost 37 per cent by the terminal year of the 11th FYP. With the targeted growth rate in agriculture GDP, the projected GLC agri. GDP in agri ratio, likely credit flow in agriculture has been estimated.

Sectoral requirement based estimates

4.7 An attempt were also made to assess the likely investment credit flow in the sector by assessing from the point of view of sectoral demand. The growth prospects of various sectors, trend in emerging sectors, changes in demand pattern, adoption of technology, etc were analysed to arrive at the likely credit flow for the major sub sectors in Agriculture and allied activities. The equation to be used is :

$$GLCA_{inv.c} \quad \sum_{i=1}^{n} (D_{pi} F_i)$$

Where

i *Major sub-sectors of Agriculture*

n Number(investments)

D_p *Projected demand for physical units / area under crops*

F Investment cost

4.8 As the sub sector-wise data is not available in all the sectors, two set of estimation were attempted (i) using subsector wise estimation for the sectors(wherever available) and using projections based on trend in GLC in the sub sector; and, (ii) based on projections based on trend in GLC in each of the sub sector.

Data Sources

4.9 The exercise are based on secondary data collected from suitable and authentic sources. The following data sources are proposed :

1. CSO Publications
2. Planning Commission Documents
3. Data/documents from Ministry of Agriculture, GoI
4. CACP documents
5. Economic Survey
6. RBI publications
7. NABARD Publications
8. Various Committee Reports(Vyas Committee on Rural Credit, Vaidynathan Committees I & II, Investment Credit Committee, CD Ratio Committee, etc.)
9. CMIE, CII, FICCI, etc.

Chapter 5

Ground Level Credit Flow during 11th FYP - Projections

Lead by the achievement during the 10th FYP, projections of likely credit flow for the 11th FYP has been placed on a higher cadence. Despite mediocre achievement by the sector (just above 2% during initial 4 years of 10th FYP), the importance agriculture sector in achieving the overall GDP target at 8.5 per cent is obvious. In order to achieve the 8.5 per cent growth, 3.9 per cent growth in agriculture, 9.9 per cent growth in industry and 9.4 per cent growth in services sector is envisaged. Agriculture continue to be an important driver of macro economic behaviour in India and all projections are based on a steady, sustained improvement in agriculture performance (Planning Commission, 2006, An Approach to the 11th FYP, GoI). As already indicated, importance of timely and adequate credit in the growth process need no elaboration. With the poor pace of agriculture GDP growth during the 10th FYP, almost doubling of the same to near to 4 per cent is not easy to accomplish.

5.1 With the plan target of near 4 per cent growth of agriculture sector, likely credit flow in agriculture during the 11th FYP has been projected using various methods as given below;

I. Projections Based on Various Required Rates of Growth (Rate of growth approach)

5.2 GLC in agriculture during the 11th FYP period has been projected for Short Term(ST) credit and investment credit (Long Term – LT) separately and added to arrive at total GLC flow. ST credit flow was arrived at as monetisation share of purchased inputs in the projected agriculture growth during the FYP. In order to achieve the plan growth rate in GDP, sectoral growth rate for agricultural sector has been decided, for which required investment in the sector using the incremental capital output ratio(units of additional capital to be invested for one unit of additional output) have been estimated. Of the total required investment in the sector, share of the private sector were arrived at

based on the past trend (5years) and the share of institutional sources in the private investment has been arrived at based on the monitisation ratio during the plan period.

5.3 Based on the plan target of 8.5 per cent growth in GDP and 3.9 per cent growth in agriculture sector the required credit flow for ST was estimated at Rs. 8,86,584 crore and investment credit Rs.8,02,485 crore respectively during the 11th FYP period(Annexure Table 1). ST credit and LT credit is likely to grow at a compounded growth rate of 13.9 per cent 23.2 per cent per annum, respectively. Thus, total GLC during the plan period is was projected to Rs.16,89,069 crore indicating the annual compounded growth rate of 18.0 per cent. GLC in agriculture during the FYP under various agriculture growth scenarios (2.1%, 2.7%, 3.2%, 3.7% and 4.1%) have been worked out and the results are presented in Annexure Table 2.

II. Capacity of the Credit Institutions
(Credit supply constraint approach)

5.4 Credit purveying capacity of the institutional banking sources is constrained by various factors such as , its resources (both own and borrowed), deposit mobilization recovery of loans(recycling of funds), level of NPA, etc. The banking sector underwent drastic adjustments during the 10th FYP bearing high influence on the ground level credit flow. Agriculture credit, being a priority area of lending, is subjected to the developments taken place in the sector. The following parameters were considered to determine the credit purveying capacity of the banking agencies in the country during the 11th FYP:

- Availability of resources- Extent of own funds, mobilized resources(deposit and borrowings) and their trend during the 10th Plan.
- Likely improvements in co-operative credit structure (depending on the implementation of recommendations of Vaidyanathan Committees by the state governments)
- State level consolidations of RRBs and the changes in the capability of the new entities.

- Emerging involvement of private sector banks, increased presence of foreign banks. The new realisation that agriculture is a potential area of investment by the Privbate sector banks leading to their increased presence in the rural areas and thereby enhanced credit flow in agriculture.
- Role of NGOs, VAs, SHGs, Farmers' Club, etc. – added importance
- Improvement in deposit mobilization (through tax incentives), recovery of loan, reduction in NPA.
- Adoption of Basel II norms – changes in the prudential and security norms.

5.5 Resources of the cooperative banks and RRBs were measured in terms of their own funds(reserves and capital), deposits and borrowings; whereas, in case of commercial banks, rural deposits alone is considered for estimation. Based on the trend in the loan as a ratio to resources during the 10th FYP period, and the possible growth in the resources of the banking agencies, likely total credit purveying capacity of the major banking agencies in the country is worked out to Rs. 16,72,657 crore registering an annual compounded growth of 17.8 per cent during the 11th FYP period(Annexure Table). Credit purveying capability of cooperative is likely to grow at a lower rate of 10.6 per as against 19.1 per cent in case of RRBs and 19.3 per cent in case of commercial banks.

III. Projections Based on Trend
(Trend Rate of Growth Approach)

5.6 The trend in GLC in agriculture during the 10th FYP has been considered for projections of the likely credit flow during the 11th FYP. Agency-wise trends in GLC flow during the 10th FYP was considered to estimate total likely GLC during the 11th FYPwhich indicate that in the case of cooperative banks it will increase at 13.1 per cent to reach the total of Rs.3,15,428 crore, where as credit disbursement by RRBs will increase at 17.6 per cent per annum and total credit disbursement will be Rs.1,33,514 crore (Annexure Table 4). Commercial banks credit disbursement indicate annual compounded growth of 16.3 per cent to reach Rs.11,35,818 crore. Total GLC in agriculture during the 11th FYP is estimated to be Rs.1584761 crore at an annual compounded growth rate of 15.8 per cent.

