4

Agriculture

4.1 An important aspect of 'inclusive growth' in the Eleventh Five Year Plan (2007–12) is its target of 4 per cent per annum growth in GDP from agriculture and allied sectors. This target is not only necessary to achieve the overall GDP growth target of 9 per cent per annum without undue inflation, but it is an important element of 'inclusiveness' since the global experience of growth and poverty reduction shows that GDP growth originating in agriculture is at least twice as effective in reducing poverty as GDP growth originating outside agriculture.

TABLE 4.1
Growth in GDP at Factor Cost, 1999–2000 Prices

	Agriculture and Allied Sectors	Total Economy
Tenth Plan		
2002–03	–7.2	3.8
2003–04	10.0	8.5
2004–05	0.0	7.5
2005–06	5.9	9.4
2006–07	3.8	9.6
Eleventh Plan		
2007–08	4.7	9.2
2008–09	1.6	6.7
2009–10 Revised Estimate	0.2	7.4
Triennium 2009–10 over Triennium 2004–05	3.4	8.6
Eleventh Plan average (2007–10)	2.2	7.7

4.2 Growth in agriculture in 2007–08, the first year of Eleventh Plan was 4.7 per cent. This continued with the strong growth recovery after 2004–05, which reversed a prolonged deceleration since the mid-1990s. However, agricultural growth fell to 1.6 per cent in 2008–09; and a severe drought in 2009 (the worst in 37 years) produced virtually flat growth (see Table 4.1) because of major losses in kharif output which also led to high food price inflation. The setback in the second and third years of the Plan implies that an average growth rate of about 7 per cent per annum will be required in the remaining two years (2010–11 and 2011–12) if the Eleventh Plan target of 4 per cent is to be achieved. While a robust revival from the drought depressed level cannot be ruled out, it would be safer to assume that agricultural growth in the Plan period may fall short of the 4 per cent per annum target. However, it is a matter of satisfaction that agricultural growth has accelerated compared to earlier periods. During 1996–97 to 2003–04, the three year moving average growth in agriculture was 2.6 per cent; from 2004–05 to 2009–10, it averaged 3.4 per cent.

4.3 The remaining years of the Plan will test its strategy for agriculture, which had aimed at improving farmers' acccess to technology in order to increases production and ensure sustainability of natural resources; enhancing the quantum and efficiency of public investments; increasing systems support while rationalizing subsidies; encouraging diversification towards higher value crops and livestock while protecting against food security concerns; and

achieving inclusiveness through a more decentralized decision-making that focuses on solving specific local problems and also fosters a group approach by which the poor get better access to land, credit, skills, and scale. There was considerable optimism with this strategy during the three years from 2005–06 to 2007–08 when agriculture grew consistently at around 4 per cent or more.

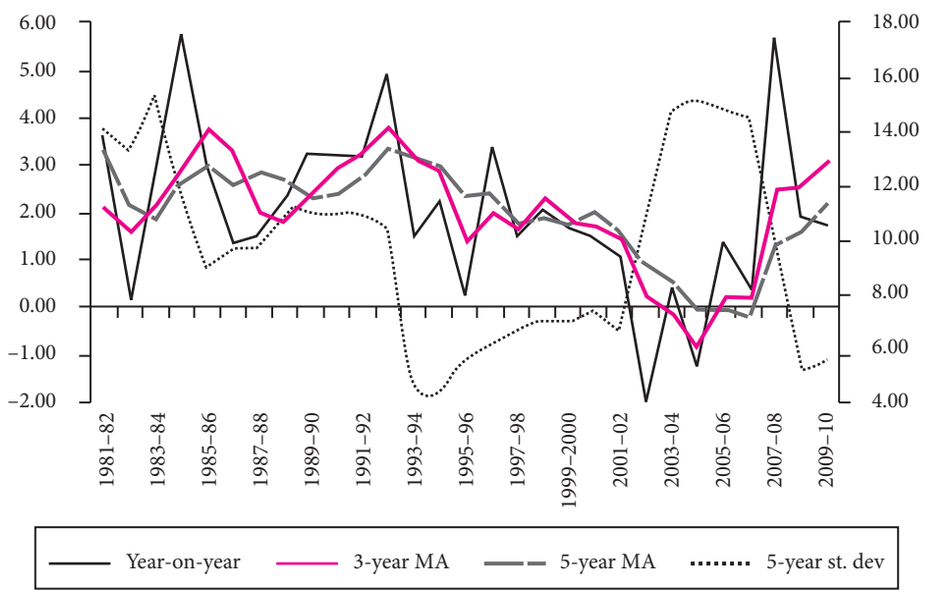
4.4 The Mid-Term Appraisal (MTA) reveals that not all aspects of the strategy are doing equally well and that much more needs to be done on the supply side. Not only are current rates of overall GDP growth increasing agricultural demand and putting pressure on food prices, this is occuring in a decade which has been the hottest ever and also one of the driest since metreological data are available.

LONGER-TERM GROWTH TRENDS

4.5 Longer-term growth trends in Indian agriculture are presented in Figures 4.1 to 4.3. These plot annualized five-year growth rates of agriculture GDP using different methods of estimation—year-on-year, three-year moving average, and five-year moving average growth. The figures also plot (on a secondary axis) the standard deviation of annual growth rates over the previous five years. The data relate to food grain output, GDP from agriculture and allied sectors at constant 1999–2000 prices, and the purchasing power of agricultural GDP (that is, agricultural GDP at current prices deflated by the deflator for private consumption expenditure).

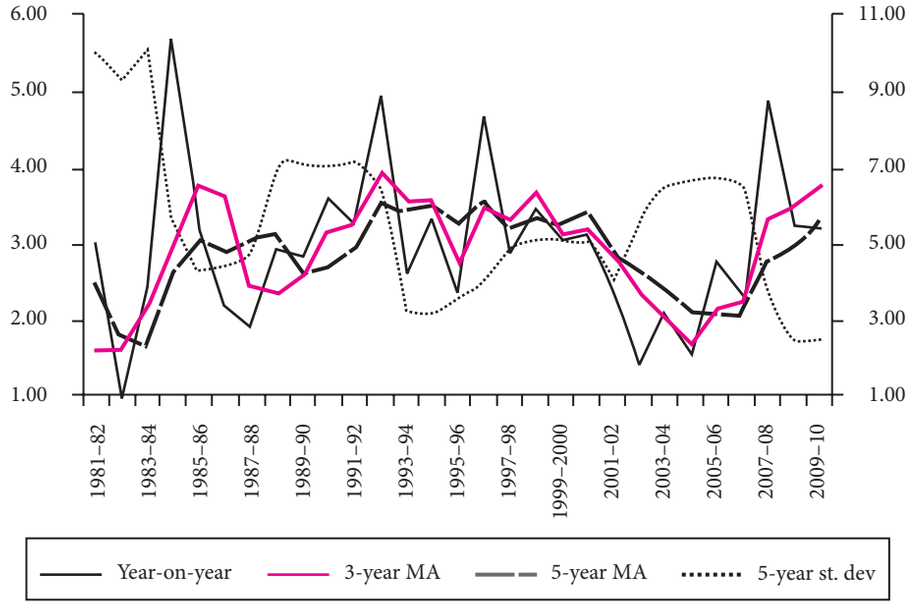
4.6 Several important features of agricultural growth emerge from these figures:

i. First, there is definite growth recovery after 2004–05 from an earlier deceleration irrespective of the series considered.
ii. Second, despite this, the target of 4 per cent growth has not been achieved except in the case of purchasing power of agricultural GDP, which factors in an improvement in agriculture's terms of trade. Although the year-on-year annual growth rate between 2002–03 and 2007–08 averaged over 4 per cent for all the series, as indeed was the case in the earlier five-year spells ending in 1984–85 and 1992–93, all these spells involve a very poor base year. Calculations based on moving averages, which average out such extremes, show no five-year spell involving more than 4 per cent growth of agriculture GDP at constant prices. The best



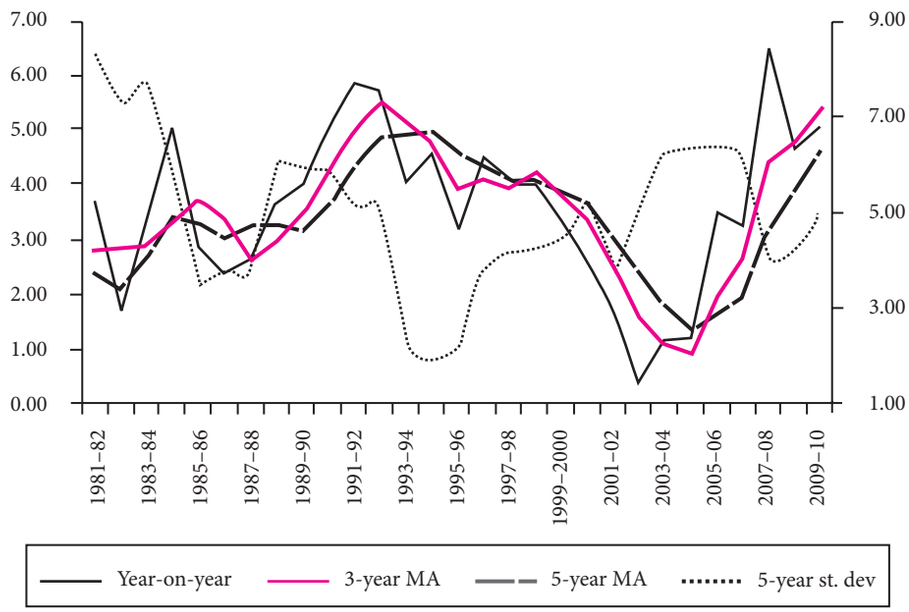
Source: CSO National Accounts Statistics (various years).

FIGURE 4.1: Five Year Growth Rates of Food Grains Output



Source: CSO National Accounts Statistics (various years).

FIGURE 4.2: Five Year Growth Rates of Agri-GDP



Source: CSO National Accounts Statistics (various years).

FIGURE 4.3: Five Year Growth Rates of Purchasing Power of Agri-GDP

that can be said is that the growth performance during the Eleventh Plan period has returned to the previous best range of 3–3.5 per cent observed during 1992–98.

iii. Third, the year-to-year variation in annual growth rates of output and GDP as measured by their standard deviation over five-year periods have now dropped to an all-time low although the

absolute level remains high. This reflects not only better public sector response to the 2009–10 drought but also probably a general improvement in the ability to adapt to the adverse climate trends noted earlier.

iv. Finally, the figures bring out two points stressed in the MTA of the Tenth Plan: that growth deceleration was much more for food grains than for agriculture as a whole; and that farm income variability rose after agriculture trade was opened under WTO since this ended the negative correlation between output and prices natural in a closed economy, and existing measures for price stabilization were inadequate to cope with high world price volatility. Matters have certainly improved since then, with food grains growth trending up and income variability reducing. But these remain areas of concern because per capita food grains production is still below the level reached in the late-1980s and because the standard deviation of annual growth in the purchasing power of GDP during 2004–10 was twice that of annual growth in GDP at constant prices.

4.7 Further details of growth revival and variability are presented in Table 4.2, which gives sub-sector-wise details of output growth since 2005–06, comparing this to both the previous five-year period and Eleventh Plan projections. State-wise growth rates of Gross State Domestic Production (GSDP) from agriculture and llied sectors has been presented in tabular form in Chapter 2.

4.8 As far as sub-sector growth rates are concerned, the big picture is that average growth during 2005–10, though lower than the Eleventh Plan targets for every sub-sector, was significantly higher for most sub-sectors than their average achievement for 2000–05. Since monsoon rainfall in 2009–10 was much more unfavourable than in 2004–05, this suggests that the near doubling of overall output growth between these two periods cannot be attributed to weather alone. Table 4.2 also shows that the growth revival was not only due to dramatic sector specific innovations, for example, Bt in case of cotton, a crop where output growth was high but did not accelerate over these periods. Instead, large heterogeneous sectors, such as

TABLE 4.2
Sub-sector-wise Growth Rates of Gross Value of Output in Agriculture and Allied Sectors

(per cent)

		Share in Value of Output	Average Growth 2000–01 to 2004–05	Projected Growth for Eleventh Plan	Year on Year Growth					Average 2005–06 to 2009–10
					2005–06	2006–07	2007–08	2008–09	2009–10	
1	Crops	42.4	1.0	2.7	6.3	4.0	6.1	–2.5	–5.5	1.7
	1.a Cereals	18.6	–0.5	2.3	5.4	5.5	4.9	1.7	–8.8	1.8
	1.b Pulses	2.7	1.7		3.0	5.4	7.4	–1.9	1.1	3.0
	1.c Oilseeds	6.2	6.2	4.0	14.5	–11.1	17.2	–3.7	–4.6	2.5
	1.d Sugarcane	3.7	–3.0	3.0	11.7	17.9	–1.6	–21.3	–11.8	–1.1
	1.e Fibres	2.8	7.7		7.8	18.7	17.0	–10.3	0.2	6.7
	1.f Other crops	8.4	2.5		1.0	1.4	1.1	1.3	0.1	1.0
2	Horticulture	19.8	2.0	5.0	5.0	3.9	3.8	3.9	4.0	4.1
	2.a Fruits & vegetables	15.1	1.7		6.4	3.6	5.2	3.7	4.8	4.7
	2.b Condiments & spices	2.1	5.9		6.6	1.6	6.7	5.9	0.0	4.2
	2.c Drugs and narcotics	1.5	–3.0		–8.2	3.2	–8.4	0.5	2.4	–2.1
	2.d Floriculture, kitchen garden, & mushrooms	1.1	4.8		4.9	13.6	–2.6	6.9	3.5	5.3
3	Livestock	23.8	3.3	6.0	3.9	4.2	4.5	4.9	3.1	4.1
4	Forestry & logging	9.6	1.4	0.0	2.0	3.0	2.2	2.9	2.7	2.6
5	Fisheries	4.5	3.7	6.0	6.1	2.0	5.9	5.9	4.2	4.8
	Total	100.0	1.7	4.0	5.1	3.8	4.9	1.3	–0.3	3.0

cereals and horticulture (comprising 38 per cent of the total output), which were the focus of two missions in the Plan strategy have recorded a more than 1 percentage point increase in growth rates. Further, the crop sector that bore the brunt of the 2009–10 monsoon failure had actually grown faster than Plan projections during 2005–09 despite fall in sugarcane, cotton, and oilseeds output in 2008–09. This gives hope of a strong rebound in 2010–11 as was observed after the two previous droughts in 1987–88 and 2002–03. If this happens, average agricultural growth during the Eleventh Plan may be able to exceed 3.0 and perhaps even 3.5 per cent.