IV. Projections based on Trend in Ratio of GLC to GDP in Agriculture

5.7 Proportion of total GLC to GDP in agriculture in the country was very low till 1999-2000 when it reached 10 per cent for the first time. The ratio showed substantial growth since 1999-2000 to reach almost 24 per cent by 2005-06. Considering this trend since 2000-01 the ratio is estimated to reach 37 per cent by the end of 11th FYP. Based on this trend and anticipated 3.9 per cent real growth in agriculture and 4.5 per cent inflation, total GLC flow in agriculture during the 11th plan period is estimated to Rs.16,00,668 crore registering a compounded annual growth of 16.1 per cent (Annexure Table 5).

V. Projections Based on Sectoral Requirement (Sectoral Approach)

5.8 GLC in agriculture for term loan comprises of demand for credit by various sub sectors. On account of changes in the consumption pattern, cropping pattern, technology, input use, export potential, etc., demand for credit from each of the sub-sector is also expected change. Sub-sector wise likely credit flow was estimated (in the case of Minor Irrigation, Plantation and Horticulture, Animal Husbandry and Fisheries) mainly based on the likely physical targets of the sector and total to reach the likely demand of the term credit during the 11th FYP. For the sub sectors, in which estimation was not available, trend during the 10th FYP plan has been used to estimate the likely investment credit in agriculture. Based on sub-sectoral estimates, total GLC in agriculture for investment purposes works out to Rs.6,17,106 crore (Annexure Table 6). However, using the trend in sub-sector wise credit flow during the 10th FYP period, in respect of all the sub-sectors, the expected credit flow was worked out at Rs.6,10,540 crore during the 11th FYP.

Projected GLC in Agriculture

5.9 The estimate made using the first 4 approaches has been used to project the likely GLC during the 11th FYP (Annexure Table 7) and summary is presented in Table 5.1.

Table 5.1 : Comparison of various estimates of GLC in Agriculture

(Rs. crore)

Approach Based on	2007-08	2008-09	2009-10	2010-11	2011-12	GLC(11th FYP)	CAG R (%)
1. Required rate of growth	268130	299355	334012	372460	415112	1689069	**18.0**
2 . Capacity of credit Institutions	234912	280663	330474	384342	442266	1672657	**17.8**
3. Trend in credit flow	240295	278624	316952	355281	393609	1584761	**15.8**
4. Ratio Agri. GDP to GLC	226218	268470	315368	367051	423561	1600668	**16.1**
Projections	**242000**	**282000**	**324000**	**370000**	**420000**	**1640000**	**17.0**
YoY increase(%)	**20**	**17.5**	**15.6**	**14.1**	**12.9**	**17.0**	

5.10 Total GLC in agriculture is projected to Rs.16,40,000 crore which is showing an annual compounded growth of 17 per cent. During the 10th FYP, GLC showed a growth of almost 30 per cent per annum on account of GoI initiative of ddoubling of credit within a period of 3 years(2004-07), which may not be easy to sustain on account of higher base. Hence, over the years growth increase in credit flow in percentage terms showed a declining trend ; whereas, the absolute amount increased.

Investment in Agriculture by Private Corporates

5.11 Transformation of the agriculture sector, especially after the liberalization of the economy, attracted more and more private corporates towards agriculture in search of profitable enterprises. Enabling legal framework, demand (both domestic and international) for high value commercial crops, improvement in regulatory hurdles, improved infrastructure, etc., were the added attractions for private corporates in agriculture. Details available with the FICCI, New Delhi indicate an investment of around Rs. 86,849 crore during the 2003-06 period in agriculture and related sectors(Annexure Table 8). However, a closer scrutiny of the data reveals that investment activities such as Horticulture, Poultry, Dairy and around 25 per cent of the Contract Farming only qualify to be considered as investment in direct agriculture which accounted for an investment of Rs.3,915 crore during the period taking the annual investment to Rs. 1305 crore. Considering the total investment in Agriculture(in current price) to the tune of Rs.53,360 crore (2003-04), private investment in Agriculture is accounted for around 2.4 per cent.

Annexure Table 1

Projected GLC in Agriculture during 11th FYP

Term Structure Approach

(GDP growth at 8.5 % and Agri GDP growth at 3.9%)

(Rs. crore)

No.	Agency	2006-07*	2007-08	2008-09	2009-10	2010-11	2011-12	GLC (11th FYP)	CAGR (%)
Short Term									
1	Coop	35561	45304	51403	55582	60380	65819	278488	15.4
2	RRBs	12624	17022	19754	21882	24249	26878	109785	19.6
3	CBs	69795	81760	87905	98131	109217	121298	498311	12.1
A	ST-Total	117980	144086	159062	175595	193846	213995	**886584**	**13.9**
Long Term									
4	Coop	7439	11832	10045	10942	11974	13157	57950	15.2
5	RRBs	3376	5854	5608	6261	6996	7818	32537	22.7
6	CBs	71205	106358	124640	141214	159644	180142	711998	24.1
B	LT-Total	82020	124044	140293	158417	178614	201117	**802485**	**23.2**
Total GLC									
7	Coop	43000	57135	61448	66524	72354	78976	336437	15.3
8	RRBs	16000	22876	25362	28143	31245	34696	142322	19.8
9	CBs	141000	188119	212545	239345	268861	301440	1210310	18.6
C	Total	200000	268130	299355	334012	372460	415112	**1689069**	**18.0**

*Target

Notes :

- Annual inflation is assumed at 4.5 %.
- ICOR is 3.95 as assumed for the 11th FYP
- Private Sector's share in Total Investment in agriculture is 78.06%,avg. 2000-01 to 2004-05.
- Private sector investment financed by institutional sources is 60 % of the total investment in private sector(2007-08) which will be improving to 70% by the terminal year of 11th FYP.
- Ratios of value of agri output and value of inputs during 98-99 to 02-03 has been used to project value of inputs.
- 70 % of the purchased input and 10 % for labour/consumption purposes to be covered by loan from institutional loans.
- Share of various agencies in total GLC is based on the trend during the 10th FYP period.

Annexure Table 2

Projected GLC in Agriculture during 11th FYP

Term Structure Approach – Alternate Scenarios

(Rs. crore)

No.	Term	2006-07*	2007-08	2008-09	2009-10	2010-11	2011-12	GLC (11th FYP)	CAGR (%)
A. GDP growth = 7.8% and Agri GDP growth = 2.1%									
1	ST	117980	141603	153628	166675	180829	196185	838920	12
2	LT	82020	96987	107802	119631	132562	146689	603671	13.2
3	Total	200000	238590	261430	286306	313391	342874	**1442591**	**12.5**
B. Agri. GDP growth = 2.7 %									
4	ST	117980	137946	150525	164251	179229	195573	827524	11.5
5	LT	82020	105905	118395	132145	147275	163912	667632	16.7
6	Total	200000	243851	268920	296396	326504	359485	**1495115**	**13.7**
C. GDP growth = 7% and Agri GDP growth = 3.2%									
4	ST	117980	139970	153478	168289	184529	202336	848602	12.4
5	LT	82020	113463	127461	142958	160101	179054	723037	19.5
6	Total	200000	253433	280939	311246	344630	381391	**1571639**	**15.5**
D. GDP growth = 8% and Agri GDP growth = 3.7%									
	ST	117980	142704	157234	173243	190881	210316	874378	13.4
	LT	82020	121021	136610	153961	173260	194709	779561	22.2
	Total	200000	263725	293844	327204	364141	405025	**1653939**	**17.3**
E. GDP growth = 9% and Agri GDP growth = 4.1%									
	ST	117980	145199	160599	177633	196474	217313	897218	14.3
	LT	82020	127067	143989	162903	184029	207610	825598	24.3
	Total	200000	272266	304588	340536	380503	424922	**1722815**	**18.7**

*Target

Notes :

- Annual inflation is assumed at 4.5 %.
- ICOR is 3.95 as assumed for the 11th FYP
- Private Sector's share in Total Investment in agriculture is 78.06%, avg. 2000-01 to 2004-05.
- Private sector investment financed by institutional sources is 60 % of the total investment in private sector(2007-08) which will be improving to 70% by the terminal year of 11th FYP.
- Ratios of value of agri output and value of inputs during 98-99 to 02-03 has been used to to project value of inputs.
- 70 % of the purchased input and 10 % for labour/consumption purposes will be covered by loan from institutional loans.
- Share of various agencies in total GLC is based on the trend during the 10th FYP period.

Annexure Table 3

Projected GLC in Agriculture during 11th FYP

Resource Based Approach

(Rs. crore)

No.	Agency	2007-08	2008-09	2009-10	2010-11	2011-12	GLC (11th FYP)	CAGR (%)*
Short Term								
1	Coop	35193	41268	45569	50075	54777	226883	12.7
2	RRBs	18422	23362	27761	32507	37600	139651	20.9
3	CBs	72047	83269	98494	114738	131986	500535	16.5
A	ST-Total	125662	147899	171824	197319	224364	867069	16.2
Long Term								
4	Coop	9191	8065	8971	9930	10950	47107	1.2
5	RRBs	6335	6632	7943	9378	10937	41226	13.2
6	CBs	93723	118067	141736	167714	196016	717256	21.4
B	LT-Total	109250	132764	158650	187023	217902	805588	19.5
Total GLC								
7	Coop	44384	49333	54540	60005	65727	273989	10.6
8	RRBs	24757	29994	35704	41885	48537	180877	19.1
9	CBs	165771	201336	240230	282452	328002	1217791	19.3
C	Total	234912	280663	330474	384342	442266	1672657	17.8

*During 2007-08 to 2011-12 period

Notes :

- Using linear trend in total resources and loan disbursed as % to total resources (2002-03 to 2004-05)
- Resources include Deposit, Borrowing and Owned Funds for Co-operative banks & RRBs and only rural deposits in the case of Commercial Banks

Annexure Table 4

Projected GLC in Agriculture during 11th FYP

GLC Trend Approach

(Rs. crore)

No.	Agency	2006-07*	2007-08	2008-09	2009-10	2010-11	2011-12	GLC (11th FYP)	CAGR (%)
Short Term									
1	Coop	35561	40601	47844	52743	57598	62410	261195	13.1
2	RRBs	12624	15255	18386	20765	23130	25485	103021	16.8
3	CBs	69795	73272	81817	93119	104178	115015	467401	9.9
A	ST-Total	117980	129128	148047	166626	184906	202910	831617	11.7
Long Term									
4	Coop	7439	10604	9349	10383	11422	12475	54234	12.8
5	RRBs	3376	5246	5220	5941	6673	7413	30493	20.4
6	CBs	71205	95317	116008	134001	152279	170811	668416	21.8
B	LT-Total	82020	111167	130577	150326	170374	190699	753143	21
Total GLC									
7	Coop	43000	51204	57193	63126	69020	74885	315428	13.1
8	RRBs	16000	20501	23606	26706	29803	32898	133514	17.6
9	CBs	141000	168590	197825	227120	256457	285826	1135818	16.3
C	Total	200000	240295	278624	316952	355281	393609	**1584761**	**15.8**

*Target

Note : Based on trend during 2003-04 to 2005-06 and target 2006-07

Annexure Table 5

Projected GLC in Agriculture during 11th FYP

Trend in GLC as a share to GDP agriculture Approach

(Rs. crore)

No.	Agency	2006-07*	2007-08	2008-09	2009-10	2010-11	2011-12	GLC (11th FYP)	CAGR(%)
Short Term									
1	Coop	35561	38222	46100	52480	59506	67159	263468	13.4
2	RRBs	12624	14361	17716	20661	23897	27425	104059	17.2
3	CBs	69795	68980	78836	92653	107630	123767	471866	10.2
A	ST-Total	117980	121563	142651	165794	191033	218351	839392	12.0
Long Term									
4	Coop	7439	9981	9009	10331	11801	13425	54547	13.0
5	RRBs	3376	4939	5029	5911	6894	7977	30751	20.7
6	CBs	71205	89733	111780	133332	157324	183808	675978	22.2
B	LT-Total	82020	104654	125819	149574	176019	205210	761276	21.4
Total GLC									
7	Coop	43000	48204	55109	62811	71307	80584	318015	13.3
8	RRBs	16000	19300	22745	26572	30791	35402	134810	17.9
9	CBs	141000	158714	190616	225985	264954	307575	1147844	16.7
C	Total	200000	226218	268470	315368	367051	423561	**1600668**	**16.1**

*Target

Note : Estimation based on trend during 2001-02 to 2005-06

Annexure Table 6

Projected GLC (Investment Credit) in Agriculture during 11th FYP

Sectoral Approach

(Rs. crore)

Sr. No	Sector	07-08	08-09	09-10	10-11	11-12	Tot 11th FYP	CAGR (%)
1	Minor Irrigation	7384 (2860)	8489 (2950)	9594 (3050)	10699 (3150)	11804 (3350)	47970 (15360)	13.1 (3.6)
2	Land Development	1498	1722	1945	2169	2392	9726	13.1
3	Farm Mechanisation	5957	6434	6912	7389	7867	34559	7.4
4	Plantation & Horticulture	2500 (4610)	2763 (5934)	3025 (7564)	3288 (9536)	3550 (12106)	15126 (39750)	9.6 (27.5)
5	Animal Husbandry	3807 (6480)	4037 (8405)	4267 (8005)	4497 (7730)	4727 (8330)	21335 (38950)	5.7 (9.2)
6	Fisheries	2518 (1,978)	2899 (2,275)	3280 (2,616)	3661 (3,008)	4042 (3,460)	16400 (13337)	13.3 (15)
7	Hi-Tech agri.	10689	18300	31332	37360	45648	143329	50.9
8	Others	48885	56652	64419	72186	79953	322095	13.8
9	Total	83238 (82957)	101296 (102672)	124774 (125843)	141249 (142528)	159983 (163106)	610540 (617106)*	19.3 (20)

* Refers to total investment credit by considering TSD estimates for MI, P & H, AH and Fisheries

Notes:

- Estimates are based on trend in GLC during 10th FYP(1st 3 years),
- Figures in brackets refer to estimates by TSD.
- Others includes RIDF, Storage/Market Yards, Forestry/WLD, Bullock and Bullock Carts, Bio- gas & credit flow through Private Sector Banks
- Animal Husbandry includes Dairy, Poultry and Sheep Goad & Piggery

Annexure Table 7

Estimate of GLC in Agriculture based on Various Approaches

(Rs. crore)

Approach.	Agency	2007-08	2008-09	2009-10	2010-11	2011-12	GLC(11th FYP)	CAGR (%)
1	ST	144086	159062	175595	193846	213995	886584	13.9
	LT	124044	140293	158417	178614	201117	802485	23.2
	Total	268130	299355	334012	372460	415112	1689069	**18.0**
2	ST	125662	147899	171824	197319	224364	867069	16.2
	LT	109250	132764	158650	187023	217902	805588	19.5
	Total	234912	280663	330474	384342	442266	1672657	**17.8**
3	ST	129128	148047	166626	184906	202910	831617	11.7
	LT	111167	130577	150326	170374	190699	753143	21
	Total	240295	278624	316952	355281	393609	1584761	**15.8**
4	ST	121563	142651	165794	191033	218351	839392	12.0
	LT	104654	125819	149574	176019	205210	761276	21.4
	Total	226218	268470	315368	367051	423561	1600668	**16.1**
5	LT(Trend)	83238	101296	124774	141249	159983	610540	19.3
	Sector	82957	102672	125843	142528	163106	617106	20

Annexure Table 8

Investment in Agriculture by Private Corporates (2003-06)

(Rs. crore)

Sr. No	Particulars	Investment
1	Contract Farming	10900
2	Agri Extension	219
3	Rural retail/suplychain	62324
4	Seed/Fertilisers Units	462
5	Horticulture	1067
6	Processing	997
7	Infrastructure	5486
8	R&D	129
9	Poultry	120
10	Dairy	3
11	Sugar	5142
12	Pvt. Corporate Invest. in Agri. & Related	86848
13	Pvt. coporate Invest. in Agri.(2003-06)*	3915
14	Annual investment in agriculture by pvt. Coroporates	1305
15	Total Investment in agri(2003-04)	53360
16	Private Corporate's investment in Agriculture as % to total investment in agriculture(2003-04)	2.4 %

Source: Information gathered through News Papers & Web by FICCI

* Includes Horticulture, Poultry, Dairy and 25% of contract farming

Sub-Group on Flow of private sector investment to SME sector During the Eleventh Plan

Sri R.K.Das, GM, SIDBI
Sri P.K.Padhy,ADC,O/o DC(SSI)

Overview of SME Sector

The SSI Sector constitutes an important building block of the Indian economy. It contributes nearly 6 % of GDP, 39% of total industrial production and 34 % of exports. This sector forms the second largest source of employment after agriculture. Presently, the SSI sector has an estimated 12.3 million units employing 29 million people. Out of these, 10.4 million units employing around 21.7 million persons are in the unregistered / unorganized sector.

Change of Definition

Keeping in view the growing importance of this sector and also its imperative for technology modernisation, the Government has changed the definition of SSI sector vide The Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 which has been made effective from October 02, 2006. Traditionally defined SSI (TDSSI) refers to a unit having investment in the plant and machinery (P & M) up to Rs. 1 crore. The MSMED Act broadens the definition of SSI and the newly defined SSI (NDSSI) refers to an enterprise having investment in P & M up to Rs. 5 crore. In other words, it has added another segment of industry having investment in plant and machinery of more than Rs 1 crore and upto Rs 5 crore (SSI_{1-5}). The Act has made three other important definitional changes. It introduced the concept of medium scale enterprise (ME) as having investment in plant & machinery above Rs. 5 crore and up to Rs. 10 crore. It has also introduced the concept of “enterprise” as against “industry”. A new category ‘services sector’ has been introduced for the first time. The same definitional changes have been taken note of by the Planning Commission in drafting the Eleventh Plan. The changes in the definitions for various sub-sectors are given in the Table 1 below: -

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The Sub-group acknowledges the valuable contributions made by Ms.Renuka Mishra,AD, O/o DC(SSI) towards estimation of private investment projections for the SME sector for the 11th Plan.

Table 1: Definition of SME sectors

Sector	As per old definition	As per MSMED definition
Tiny / Micro enterprises	**Tiny Sector** Any industrial undertaking with investment in plant & machinery up to Rs. 25 lakh.	**Micro Enterprise** A micro enterprise, where the investment in plant & machinery does not exceed twenty five lakh rupees.
Small enterprises	**Small Scale Industries** An industrial undertaking in which the investment in plant & machinery does not exceed Rs. one crore.	a small enterprises, where the investment in plant & machinery is more than twenty five lakh rupees but does not exceed five crore rupees; or
Medium enterprises	Not defined	a medium enterprise, where the investment in plant and machinery is more than five crore rupees but does not exceed ten crore rupees.
Services		
Micro enterprises	Not defined	a micro enterprise, where the investment in plant & machinery does not exceed ten lakh rupees.
Small enterprises	Not defined	a small enterprise, where the investment in plant and machinery is more than ten lakh rupees but does not exceed two crore rupees.
Medium enterprises	Not defined	a medium enterprise, where the investment in plant and machinery is more than two crore rupees but does not exceed five crore rupees.

SME Sector Growth

The growth of TDSSI sector during the Tenth Plan is expected to be 9.5 %. After including the group having investment in plant and machinery between Rs 1 crore to 5 crore, the NDSSI sector is expected to grow at 9.4% during the Tenth Plan. The growth of Medium Scale Sector (ME) is estimated at 8.4%. Overall , The Small and Medium Enterprise (SME) sector will record an average growth rate of

9.2% during the during the Tenth Plan. It is observed that SSI sector grows higher than the Indian economy and industrial sector as given in the Table 2 below:

Table 2:SSI Sectoral Growth Rates during the Tenth Plan:

(per cent)

Year	GDP growth rate	Industry growth rate	TDSSI growth rate	NDSSI growth rate	ME growth rate	SME growth rate
10th Plan (2002-03 to 2006-07)	7.2	7.6	9.5	9.4	8.4	9.2

Private Investment flow during the Tenth Plan

SSI sector generally requires funds of two types viz. long term capital or fixed investment and working capital or short term funds. While the long term credit funds are mainly provided by the institutions like Small Industries Development Bank of India (SIDBI), State Financial Corporations (SFCs), State Industry Development Corporation (SIDC), NABARD, Khadi & Village Industries Corporation (KVIC), National Small Industries Corporation (NSIC), NEDFI etc., the working capital needs of the sector are largely met by the banking sector, besides to a small extent by NSIC and SSIDCs. However, of late, the scheduled commercial banks have also started giving term loans. But, the data on the same are not available separately. For the purpose of estimation of the same, the Sub-group has apportioned the total SCBs advances into working capital and term loans as detailed in the subsequent sector on Methodology.