4.9 State-wise data buttress this picture of a variable but broad-based recovery. Overall agricultural GSDP in the 18 major states actually grew at over 4 per cent during 2005–09, up from 2 per cent during 2000–05. And although year-to-year variations are much larger at the state-level, as many as 13 of these states either recorded significant acceleration or maintained growth at over 3.5 per cent. The best performing states during 2005–09 included Andhra Pradesh and Maharashtra (which during the previous decade had faced much stress leading to the largest number of farmer suicides), the poor states of Bihar and Chhattisgarh, and the relatively dry regions of Gujarat and Rajasthan. Indeed, an interesting aspect of the recovery are signs of renewed dynamism in rainfed areas and some evidence that at least some state governments are taking innovative steps like involving Self-Help Groups (SHGs) and integrated pest management (especially in Andhra Pradesh) and minor works to improve water use and conservation (Chhattisgarh and Gujarat).

INVESTMENT IN AGRICULTURE

4.10 The share of investment in agriculture (in terms of gross capital formation in the agriculture sector) from 1999–2000 to 2008–09 is given in Table 4.3. It may be seen that in recent years, that is, since 2003–04, public investment in the agriculture sector has accelerated leading to a higher share of public sector gross capital formation. It has increased from 17 per cent to 28 per cent (see Table 4.3). Gross capital formation in agriculture also increased as a proportion of agricultural GDP after 2003–04.

4.11 The allocation to agriculture and allied sectors in the Centre's Plan was substantially increased from Rs 21,068 crore in the Tenth Plan to Rs 50,924 crore in the Eleventh Plan. However, as percentage of the total Central Plan the share of agriculture and allied sectors continues to be around 2.4 per cent, which increased to around 3 per cent in 2007–08 (see Table 4.4).

TABLE 4.3
Gross Capital Formation in Agriculture and Allied Sectors

(Rs crore at 1999–2000 prices)

Year	GDP in Agriculture & Allied Sectors	GCF in Agriculture & Allied Sectors				
		Public Sector	Private Sector	Total	Share of public sector in total GCF agriculture	Per cent of GCF agriculture in agriculture GDP
1	2	3	4	5	6	7
1999–2000	4,46,515	8,668	41,483	50,151	17.3	11.2
2000–01	4,45,403	8,085	37,395	45,480	17.8	10.2
2001–02	4,73,248	9,712	47,266	56,978	17.0	12.0
2002–03	4,38,966	8,734	46,934	55,668	15.7	12.7
2003–04	4,82,677	10,805	42,737	53,542	20.2	11.1
2004–05	4,82,910	13,019	44,830	57,849	22.5	12.0
2005–06	5,11,114	15,947	50,118	66,065	24.1	12.9
2006–07	5,31,315	18,755	54,530	73,285	25.6	13.8
2007–08	5,57,122	22,107	57,221	79,328	27.9	14.2
2008–09	5,66,045	24,197	61,367	85,564	28.3	15.1

Source: National Account Statistics (2009).

TABLE 4.4
Central Plan Outlay for Agriculture and Allied Sectors

(Rs crore)

Plan Outlay for Agriculture and Allied Sectors	Total Plan Outlay	Agriculture & Allied Activities
Tenth Plan (2002–07) @	9,45,328.00	26,108.00 (2.4 per cent)
Eleventh Plan (2007–12)@	21,56,571.00	50,924.00 (2.4 per cent)
Annual Plan 2007–08 (RE)*	2,92,337.01	8,544.33 (2.9 per cent)
Annual Plan 2008–09(RE)*	3,88,077.90	9,969.33 (2.6 per cent)
Annual Plan 2009–10 (RE)*	4,25,590.05	10,123.04 (2.4 per cent)
Annual Plan (2010–11) BE*	5,24,484.31	12,308.47 (2.4 per cent)

Source: @ Eleventh Plan Document, Volume I (at 2006–07 prices).
Note: * At current prices from Volume I of Expenditure Budgets of the Union Government for different years.

4.12 The total projected Gross Budgetary Support (GBS) at current prices for the Eleventh Five Year Plan for the Ministry of Agriculture (MoA) is Rs 61,979 crore, which includes Rs 41,337 crore for the Department of Agriculture and Cooperation, Rs 8,054 crore for the Department of Animal Husbandry, Dairying, and Fisheries, and Rs 12,588 crore for the Department of Agricultural Research and Education. The utilization of the Eleventh Plan outlay by MoA in the first four years (including provision made in the Budget in 2010–11) is likely to be around 61 per cent, leaving a large balance amount for the last year of the Eleventh Plan. In the case of Department of Animal Husbandry, Dairying, and Fisheries the utilization in the first four years is in the order 47 per cent and for the Department of Agricultural Research and Education it is 55 per cent. Thus a large shortfall in the utilization of expenditure is expected in the case of the Department of Animal Husbandry, Dairying, and Fisheries and the Department of Agricultural Research and Education (see Table 4.5).

4.13 An important reason for the shortfall in the case of the Department of Animal Husbandry, Dairying, and Fisheries has been the slow progress in the formulation of schemes, a large number of small schemes, and the need for capacity building for project formulation at different levels. A cafeteria approach with the merger of small schemes of the Department of Animal Husbandry, Dairying, and Fisheries providing flexibility to the states in selecting activities according to their felt needs with a decentralized sanctioning procedure, like in the case of the Rashtriya Krishi Vikas Yojana (RKVY), is required to expedite expenditure in the sector. Simultaneously, a step-up is required in allocation of funds to these departments in the remaining period of the Eleventh Plan.

4.14 During the Eleventh Plan RKVY has an allocation of Rs 25,000 crore, which is in addition to the above mentioned allocation of Rs 61,979 crore for MoA. The releases/outlay under RKVY during the first four years amount to Rs14,586 crore, which is 58 per cent of the Eleventh Plan outlay. A substantial increase will be required in 2011–12 to achieve the Eleventh Plan allocation of Rs 25,000 crore.

4.15 States have generally responded positively to the enhanced focus on the sector during the current Plan by the Planning Commission and MoA. The states have shown a trend towards increasing budgetary support to agriculture during the current Plan, even if the quantum and pace of increase varies greatly across states. This development is in line with the expectations of the Planning Commission's condition when RKVY was designed.

ROLE AND PERFORMANCE OF CRITICAL INPUTS

4.16 The Eleventh Plan acknowledged that slowdown in agriculture growth after the mid-1990s was due to multiple factors, including the lack of a breakthrough in the technology of major crops; low replacement rate of seeds/varieties; slow growth or stagnation in areas under irrigation and fertilizer use; decline in power supply to agriculture; and slowdown in

diversification. It was assumed that the large gap between the attainable level of productivity achieved in frontline demonstration plots and actual productivity at the farm level offers a ready option to raise productivity and production by pushing use of quality seeds, fertilizers, and water (irrigation). The Plan emphasized balanced use of fertilizers, application of micro-nutrients, increase in seed replacement rate, and speedy dissemination of improved and potential technology.

4.17 A summary assessment of the performance with regard to each of these is now given.

Technology Generation and Delivery

4.18 Past experience in India, as well as worldwide, shows that technology is one of the prime movers of agricultural productivity and growth. India currently spends about 0.6 per cent of agri-GDP on agri-R&D. It is widely believed by experts that India needs to raise this to at least 1 per cent of agri-GDP, which is an average of the developing countries, if it has to raise productivity in a sustained manner.

4.19 The generation and dissemination of technology is hampered not only by lack of investible resources but also by its sub-optimal priorities across crops, regions, and institutions, and lack of incentives and autonomy in most of the public research institutions. Out of the two major Institutions—Indian Council of Agricultural Research (ICAR) and State Agricultural Universities (SAUs)—that comprise the National Agricultural Research System (NARS), there has been a substantial increase in budgetary support to ICAR but most of the SAUs are facing a serious resource crunch. World Bank assistance through the National Agricultural Technology Project (NATP) and the National Agriculture Innovation Project (NAIP) has further supplemented financial support to ICAR in a big way. But just pouring in more resources in public R&D, without commensurate institutional reforms, is not likely to make the existing system deliver efficiently.

4.20 Broadly, the issues related to technology can be put in two categories. One, where productivity levels are high and have moved closer to economic potential like wheat and paddy in north-west India and castor and cotton in Gujarat. Two, where productivity levels are low and far below the economic potential of available technology as seen in most parts of eastern and central India. The former require breakthrough in technology and the latter require an extension and a favourable policy environment like remunerative prices, supply of inputs, and infrastructure back-up.

TABLE 4.5
The Outlay and Expenditure of Three Departments of the Ministry of Agriculture during the Tenth and Eleventh Plans, including ACA to States

(Rs crore at current prices)

		DAC	RKVY	WDPSCA	Total	DAHDF	DARE	Total
A	Tenth Plan Outlay (2002– 07)	13,200			13,200	2,500	5,368	21,068
	2002–03 to 2006–07 (BE)	15,963		90	16,053	2,546	5,100	23,700
	2002–03 to 2006–07 (Expenditure)	14,821		89	14,910	2,335	4,658	21,903
B	Eleventh Plan (Current Prices)	41,337	25,000	240	66,577	8,174*	12,588	87,339
	2007–08 (Expenditure)	5,772	1,247	40	7,059	784	1,284	9,127
	2008–09 (Expenditure)	6,545	2,880	39	9,464	865	1,630	11,959
	2009–10 (RE)	7,018	3,704	40	10,762	930	1,760	13,452
	2010–11 (BE)	8,280	6,755	40	15,075	1,300	2,300	18,765
X	Eleventh Plan							
	2007–08 to 2010–11 (Expenditure)	27,612	14,586	159	42,357	3,877	6,970	53,205
	Eleventh Plan BE 2007–08 to 2010–11 as percentage to Eleventh Plan Total	67%	58%	66%	64%	47%	55%	61%

Note: * Includes Rs 120 crore for EAP.

4.21 In many areas farmers have been using almost the same varieties and techniques for more than a decade now. Technology generation in India is largely under the public domain though private sector participation has been increasing. Public sector technology generation consists of a supply driven process of putting technologies on the shelf of the scientists without adequate regard to farmers' needs and perceptions and with insufficient marketing of the technology. This has led to a significant gap between the varieties released by public sector institutions and the incremental number of varieties actually used by the farmers. On the other hand, private sector varieties and seeds like Bt cotton, hybrids of maize, rice, and sunflower are gaining popularity without much support from the public extension system. This indicates clearly that the private sector is responding to the demand of the farmers much more effectively than the public system.

4.22 The public sector has to depend on its extension system to commercialize its technology. Extension is the responsibility of state governments and is the weakest link in the chain. There are large unfilled vacancies and the number of extension workers has marginally declined over the last three decades, while the number of holdings have increased almost four-fold. Further, with the increasing feminization of agriculture, it is important that extension models address the needs of women farmers. In the absence of any such improvements, input dealers have donned the role of extension workers and it has been left to the dealers of inputs to provide advice to the farmers. Given their poor grasp of technological issues, and more importantly, their interest in selling the inputs, this development is inappropriate and possibly counter-productive. There is an urgent need to innovate extension models built on public–private partnership (PPP) mode, that specifically integrate the needs of the many farm households that are run today by women, give the farmers the latest information about an array of technologies, and let them choose the best.

Seeds

4.23 Considering the importance of seeds in improving the productivity of different crops, focused efforts are essential to ensure their timely availability as also increasing the Seed Replacement Rate (SRR). Inadequate seed availability continues to be a chronic problem, mainly due to production shortages by the agencies involved in making available certified seeds from breeder seeds.

4.24 Table 4.6 provides data for 2004–05 to 2008–09 on the availability of breeder seeds and certified seeds. There seems to be good progress in the production of both certified as well as breeder seeds. However, the supply of breeder seeds is invariably much higher than the indented quantities both for central and state released varieties. This implies that available breeder seeds are not used to their potential to produce certified seeds. It is high time that the private sector is invited to participate in the large-scale multiplication of breeder seeds into certified seeds so that replacement rates can be significantly increased.

TABLE 4.6
Production of Breeder and Foundation Seeds and Distribution of Certified Seeds

(lakh quintal)

Year	Breeder Seed	Foundation Seeds	Distribution of Certified/ Quality Seeds
2004–05	0.665	6.90	113.10
2005–06	0.687	7.40	126.74
2006–07	0.738	7.96	155.01
2007–08	0.920	8.22	179.05
2008–09	1.000	9.69	190.00

Source: *Economic Survey 2009–10.*

4.25 During last 10–12 years, private sector companies have shown significant growth, especially in hybrid varieties, both in crops as well as the horticulture sector. Despite this the seed replacement ratio is quite low and varies widely across states and crops. Efforts to raise the seed replacement rate need to be redoubled, as this is the foundation for accelerating productivity growth.

4.26 There is also an urgent need to check the supply of spurious seeds by many companies by improving the governance of regulatory bodies, and also by keeping an eye on the monopoly practices of seed companies, if any.

Fertilizers

4.27 Chemical fertilizers played a vital role in the success of India's Green Revolution and consequent self-reliance in food grain production. However, the association between fertilizer consumption and food grain production has weakened during recent years due to the imbalanced use of nutrients and deficiency of micro-nutrients, which demands a careful examination and policy action.

4.28 After a stagnation for five years the per ha fertilizer consumption in the country showed a consistent increase during the last four years (from 130 kg/ha during 2004–05 to around 175 kg in 2008–09). However, there are large inter-region, inter-state, and inter-crop variations on fertilizer consumption in India.

4.29 Almost the entire increase in the consumption of fertilizers in recent years was met from import as domestic production has been almost stagnant or even declined in some years since 2002–03. Imports of fertilizers, which accounted for about 10 per cent of consumption in 2002–03 now account for more than 40 per cent (see Annexure 4.3). This increasing dependence on imports necessitates a strategic analysis of the trade-offs between domestic production and imported fertilizers with a view to ensuring that the domestic industry faces a policy environment conducive for growth and expansion on an efficient and sustainable basis.

4.30 In some areas excessive use of chemical fertilizers has led to degradation of natural resources, such as land and water, which needs urgent attention. On the other hand one-fourth of the districts still use less than 50 kg/ha of fertilizers, which is much lower than the recommended level. Therefore, there is a need to have a two-pronged strategy, one to monitor districts with high intensity of consumption and take corrective actions to reduce environmental degradation and the other to promote fertilizer consumption in low-use districts to improve crop productivity.

4.31 Fertilizer use in most parts of the country is highly concentrated towards nitrogenous fertilizers and imbalance in the use of fertilizers is observed almost everywhere. This imbalance in use of plant nutrients and neglect of micro-nutrient deficiencies in Indian soils has led to declining fertilizer response and deterioration of soil health. The extent and nature of the problem differs in different parts of the country. This needs to be addressed by designing appropriate products and by rationalizing subsidies on fertilizers. Implementation of the new policy of the nutrient-based subsidy, which has now been announced is likely to provide a price incentive for the balanced use of fertilizers.