Long Term Finance

The long-term financial need of the SSI sector has been mainly met by SIDBI, SFCs and SIDCs. During the Tenth Plan , the TDSSI is estimated to have utilized Rs 49510 crore as fixed capital , out of which , institutions like SIDBI, SFCs and SIDCs, contributed almost 90% at Rs 44,460 crore with SIDBI's contribution is around 80%. For the NDSSI sector, the long term capital requirement is around Rs 66,409 crore and for the whole SME segment, it is expected to be Rs 73,912 crore . The details are given in Table 3 below:

Table 3: Term Loans estimated the Tenth Plan (Rs crore)

Plan period	TDSSI	SSI $_{1-5}$	NDSSI	ME	SME
Tenth plan (2002-03-2006-07)	49,510	16899	66409	7,503	73,912

Short term or Working Capital

Though SSI lending comes under priority sector lending programme of the scheduled commercial banks, the most disturbing trend being noticed is decline in flow of credit to SSI in percentage terms, in relation to Net Bank Credit (**Table 4**).

Table 4: Non-food Bank Credit to SSIs (Rs crore)

Year	To SSIs	Total Non-food Credit (NFC)	% NFC
1990-91	17938	111795	16.0
1994-95	29175	199286	14.6
1995-96	34246	244224	14.0
1996-97	38196	270805	14.1
1997-98	45771	311594	14.7
1998-99	51679	352021	14.7
1999-00	57035	410267	13.9
2000-01	60141	471443	12.8
2001-02	67107	535745	12.5
2002-03	64707	679736	9.5
2003-04	71209	804824	8.8
2004-05	83498	1059308	7.9
2005-06	101385	1466386	6.9

Source: Handbook of Statistics on Indian Economy, RBI

It is observed from the above table that during 1990-91 to 2005-06, while the non-food bank credit recorded a CAGR of 18.7 %, the credit to the SSI sector showed a lower annual average growth rate of 12.2% during the same. Similarly, the percentage share of SSI sector to non-food Bank Credit also declined perceptibly from 16.0 % in FY 1991 to 6.9 % in FY 2006.

Projections for the Eleventh Plan: Methodologies:

With the Small and Medium Enterprises (SME) sector assuming an important cornerstone of overall industrial policy, it becomes necessary to have rational estimates of resources mainly private investment flow, available to this sector. It is worth noting at this stage that MSMED Act has not only broadened the definition of

SSI sector but also introduced a concept of Medium Scale Enterprises (ME) sector. Hence, any future estimate of SME sector production, working capital and fixed capital requires additional estimation for (i) the SSI sector having instrument in plant and machinery above Rs 1 crore and up to Rs 5 crore (SSI_{1-5}) and (ii) the ME sector having investment of Rs.5-10 crore. Moreover, the estimation of working capital requirement for these two sectors may pose a bigger challenge because while the working capital requirement of SSI sector is by and large guided by the Nayak Committee norm of 20% of projected turnover, the same could not be applied earlier to SSI_{1-5} and ME sector working capital requirements as this sector is outside the Nayak Committee norm. Mostly, banks follow the Tandon Committee Method II while calculating the working capital requirement of these two sectors. This method uses various parameters like debtors / creditors days, inventory holding period, etc. which are estimable for an individual unit, but cannot be aggregated over the ME population. Even a sample survey would not be good estimator of the population. In the recent past, the Government of India issued directive to the PSU Banks to double their credit to SME sector from the base level of 2004-05 with minimum 20% growth every year. Consequent upon the policy announcement, the credit to SSI recorded a growth of more than 20% during FY 2006.

Considering the above, the Sub-group attempted to estimate separate series of data on production , working capital and fixed capital for four sub-sectors: TDSSI, SSI_{1-5}, ME and overall SME sector. The methodologies used for estimation of these data series are delineated below:

GDP Data :

The GDP data are generated assuming an average growth rate of 8.5% during the 11th plan as given in the Eleventh Plan Approach paper. However, while calculating the working capital and term loan, during the Eleventh Plan, 3 scenarios are considered with GDP at 8.0%, 8.5% and 9.0%.

Production Data for TDSSI

The production data for the TDSSI sector are available with the Office of DC (SSI) up to the year 2005-06. The production data in current prices for the 11th Plan are extrapolated by assuming an average growth rate of 12% corresponding to GDP growth rate of 8.5% and inflation of 4.5%. Two more scenarios are also developed

with TDSSI growth of 11% corresponding to GDP growth rate of 8.0% and 13% corresponding to GDP growth rate of 9.0% during the Eleventh Plan.

Production data for SSI_{1-5}:

The production data for this sector are not available with the SIDO. The only reliable source is Annual Survey of Industries (ASIs) by CSO. But these data are available up to 2003-04. In order to generate production data of this sector for the subsequent years, the Sub-group ran a regression with GDP as an independent variable for the period 1990-91 to 2003-04. Though a number of equations were run including AR (1) process, time variable etc., none of the results was satisfactory. In fact, regression based results projected a lower growth of this sector during the 11th Plan. Hence, it was considered appropriate to estimate the production data based on the proportionate share of this sector in relation to that of TDSSI for the period upto 2006-07. For the, Eleventh Plan, an average growth rate of 12% is considered for this sector corresponding to GDP growth rate of 8.5%. As in case of TDSSI sector, 2 more scenarios are constructed with growth rate of 11% and 13% for estimation of working capital and term loan.

Production Data for NDSSI

By combining the production data series of SSI_{1-5} with that of TDSSI , the Sub-group could arrive at the production data for NDSSI .

Production Data for ME sector

An attempt to generate production of this sector through various regressing results did not yield any satisfactory growth rate which could be considered appropriate for the 11th Plan. It was also found that this segment partakes more with the overall industrial sector rather than with the TDSSI / NDSSI sector. Hence, the overall industrial growth rates achieved during 2004-06 and projected for the 11th Plan (10%) were considered more appropriate representative of this sector's growth trend. Accordingly, the estimates of the production data of this sector were arrived at.

The estimated growth rates for these three sectors is given in the table 5 below:

Table 5: Sectoral Growth Rates during the Eleventh Plan:

(%)

Plan period	GDP	TDSSI	SSI $_{1-5}$	NDSSI	ME	SME
Eleventh (2007-08 to 2011-12)	8.5	12.0	12.0	12.0	10.0	11.8

Working Capital Projections for the Eleventh Plan:

Methodologies

The Sub-group adopted 2 approaches for estimation of working capital: (a) the first approach based on empirical relationship or regression between working capital and production consistent with (i) GDP of 8.0% and SSI growth of 11%, (ii) GDP of 8.5% and SSI of 12% and (iii) GDP of 9.0% and SSI of 13% and (b) the second approach based on the Govt. of India's directive of doubling the credit with minimum 20% annual growth rate.

(a) Regression Approach

Working Capital for TDSSI

The data for SCBs advances upto 2005-06 to TDSSI sector is available from RBI. For the subsequent years upto 2011-12, the estimates are made based on the following regression equation for the period 1990-91 to 2004-05 which was found appropriate after running a number of other regressions.

WC TDSSIN= 0.6261+0.196TDSSIPN

where WCTDSSIN = SCB advances to TDSSI in nominal terms

TDSSIPN = TDSSI production in nominal term.