4.32 Fertilizer subsidy has lately increased very fast partly due to increases in fertilizer consumption and partly due to increase in the per unit subsidy element. Fertilizer subsidy as a ratio to the value of crop output, which hovered between 3 to 3.5 per cent during 2000–06, rose to 4.8 per cent in 2007–08, and to more than 10 per cent in 2008–09 due to a spike in the price of imported fertilizers (see Annexure 4.4). Since a major reason for the high fertilizer subsidy has been the constant nominal prices for a long period of time, any correction in this respect will have to be gradual keeping in view its impact on fertilizer use and profitability of farmers. However, it must also be acknowledged that during the last five years, the MSP of wheat and rice have gone up by more than 50 per cent, but urea prices have remained constant for farmers. As a policy correction, it would be better to link the price of fertilizers with the Minimum Support Price (MSP) of wheat, rice, and sugarcane, the three crops which use most of the fertilizers. From 2010–11, the Government of India has decided to introduce a nutrient-based subsidy regime wherein the subsidy on fertiliszers, other than urea, will remain fixed based on the nutrient composition and the retail prices of fertilizers will be decided by the manufacturers/ importers. To safeguard the interests of farmers, the government will intervene in a manner to keep farmgate prices of these fertilizers near the current prices as far as possible while allowing a small increase in urea prices, which will remain controlled.

Irrigation and Watershed Development

4.33 The area under irrigation remained stagnant for five years between 1998–99 and 2003–04, but increased by over 4 million ha in the next three years for which

data is available. This has raised the percentage of irrigated net sown area from 40 per cent to 43 per cent (Table 4.7).

4.34 The increase in irrigated area after 2003–04 is welcome but it is small compared to the increase in public and private investments witnessed after 2003–04. The increase in public investment in agriculture, more than 80 per cent of which is in irrigation, should have resulted in a sizeable increase in the area under irrigation. However, despite a large increase in public investments, the net irrigated area under canal irrigation has not increased at all. It appears that the additional area brought under irrigation by new projects is offset by a decline in the existing area not receiving irrigation. There are reports from the field that many distributaries linked to old canals are running dry and not providing any irrigation; and that the money is going to several hundred uncompleted projects, and will bear fruit only in due course of time when some of them get completed. In order to accelerate growth in agriculture as well as to bring about stability in agri-growth the following policy changes are called for in this mid-term review.

Watershed Development

Path-breaking Initiatives of the Eleventh Plan

4.35 Towards the end of the Tenth Plan period, watershed development was poised for a new beginning. The Technical Committee on Watershed Programmes in India (Parthasarathy Committee) set up by the Ministry of Rural Development (MoRD) submitted its report in January 2006. The report contains a comprehensive review of the programme and the lessons that emerge from the experience of the previous two decades; it provides a roadmap for the next generation of watershed projects. The report highlights the fact that for the first time since the mid-1960s, the 1990s witnessed a rate of growth of food grain production that was lower than the rate of growth of the population. It suggests that while irrigated agriculture appears to be hitting a plateau, rainfed farming has suffered neglect. Without developing the productivity of rainfed agriculture, it would be difficult to meet food security demands in 2020. An increased thrust to rainfed areas through greater emphasis on a reformed watershed programme may hold the key to meeting this challenge.

4.36 Drawing upon the lessons of the last two decades, the Parthasarathy Committee outlines the key reforms to be carried out in the watershed programme. These include:

i. Dedicated full-time implementation structure run by professionals, especially at the district-level and below.
ii. A 3-phase programme, which includes an initial preparatory phase of two years focused on building local capacities and institutions that would run the programme in the subsequent years.

TABLE 4.7
Net Irrigated Area under Various Sources

(million ha)

Year	Canals	Tanks	Tube Wells	Other Wells	Other Sources	Total	Net Sown Area	NSA Irrigated (per cent)
1997–98	17.397	2.597	19.68	12.431	3.106	55.211	141.95	38.89
1998–99	17.311	2.795	21.394	12.606	3.329	57.435	142.76	40.23
1999–2000	17.045	2.540	22.053	12.593	2.912	57.143	141.06	40.51
2000–01	15.965	2.455	22.569	11.26	2.885	55.134	141.36	39.00
2001–02	15.266	2.191	23.241	11.731	4.359	56.788	141.41	40.16
2002–03	14.042	1.804	23.479	10.66	3.667	53.652	132.59	40.46
2003–04	14.413	1.914	24.514	11.612	4.292	56.745	140.94	40.26
2004–05	14.649	1.725	23.063	11.834	7.546	58.817	141.07	41.69
2005–06	15.284	2.080	23.419	11.648	7.447	59.878	141.81	42.22
2006–07	15.351	2.044	24.056	11.853	7.554	60.858	140.29	43.38

Source: DAC, Ministry of Agriculture.

iii. Central emphasis on capacity building, involving the best available expertise from the voluntary sector.
iv. Recognizing local institution building as a key activity under the programme.
v. Much greater emphasis on monitoring, evaluation, learning, and social audit.
vi. Building a livelihoods perspective into the programme from day one rather than as an afterthought at a late stage, with special emphasis on the interests of asset-less families.
vii. Enhancing the per ha norm to Rs 12,000 from the prevailing Rs 6,000.
viii. Watershed work to be carried out on clusters of micro-watersheds from 4,000 to 10,000 ha rather than the earlier 500 ha micro-watershed.
ix. Creation of a national authority for rainfed areas, which would be a quasi-independent authority to manage the watershed programme, endowed with the autonomy and flexibility to respond innovatively to local needs, with clear accountability for performance. The proposal was for setting up a totally new professional and outcome-oriented organizational structure geared to meet these requirements.

4.37 The National Rainfed Areas Authority (NRAA) was subsequently set up in November 2006. The NRAA, in coordination with the Planning Commission, issued a new set of common guidelines for watershed development projects in February 2008, which are applicable to all watershed development projects in all departments/ministries of the government. These guidelines have many remarkable features which draw upon the reforms suggested by the Parthasarathy Committee. These include:

4.38 Delegating powers to states: States are now to be empowered to sanction and oversee the implementation of watershed projects within the parameters set out in these guidelines.

4.39 Dedicated institutions: There would be dedicated implementing agencies with multi-disciplinary professional teams at the national, state, and district levels for managing watershed projects. A dedicated State-Level Nodal Agency (SLNA) will be constituted by the state governments with an independent bank account. The SLNA will sanction watershed projects for the state on the basis of an approved state perspective and strategic plan as per procedure in vogue and oversee all watershed projects in the state within the parameters set out in these guidelines.

4.40 In districts covering at least 25,000 ha under watershed projects, a separate dedicated unit, called the District Watershed Development Unit (DWDU) will be established at the district level, which will oversee the implementation of the watershed programme and will have separate independent accounts for this purpose. The DWDU will be a separate unit with a full-time Project Manager and three to four subject matter specialists on agriculture, water management, social mobilization, and management and accounts. The Project Manager, DWDU could be a serving government officer on deputation or recruited from the open market by means of a transparent process. The Project Manager, DWDU will sign a contract (for a period not less than three years) with SLNA that will spell out well-defined annual goals, against which his/her performance will be consistently monitored. Similar professional arrangements are envisaged at the watershed level.

4.41 Duration and phasing of the programme: The project duration has been enhanced to 4–7 years, spread over three distinct phases—the preparatory phase, the works phase, and the consolidation phase.