The total SCB advances to TDSSI sector needs to be apportioned between working capital and term loans , because in the wake of financial liberalization , the commercial banks have also started giving term loans to the SME segment and this trend will gain momentum in the coming years. According to a study , " Financing of Enterprises in Unorganized sector – Status and Issues " by Dr C. S. Prasad , Consultant and former Economic Advisor , Ministry of Small Scale Industry ,

Government of India , out of total advances given by banks to the SSI sector , almost 20% constitute the term loans . Taking this reference as the base , the Sub group treated 20% of total SCBs advances to SSI sector as term loans during the Tenth Plan. For the Eleventh plan , the share is assumed to go up to 30% at the terminal year of the Eleventh Plan(i.e, 2011-12).

Working Capital for SSI $_{1-5}$

The data on working capital for the SSI $_{1-5}$ are available with various issues of ASI up to 2003-04. The projections for 2004-05 to 2011-12 are made on the basis of regression equations with SSI $_{1-5}$ production as independent variable.

Working Capital for NDSSI

The working capital requirement for the SSI sector as per MSMED Act is derived by combining the working capital for TDSSI, SSI $_{1-5}$. and non-bank sources.

ME Sector

The Working Capital data for this sector, as in case of production data, are culled from various issues of ASs upto 2003-04 and thereafter, estimated based on the following regression (1990-91 to 2003-04):

MEWCN = 1534.39 +0;192 MEPN

(4.26)

R=0.84, DW = 1.98

where MEWCN = Working capital of ME sector in nominal terms

MEPN = Production of ME sector in nomination term.

SME sector

The total working capital requirement for the SME sector is arrived at by adding those of NDSSI and ME sectors.

Projections

The details of the projections for the Eleventh Plan are given under 3 scenarios as given below:-

Scenario 1: GDP growth of 8% and SSS of 11%

Under the Scenario 1, the SCB advances is expected to be registered an average growth rate of 12.4% during the Eleventh Plan from Rs.91447 crore in 2006-07 to Rs.163960 crore in 2011-12. If the working capital provided by non-bank sources are to be included the total outstanding of working capital to the NDSSI sector will be Rs.215402 crore – a growth of 15.8% over the terminal year of the 10th plan. While the year-wise projections are given in Annexure – 1, the plan-wise break-up is given in the table below:-

Table 6: Working Capital Estimate (outstanding) for SMEs during the 10th and 11th Five Year Plan
(Based on GDP growth of 8.0% and SSI of 11.0%)

[Rs. Crore]

Plan	SCB Advances to TDSSI	Working Capital by NSIC and SSIDCs	Total Working capital to NDSSI	Total Working capital to ME	Total Working capital to SME
10th Plan					
i) Average outstanding	696172	2303	88188	14332	102520
ii) As at end of the plan	91447	3482	114489	18608	133097
iii) Average growth rate	11.6	19.6	12.0	13.8	12.0
11th Plan					
i) Average outstanding	130714	5751	168676	29391	224687
ii) Outstanding as at end of the Plan	163960	7776	215402	38885	254287
(iii) Average growth rate	12.4	17.8	15.8	18.2	16.2

Scenario 2: GDP of 8.5% and SSI of 12.0%

As per the regression equation and adjusted for term loan portion , the outstanding SCBs' advances as working capital to TDSSI sector as at end of the 10th plan period is estimated at Rs.91447 crore and expected to be at Rs.163960 crore in 2011-12, which is the terminal year of the Eleventh Plan. This projected working capital requirements reflects a growth of almost 80% of working capital outstanding

during the Eleventh Plan period with an annual average growth rate of 12.4 % as against 11.6 % during the Tenth Plan.

It is mentioned elsewhere that besides banks, working capital type support is also provided by NSIC and SSIDCs. The projections for NSIC were based on annual growth rate of 20% as observed in the recent past and 15% for SSIDCs. These assumed growth rates for NSIC and SSIDCs can be considered attainable and acceptable. Hence, any practical estimation of working capital needs to take into account these non-bank sources. Combining the non-banking sources would show higher credit dispensation to the TDSSI sector from the outstanding credit of adjusted for term loan portion of Rs. 94971 crore from 2006-07, to Rs. 171736 crore in 2011-12, showing an average growth rate of 12.6% per annum. While the year-wise projections are given in Annexure – 2, the plan-wise break-up is given in the table below:-

Table 7: Working Capital Estimate (outstanding) for SMEs during the 10th and 11th Five Year Plan (Based on GDP growth of 8.5% and SSI of 12.0%)

[Rs. Crore]

Plan	SCBs advances to TDSSI	Working capital by NSIC +SSIDCs	Total working capital to NDSSI	Working capital to ME	SME
10th Plan					
i) Average outstanding	69701	2303	88658	14332	102990
ii) As at end of the plan	91869	3482	116829	18608	135447
iii) Average growth rate	11.7	20.61	12.4	13.8	12.4
11th Plan					
i) Average outstanding	134456	5751	175316	29391	204707
ii) Outstanding as at end of the Plan	171276	7776	226357	38885	265242
iii) Average growth rate	13.3	24.25	14.2	18.2	14.4

Scenario 3 GDP of 9.0% and SSI of 13.0%

The scenario 3 is considered a high growth phase during which the working capital outstanding to the NDSSI sector is estimated to be Rs.238367 crore in the terminal year of the 11th Plan which is a growth of 15% over the same plan. While the year-wise projections are given in Annexure 3, the plan-wise break-up is given below:-

Table 8: Working Capital Estimate (outstanding) for SMEs during the 10th and 11th Five Year Plan (Based on GDP growth of 9% and SSI of 13%)

[Rs. Crore]

Plan	SCB Advances to TDSSI	Working Capital by NSIC and SSIDCs	Total Working capital to NDSSI	Total Working capital to ME	Total Working capital to SME
10th Plan					
i) Average outstanding	69780	2303	88932	14332	118498
ii) As at end of the plan	92259	3482	118208	18608	136816
iii) Average growth rate	11.8	19.6	12.6	13.8	12.6
11th Plan					
i) Average outstanding	138899	5751	182657	29391	212048
ii) Outstanding as at end of the Plan	179647	7776	238367	38885	2777252
Average growth rate	14.3	17.8	15.0	18.2	15.2

(b) Directive Approach:

Methodologies

TDSSI / SSI 1-5 /NDSSI Sector

The Govt. of India and subsequently, the RBI issued directive to PSBs to double their credit to the SME sector between 2005-06 and 2009-10, with minimum 20% annual growth. In this second approach, the Sub-group considered the 20% annual growth rate in bank credit as given and attainable by SCBs for the TDSSI and SSI 1-5 during the 11th plan. The estimate so arrived at is then adjusted for term loan

by SCBs as in case of Regression Approach. The estimate for the NDSSI sector was arrived at by adding that of the two sectors i.e. TDSSI and SSI_{1-5}.

ME sector

The projections for the ME sector are made on the basis of the regression equation used in the first approach.