4.42 Livelihood orientation: Productivity enhancement and livelihoods will be planned to promote farming and allied activities for local livelihoods while ensuring resource conservation and regeneration. The new approach would systematically integrate livestock and fisheries management as a focal intervention, among others. A special allocation of 10 per cent of project costs has been made for livelihood activities for asset-less families and 13 per cent for production systems and micro-enterprises.

- *Cluster approach*: Clusters of micro-watersheds of average size of 1,000 to 5,000 ha will be the unit of intervention. Smaller size projects will be sanctioned in the hilly/difficult terrain areas.

- *Institution development and capacity building*: A separate provision of 5 per cent has been made for local institution development and capacity building and training of all functionaries and stakeholders. Local institutions include the watershed committee, SHGs, and user groups which will all function under the purview of the gram panchayat and gram sabha. The common guidelines also provide a roster of outstanding training organizations in India with a proven track record of excellence who would be the partners of the states in the capacity building effort.
- *Monitoring and evaluation*: For the first time a separate allocation of 1 per cent each has been made for monitoring and evaluation, to infuse the programme with quality.
- *Smoother release of funds*: To reduce needless delays in implementation, the instalments for fund release will only be three compared to seven and five in the earlier programmes.

4.43 New watershed projects were to be implemented in accordance with these common guidelines with effect from 1 April 2008. In January 2008, for the first time, a secretary was posted in the Department of Land Resources. In February 2009, the Desert Development Programme (DDP), Drought Prone Areas Programme (DPAP), and the Integrated Watershed Development Programme (IWDP) were merged into the Integrated Watershed Management Programme (IWMP). A cost norm of Rs 12,000 per ha was adopted for IWMP in line with the recommendations of the Parthasarathy Committee. For hilly and difficult terrains the norm is Rs 15,000 per ha. The Eleventh Plan provided an outlay of Rs 15,359 crore for IWMP and Rs 3,095 crore (at 2006–07 prices) for the Rainfed Areas Development Programme of the MoA. In addition, there are the huge possibilities of convergence with MGNREGA, whose primary focus is on watershed-related activities. Thus, there has been a massive hike in outlays compared to the past (Ninth Plan: Rs 2,179 crore and Tenth Plan: Rs 8,256 crore). Indeed, the Eleventh Plan outlay is nearly as much as the entire expenditure on watershed programmes since their inception in India.

Performance Review and the Way Forward

4.44 Given these ambitious objectives, the performance so far has been most disappointing. Till 31 August 2009, an expenditure of nearly Rs 5,000 crore had been incurred during the Eleventh Plan period but this was entirely on old projects. No watershed projects under the new IWMP had been sanctioned till then. There are still about 16,744 ongoing projects in various stages of completion, which have been unduly delayed on one count or the other. This poses a serious question over where the massively raised outlays for the new IWMP in the Eleventh Plan are going to be spent. What is even more worrisome is that the steps that need to be taken to actualize the potential

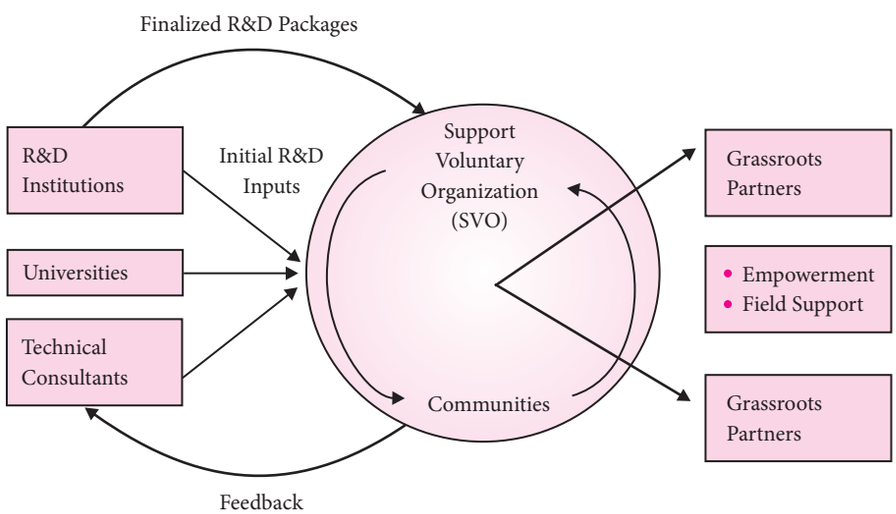


FIGURE 4.4: Multiplier-Upscaling SVO Concept

inherent in the new guidelines have yet to be put into place.

4.45 The increase in the duration of the programme owes mainly to its emphasis on: (a) institutional development and capacity building; (b) monitoring and evaluation; and (c) a livelihoods orientation from the start of the programme. Each of these are quality and process-oriented activities, which demand a whole series of initiatives and partnerships to be put into place. For one, major partnerships have to be built with not only those organizations already listed in the common guidelines but many others who can play a crucial role in the national capacity building effort required for the watershed programme. None of this has been done so far, but is absolutely vital if the expanded preparatory phase of IWMP has to have any meaning. In particular, the emphasis on and special allocation for institution building requires a radically new approach to social mobilization that has been absent in most watershed projects so far and demands partnerships with institutions that have experience in this activity. Indeed, these institutions will need to be deployed to develop many other Master Trainer Organizations (MTOs) especially dedicated to this task if this massive national effort has to be brought to a successful conclusion. A model in this regard is the multiplier-upscaling Support Voluntary Organization (SVO) concept pioneered by CAPART in the 1990s. SVOs will need to be identified in each state and each SVO will need to develop at least one MTO in each district for proper upscaling without compromising on quality.

4.46 Similarly, empanelment of credible institutions from academia and the voluntary sector for monitoring, evaluation, and social audit is necessary to infuse the programme with accountability and quality. The special financial allocations for each of these activities will lose all meaning if we continue with a business-as-usual approach. Finally, the *differentia specifica* of the new IWMP approach is its emphasis on livelihoods, especially for asset-less families. This requires a complete reorientation, which goes way beyond the merely engineering thrust of most watershed projects. There are many government and non-government organizations in India who have done pioneering work in this regard. The Department of Land Resources (DoLR) will need to facilitate partnerships of each state government with carefully selected institutions to carry this process forward with momentum.

4.47 Ideally, of course, these functions should be the role of the NRAA. Unfortunately NRAA continues to face a number of teething problems which have prevented it from performing to its full potential. While the NRAA has undertaken a number of useful studies in its short tenure, it is yet to play the kind of overarching role of guidance to the watershed programme that was visualized at its inception. Part of the difficulty is administrative as it has not had the full cooperation of implementing ministries. But a part of the problem also lies with the human resource profile of NRAA, which although multi-disciplinary does not have the full complement of the disciplines and has so far been unable to rise to the expectations of giving the intellectual leadership that is demanded by an ambitious, inter-sectoral, and inter-disciplinary programme like watershed development.

4.48 There are some difficulties with the common guidelines as well. A reform-oriented document places needless and quite arbitrary restrictions on the choice of the Project Implementing Agency (PIA). Despite it being a well-established fact that voluntary organizations have done some of the best work under the watershed programme, the guidelines mark them out for the harshest conditions, restricting their role in a somewhat capricious manner. The sooner these restrictions are lifted, (even while maintaining the strictest scrutiny of all PIAs), the better.

AGRICULTURAL CREDIT

4.49 Financial inclusion is vital for growth to be inclusive. The Union Finance Minister had on 18 June 2004 announced the doubling of flow of credit to the agriculture sector within a period of three years. The actual disbursement by banks exceeded the targets. For 2007–08, a target was fixed for Rs 2,25,000 crore to be disbursed by banks, while adding 5 million farmers to their portfolio. As against this, all banks (including cooperative banks and regional rural banks) disbursed Rs 2,54,657 crore forming 113 per cent of the

target. During 2007–08, 7.5 million new farmers were financed by commercial banks and Regional Rural Banks (RRBs). For 2008–09 the target was kept at the level of Rs 2,80,000 crore against which the amount disbursed is placed at Rs 2,92,437 crore. The flow of credit has been facilitated to a large extent by the Kisan Credit Cards (KCCs) scheme introduced in 1998–99. Till November 2009, a total of 878.3 lakh KCCs have been issued by the banking system with the amount sanctioned aggregating Rs 3,81,070 crore. Public sector banks have been formulating Special Agricultural Credit Plans (SACPs) since 1994–95 with a view to achieving a distinct and marked improvement in the flow of credit to agriculture. Under SACP, the banks are required to fix self-set targets showing an increase of about 20 to 25 per cent over the disbursements made in the previous year. The SACP mechanism was also made applicable to private sector banks from 2005–06.

4.50 The government has been providing relief of 2 percentage points in the interest rate on the principal amount up to Rs 1 lakh on each crop loan granted by commercial banks during kharif and rabi of 2005–06. With effect from kharif 2006–07, interest subvention is being provided at the rate of 2 per cent per annum to public sector banks, RRBs, and rural cooperative credit institutions with respect to short-term production credit up to Rs 3 lakh provided to farmers. The Government of India had provided Rs 1,100 crore for reimbursing the claims submitted by banks in this regard. This subvention is available on condition that the banks make available short-term credit at the ground level at 7 per cent per annum.

4.51 The government also decided to provide additional subventions, as a one time extension (1 April 2007 to 30 June 2007) with respect to those

Box 4.1
Accelerating Agricultural Growth by Increasing Growth in the Crop Sector: Recommendations

- Raise public expenditure on agri-R&D to 1 per cent of agri-GDP, re-energize the public institutions (especially SAUs) with adequate funding and commensurate institutional reforms to incentivize the research system, including ICAR institutions.
- The success of Bt cotton and hybrid maize in the last 6–7 years, primarily driven by the private sector, should encourage policymakers to create greater space for the private sector in technology generation and diffusion. Leading agri-companies (domestic and foreign) should be invited to establish a top-notch Centre of Excellence (CoE) for agri-technology, extension, and agri-business management, of international standards to tap the potential of the country in new technologies (especially biotechnology, including transgenics), to be developed and released under the Regulatory Authority System of the country, ensuring and adhering to bio-safety norms. The objective should be to make India a regional hub for technology generation and diffusion. Innovative models of PPP in extension and seed multiplication should be scaled up fast with due government support.
- Higher investment in irrigation of all types, from check dams and watersheds to drips and groundwater 'banking' (recharging) to medium- and large-scale storages and irrigation schemes. The current allocations are much lower than the need of more than 300 major and medium irrigation projects waiting completion; but investments must be transparent and accountable to scrutiny, ensuring commensurate outcomes in terms of increase in irrigated area.
- In order to raise resources for investments in agri-R&D and irrigation, etc., and to promote efficiency, rationalizing and containing the subsidy regime is required. Fertilizer subsidy should be on nutrient basis, and if possible, given directly to farmers. If this is not feasible, flat rate per unit subsidy on fertilizers produced should be given to fertilizer plants, abolishing the retention price scheme, and freeing the fertilizer industry from price controls, and opening fertilizer imports to the private sector at low import duty.
- Incentivize states to carry out institutional and pricing reforms in water and energy to promote efficiency in their usage. This can be done by innovating a scheme of 'water and power credits' to states for reforming their water and power sectors showing clear savings.
- Impose an export tax of say 5–10 per cent on exports of sugar and common rice to discourage exports of 'virtual water'; and to keep the imports of sugar and rice open at low tariffs, say 0–10 per cent.

farmers/borrowers in the Vidarbha region, who could not repay on the due date, that is, on 31 March 2007 but repaid or would repay before 30 June 2007. The extended subvention up to 30 June 2007 covered repayment of kharif loans. The 2 per cent subvention scheme for short-term crop loans was continued for 2007–08 and 2008–09.

4.52 A scheme of agriculture debt waiver and debt relief for farmers with the total value of overdue loans being waived estimated at Rs 50,000 crore and a one time settlement (OTS) relief on the overdue loan at Rs 10,000 crore was announced in the Union Budget 2008–09, for implementation by all scheduled commercial banks, besides RRBs and cooperative credit institutions. The scheme covered direct agricultural loans extended to 'marginal & small farmers' and 'other farmers' by SCBs and RRBs, cooperative credit institutions (including urban cooperative banks), and local area banks.

4.53 There is steady progress in the formation of SHGs. Under the SHG bank linkage programme, as on 31 March 2009, 61,21,147 SHGs held saving bank accounts with total savings of Rs 5,545.6 crore as against 50,09,794 SHGs with savings of Rs 3,785.39 crore as on 31 March 2008 indicating a growth of 22 per cent and 46 per cent respectively.

4.54 Credit cooperatives with their significant presence in the rural areas have an important role, but all the states have still not implemented in full the short-term credit cooperative reforms suggested by the Vaidyanathan Committee approved by the government. It has been reported that 25 states and union territories have accepted the reforms suggested by the Vaidyanathan Committee and have signed MoUs with the Government of India and NABARD to implement the reforms. Of these states/UTs, 14 have amended their respective cooperative acts to carry forward the reforms.

4.55 Therefore, despite the achievements, there is still a strong presence of moneylenders in rural credit markets charging exploitative interest rates and a key challenge continues to be the outreach of institutional credit, especially to small and marginal farmers.

RISK MANAGEMENT

4.56 Appropriate strategies are required for agricultural risk mitigation and management, particularly in view of the increased capitalization of farming and enhanced perceived risk due to climate change. The National Agricultural Insurance Scheme (NAIS) introduced during rabi 1999–2000 is being implemented in 25 states and 2 UTs at present. During the last 17 crop seasons (that is, from rabi 1999–2000 to rabi 2008–09), 1,347 lakh farmers have been covered over an area of about 210.09 million ha insuring a sum amounting to about Rs 1,48,250 crore under the scheme. In view of the nature of the scheme it may be taken up as a non-plan programme with a larger coverage of farmers.

4.57 A pilot Weather-Based Crop Insurance Scheme (WBCIS) is intended to provide insurance protection to farmers against adverse weather incidence, such as deficit/excess rainfall, temperature variation in the extreme, and frost, which are deemed to impact the crop production adversely. This scheme has advantages like minimizing moral hazards; lowering of administrative costs; and speedy settlement of claims. WBCIS was implemented in kharif 2007 and rabi 2007–08 and is being continued since then. To make the scheme competitive, premium actually charged from the farmers has been restricted to at par with NAIS. The difference between actuarial rates and premium actually paid by farmers is borne by the government (both the Centre and the state concerned). To provide competitive services to farmers, private insurance companies, such as ICICI-Lombard and IFFCO-TOKIO general insurance companies besides the Agriculture Insurance Company of India (AIC) have also been involved for implemeting the scheme, which is still in its early days. In kharif 2008, 10 states were covered. About 1.4 lakh farmers with 1.87 lakh ha of crop area were insured for a sum of Rs 309 crore generating a premium of Rs 31.5 crore (including a share of premium of Rs 11.82 crore for farmers receiving subsidy).