SME sector

The aggregate working capital requirement for the SME sector is arrived at by addition that of NDSSI and ME sectors. While the year-wise projections were given in the Annexure 4, the plan-wise break-up is given in the table 9 below:-

Table 9 : Working Capital Estimate (outstanding) for SMEs during the 10th and 11th Five Year Plan

[Rs. Crore]

Plan	SCB Advances to TDSSI	Working capital by NSIC and SSIDCs	Total working capital to NDSSI	Total Working capital to ME	SME
(1)	(2)			(6)	(7)=(5) + (6)
10th Plan					
i) Average outstanding	70793	2303	90804	14332	105137
ii) As at end of the plan	97330	3482	125206	18608	143814
iii) Average growth rate	13.03	19.6	14.0	13.80	13.8
11th Plan					
i) Average outstanding	159229	5751	204976	29391	2344367
ii) Outstanding as at end of the Plan	211913	7776	272918	38885	311803
iii) Average growth rate	16.8	17.8	16.8	18.20	16.8

It is observed from the above table that for the NDSSI sector, the outstanding credit is expected to more than double from Rs.125206 crore as at end 2006-07 to Rs.272918 crore as at end of 2011-12, registering an annual average growth rate of 16.8% during the 11th Plan as compared to that of 14.0% during the 10th plan. Similarly, for the whole SME sector, the outstanding credit is expected to increase from Rs.143814 crore in 2006-07 to Rs.311803 crore in 2011-12, showing an annual

average growth rate of 16.8% during the 11th plan as compared to that of 13.8% during the 10th plan.

According to the Sub-group, the Directive Approach based on the Govt. of India's directive of 20% minimum annual growth rate in bank credit is considered preferable as this growth is quite attainable. This is already vindicated in 2005-06 when the bank credit recorded more than 20% growth rate. Moreover, such growth rate has also buttressed the accelerate growth in the TDSSI sector.

Term loan / Fixed Capital :

Methodologies

For estimating term loan requirements for the SME sector and its sub-sector, the Sub-group adopted 2 approaches (a) based on regression analysis and (b) institutional capacity.

a) Regression Approach

Fixed Capital for TDSSI

Based on the SSI census, 2001-02, the office of DC(SSI) estimated investment in TDSSI for the period upto 2005-06. For the period 2006-07 to 2011-12, the estimates were made based on the following equations (1997-98 to 2005-06)

TDSSIFCN = 6.995 + 0.394 TDSSIPN

(3.07)

R2 = 0.91, DW = 2.19

where TDSSIFCN = Fixed capital in nominal term for TDSSI sector

TDSSI PN = Production in nominal term for TDSSI sector

In this context, the regression period started from 1997-98 as this year marked a structural shift in the data series, signifying onset of consistent increase in capital productivity in the sector. Such a phenomenon could be ascribed to technological modernization in the sector.

Fixed Capital for SSI $_{1-5}$

The data on fixed capital for SSI $_{1-5}$ up to 2003-04 are culled from various issues of ASIs . A regression was run of the following format .:

Ln $FCSSI_{1-5}$ = -7.818 + 1.603 Ln $SSIPC_{1-5}$ - 0.053 t

R = 0.67 , F=10.97, DW= 1.98

where Ln FC $_{1-5}$ = natural log of fixed capital sector for SSI $_{1-5}$ deflated by WPI of manufacturing sector with base 1993-94 =100
t=time series

Based on the above regression results , projections are made for the subsequent period of 2004-05 to 2011-12.

Fixed Capital for NDSSI

The fixed capital for the NDSSI sector is obtained by addition of the fixed capital of TDSSI and that of SSI $_{1-5}$.

Fixed Capital for ME

The data on fixed capital for ME up to 2003-04 are available in various issues of ASIs . For estimating fixed capital from 2004-05 to 2011-12, a regression was run in the following form :

Ln FCME= 0.502+ 0.934Ln MEPC+0.526D

R= 0.95, F=98.76, DW= 1.04.

where Ln FCME = natural log of fixed capital for ME sector deflated by manufacturing WPI with base 1993-94 =100
Ln MEPC= natural log of ME production with base 1993-94=100
D= Dummy variable for 2 outliers for the year 1995-06 and 1996-97.

Projections

The Table below depicts the term loan/ investment estimated for the Tenth Plan and Eleventh Plan based on the regression results mentioned above.

Table 10: Term Loans estimated the Eleventh Plan (Rs crore)

Plan period	TDSSI	SSI $_{1-5}$	NDSSI	ME	SME
Tenth plan (2002-03-2006-07)	49,510	16899	66409	7,503	73,912
Eleventh Plan (2007-08 to 2011-12	72569	20535	93104	9,535	102639

It may be observed from the above table that the term loan requirements for the NDSSI sector during the 11th plan would be Rs.93,104 crore as compared to that of Rs.66,409 crore during the 10th plan – an increase of 40%. For the whole SME sector, the term loan requirement would be Rs.102,639 crore, registering a growth of 39% over the 10th plan estimate of Rs.73,912 crore.

(b) Institutional Capacity Approach:

Methodology

The capacity and resources of the financial sector needs to be related to the business growth plan on the trend growth of the small and medium scale units approaching them for long term credit. An analysis of the flow of credit by banks/ financial institutions during the Tenth Five Year Plan has been done and the trends in term credit growth arrived at for the 11th plan.

The major purveyors of term loans to the SME sectors are SIDBI, SFCs, NSIC and SIDCs. Based on their recent growth trend and future business plans consistent with a booming industrial sector, projections of their credit delivery capacity are made for the 11th plan. For SIDBI, growth rate of 20% in direct credit is assumed for the Eleventh Plan which is then added to indirect finance and adjusted for net of micro finance. For SFCs, the term loan disbursements is projected to double during the Eleventh Plan. With recapitalization and more internal accrual through prudent business strategy, SFCs' projected growth can be considered attainable. For NSIC, only equipment finance is considered. SIDCs are assumed to disburse Rs.1000 crore every year during the Eleventh Plan, considering almost similar disbursement trend by them during the first 3 years of the 10th plan.

The Eleventh Plan projections of term loans based on various institutions' potential capacity are arrived based on 3 scenarios of SCBs' term loans under (i) GDP of 8.0% and SSI of 11.0% (ii) GDP of 8.5% and SSI of 12% and (iii) GDP of 90% and SSI of 13.0%. These different estimations are given in the table 11 below:-

Table 11: Projected Term Loans based on Institutions Capacity (Rs crore)

Plan period	Scenario 1	Scenario 2	Scenario 3
Tenth Plan	55222	55790	56672
Eleventh Plan	139808	143915	148720

It is observed from the above table that the projected from term loans under Scenario 1 is estimated at Rs.139808 crore during the Eleventh Plan as compared to that of Rs.55222 crore during the Tenth Plan – an increase of almost 153 per cent during the entire plan period. Similarly, under Scenario 2, the growth under Eleventh plan is estimated at Rs.143915 crore -- an increase of 158 per cent. In case of high growth phase as in Scenario 3, the term loan is estimated at Rs.148720 crore – an increase of 162 per cent.

Conclusion

Subsequent to the change in the definition of SME Sector, vide MSMED Act 2006, the projections of private investment in MSE sector for the 11th plan was constrained by non-availability of data/information from the Ministry of SSI on the two segments of the SME sector i.e. for the industrial segment having investment in P&M of more than Rs. 1 crore and upto Rs. 5 crore and the second segment having investment in P&M of more than Rs. 5 crore and upto Rs. 10 crore. For these two segments, the Sub-group has to rely on two alternative approaches for estimation of working capital i.e. regression approach and directive approach, the latter being based on GOI guidelines to banks to double the flows of credit to the SME sector with minimum 20% annual growth during 2004-05 and 2009-10. Similarly for the estimation of the Term Loans, two approaches were adopted i.e, regression based projections and second one based on leading institutions' capacity to purvey the credit.

For each estimation of Working Capital and Term Loan, three scenarios were built up (i) GDP of 8.0% and SSI growth of 11%, (ii) GDP of 8.5% and SSI of 12% and (iii) GDP of 9.0% and SSI of 13%. Common to these three scenarios is the inflation rate of 4.5%.

In case of working capital projections, the Sub-group prefers the Directive Approach based on the Govt. of India's directive of 20% minimum annual growth rate in bank credit as this growth is quite attainable. This is already vindicated in 2005-06 when the bank credit recorded more than 20% growth rate. As per the projections

made by the Sub-group, the working capital outstanding by SCBs as at the end of terminal year of the 11th Plan i.e 2011-12 is estimated at Rs. 311803 crore – an increase of 117% over that of the terminal year of the 10th Plan. This doubling of credit to the SME Sector is consistent with average annual credit growth rate of 16.8% during the 11th Plan. Such working capital growth rate will buttress the accelerate growth in the SSI sector at 13% corresponding to the GDP growth rate of 9% during the 11th Plan.

For the Term Loan estimates, the Sub-group prefers the approach based on the leading institutions' capacity to disburse the Term Loans to the SME sector. For the 11th Plan, total term loan availability to the SME sector, consistent with GDP growth rate of 9% and SSI growth rate of 13%, is estimated at Rs. 148720 crore which is an increase of 178% over that of 10th Plan.

Annexure I

(Rs. Crore)

Table: Working Capital Estimate based on Regression Approach

(based on GDP growth of 8.0% and SSI at 11% during 11th Plan)

Year	SCBs Advances to TDSSIs	working capital by NSIC+SSIDCs	Total working capital to TDSSIs	Working Capital to SSI1-5	Total working capital to NDSSIs	Total working capital to ME	Total working capital to SME
2002-03	51766	1513	53279	12630	65909	9851	75760
03-04	56967	1569	58536	14309	72845	13053	85898
04-05	66798	2091	68889	16266	85155	14212	99367
05-06	81108	2915	84023	18519	102542	15938	118480
06-07	91477	3428	94905	19584	114489	18608	133097
07-08	102235	4035	106270	22717	128987	21400	150387
08-09	114284	4751	119035	26582	145617	24717	170334
09-10	128339	5597	133936	31237	165173	28643	193816
10-11	144751	6595	151346	36856	188202	33312	221514
11-12	163960	7776	171736	43666	215402	38885	254287

Notes: The working capital estimate for the 10th plan is estimated as 80% of total SCBs' advances which is expected to come down to 70% during the 11th Plan.

Sources: 1. Handbook of Statistics on Indian Economy, RBI

2. Annual Survey of Industries, GoI

Annexure - 2

Table: Working Capital Estimate based on Regression Approach

Year	SCBs Advances to TDSSIs	working capital by NSIC+SSIDCs	Total working capital to TDSSIs	Working Capital to SSI1-5	Total working capital to NDSSIs	Total working Capital to ME	Total working capital to SME
2002-03	51766	1513	53279	12630	65909	9851	75760
03-04	56967	1569	58536	14309	72845	13053	85898
04-05	66798	2091	68889	16266	85155	14212	99367
05-06	81108	2915	84023	18519	102542	15938	118480
06-07	91869	3428	95297	21542	116839	18608	135447
07-08	103121	4035	107156	24989	132145	21400	153545
08-09	116277	4751	121028	29114	150142	24717	174859
09-10	131725	5597	137322	34077	171399	28643	200042
10-11	149882	6595	156477	40061	196538	33312	229850
11-12	171276	7776	179052	47305	226357	38885	265242

Notes: The working capital estimate for the 10th plan is estimated as 80% of total SCBs' advances which is expected to come down to 70% during the 11th Plan.

Sources: 1. Handbook of Statistics on Indian Economy, RBI

2. Annual Survey of Industries, GoI

Annexure - 3

Table: Working Capital Estimate based on Regression Approach

(based on GDP growth of 9.0% and SSI at 13% during 11th Plan)

Year	SCBs Advances to TDSSIs	working capital by NSIC+SSIDCs	Total working capital to TDSSIs	Working Capital to SSI1-5	Total working capital to NDSSIs	Total working capital to ME	Total working capital to SME
2002-03	51766	1513	53279	12630	65909	9851	75760
03-04	56967	1569	58536	14309	72845	13053	85898
04-05	66798	2091	68889	16266	85155	14212	99367
05-06	81108	2915	84023	18519	102542	15938	118480
06-07	92259	3428	95687	22521	118208	18608	136816
07-08	104450	4035	108485	27261	135746	21400	157146
08-09	118802	4751	123553	31646	155199	24717	179916
09-10	135763	5597	141360	36917	178277	28643	206920
10-11	155835	6595	162430	43266	205696	33312	239008
11-12	179647	7776	187423	50944	238367	38885	277252

Notes: The working capital estimate for the 10th plan is estimated as 80% of total SCBs' advances which is expected to come down to 70% during the 11th Plan.

Sources: 1. Handbook of Statistics on Indian Economy, RBI

2. Annual Survey of Industries, GoI

Annexure - 4

(Rs. Crore)

Table: Working Capital Estimate based on Directive Approach

Year	SCBs Advances to TDSSIs	Working capital by NSIC& SSIDCs	Total Working Capital to TDSSIs	Working capital SSI1-5	Total Working Capital to NDSSIs	Working capital to ME	Working capital to SME
02-03	51766	1513	53279	12630	65909	9851	75760
03-04	56967	1569	58536	14309	72845	13053	85898
04-05	66796	2091	68887	16778	85665	14212	99877
05-06	81108	2915	84023	20373	104396	15938	120334
06-07	97330	3428	100758	24448	125206	18608	143814
07-08	113876	4035	117911	28604	146515	21400	167915
08-09	133147	4751	137898	33444	171342	24717	196059
09-10	155571	5597	161168	39077	200245	28643	228888
10-11	181640	6595	188235	45625	233860	33312	267172
11-12	211913	7776	219689	53229	272918	38885	311803

Notes: The working capital estimate for the 10th plan is estimated as 80% of total SCBs' advances which is expected to come down to 70% during the 11th Plan.

Sources: 1. Handbook of Statistics on Indian Economy, RBI
2. Annual Survey of Industries, GoI