AGRICULTURAL MARKETING

4.58 The Department of Agriculture and Cooperation had formulated and circulated a model Agricultural Produce Marketing Committee (APMC) Act in 2003

on marketing of agricultural produce for guidance and adoption by state governments. The model legislation provides for establishing private markets/yards, direct purchase centres, consumer and farmers' markets for direct sale and promotion of PPP in the management and development of agricultural markets in the country. The Act also provides for constituting a State Agricultural Produce Marketing Standards Bureau for the promotion of grading, standardization, and quality certification of agricultural produce. This would facilitate pledge financing, direct purchasing, forward and future trading, and exports.

4.59 Twenty-five states and UTs have amended their APMC Acts or made varying provisions for the purpose while the other states are in the process of doing so. However, the manner of implementation in most states reveals serious weaknesses which discourage the entry of new players. In many cases the rules have yet to be notified. In some cases permission for direct purchase from farmers is being given for a year at a time which is a clear discouragement for anyone wishing to undertake a sizeable investment.

4.60 Development of agricultural marketing infrastructure, grading, and standardization is a central sector credit linked back-ended subsidy scheme for the strengthening and development of marketing infrastructure. An allocation of Rs 380 crore has been made under this scheme during the Eleventh Plan, aganist which expenditure during the first four years of the Plan is likely to be Rs 413 crore.

PERFORMANCE OF CENTRALLY SPONSORED SCHEMES (CSSs)

4.61 The CSSs are the main instruments of promoting growth in agriculture, covering the entire gamut of activities ranging from land and water resource development, seed production, extension, crop production, soil health, mechanization, and post-production issues. While most of the CSSs of the Department of Agriculture and Cooperation have been under implementation for at least the last two Plan periods in one form or another, a major initiative to assist the states through substantially increased outlays in this sector was launched at the beginning of the current Plan. Releases made under some of the major CSSs are given in Annexure 4.2. Two major new schemes, the National Food Security Mission (NFSM) and the RKVY were introduced during 2007–08 to provide states with additional resources on a 100 per cent grant basis. Most importantly, the states were given the freedom (especially in the case of RKVY) to address their priorities in agriculture through these new programmes, even as the older, more structured schemes were continued.

Rashtriya Krishi Vikas Yojana

4.62 The RKVY in particular has been well received, especially for its flexibility in giving states the power to choose interventions and set targets. However, there are reservations regarding the highly complex and detailed planning process and the size of funding as compared to the requirements assessed. While anecdotal evidence of early successes is available, a detailed impact assessment of the scheme will have to be undertaken to allow for further experience and learning.

4.63 Judging by the allocations made by the states to agriculture and the allied sectors during the last three years, the objective of RKVY (that is, to incentivize states into making higher expenditure on agriculture and allied sectors) seems to have been achieved to some extent. More specifically, there are states like Manipur (2.5 per cent), West Bengal (3.2 per cent), Punjab (2.8 per cent), Rajasthan (3.8 per cent), Jammu and Kashmir (3.4 per cent), and Goa (3.8 per cent), which have made an average allocation of less than 4 per cent to agriculture and allied sectors during the last three years (2007–08 to 2009–10), that is, since the inception of RKVY. On the other hand there are states like Himachal Pradesh (11.1 per cent), Nagaland (9.7 per cent), Uttarakhand (9.8 per cent), Meghalaya (9.7 per cent), Mizoram (8.3 per cent), and Tripura (10.9 per cent), which have been undertaking high average expenditure on agriculture and allied sectors in the last three years.

4.64 The combined status of expenditure by all the states (excluding UTs) to agriculture and allied sectors during last five years is given in Table 4.8, and the status with respect to each state is given in Annexure 4.1.

TABLE 4.8
Share of Expenditure on Agriculture and Allied Sectors by States (excluding UTs) in State Plan Outlays

(Rs crore)

S. No.	Year	Share of Agriculture and Allied Sectors in Actual Expenditure
1	2004–05	5.48
2	2005–06	4.90
3	2006–07	5.22
4	2007–08	5.76
5	2008–09	6.34
6	2009–10 (RE)/approved outlay	5.87

4.65 Based on the representations made by the states at various fora, it may be desirable to revisit RKVY's formula for allocation of funds to states. These are as follows:

i. Punjab and Tamil Nadu would like due weightage to be given to the percentage of irrigated area in the state. This refers to 'Parameter I' that gives weightage of up to 20 per cent of the allocation to un-irrigated areas. The contention of states like Punjab and Tamil Nadu on this score is that RKVY is looked upon as a source of additional availability of funds to boost activities for agriculture development by way of supplementing the already available strong network of water input available in the form of irrigation.
ii. States like Himachal Pradesh and Uttarakhand have been steadfastly making high allocation to agriculture and allied activities during the last three years. The percentage of allocation to agriculture and allied sectors in these states has always been more than 10 per cent. These states point out that it would be difficult to allocate higher allocations each year to agriculture and allied activities sacrificing the equal demands of other sectors regarded as priority sectors by the state.

Comprehensive-District Agriculture Plans

4.66 It was expected that RKVY would draw out realistic district/state agriculture plans. A manual on guidelines for preparing Comprehensive-District Agriculture Plans (C-DAPs) was developed and provided as technical support to states. It was circulated among all the districts/states. Financial assistance of Rs 10 lakh per district was provided to the states to facilitate the preparation of C-DAPs. This effort was further supplemented by organizing workshops, interactions, meetings, and visits to the states to guide the preparation of C-DAPs. However, the states have not been overly enthusiastic with the idea of preparing C-DAPs. The status of formulation of C-DAPs, as obtained from DACs, in various districts and states is given in Annexure 4.5. It shows that C-DAPs for 535 out of the 626 districts and SAP for 11 states have been prepared. But different states are at different stages of adopting the guidelines and preparing quality C-DAPs.

4.67 For the process to be participatory and have a bottom–up approach, it would require two main criteria: (a) information collection for preparation of C-DAPs should start from gram sabhas in villages as they are the basic units of planning, and (b) plans for each local body (LB) need to be prepared, discussed, and integrated in the plan of the upper local body. States like Madhya Pradesh, Uttarakhand, Kerala, Tripura, Punjab, and West Bengal have adopted this approach to some extent while the others are still dragging their feet.

4.68 Comprehensiveness and convergence was the other important objective of C-DAP preparation. Madhya Pradesh, Uttarakhand, Haryana, Andhra Pradesh, and Himachal Pradesh have achieved this objective to some extent. But convergence of non-governmental programmes has been invariably omitted by the states.

4.69 Efforts are continuing to improve the quality of C-DAPs and bring about uniformity in their approach throughout the country. Agro Economic Research Units (AERUs)—Institute of Economic Growth (IEG), New Delhi, Agricultural Development and Rural Transformation Centre (ADRTC), Bangalore, and the Institute of Development Studies (IDS), Jaipur, have been entrusted with the task of peer reviewing the C-DAPs prepared by the states. Peer reviews for 27 C-DAPs of districts has been completed, while it is progressing for the others (Annexure 4.6). Some of

the major findings of these peer reviews may be seen in Box 4.2. In addition, MANAGE, Hyderabad has joined hands in giving training to officers involved in the preparation of C-DAPs and SAP in the states. In September 2009, MANAGE arranged a workshop in Hyderabad for Karnataka, Tamil Nadu, Kerala, Chhattisgarh, and Andhra Pradesh. It also arranged a workshop in Lucknow exclusively for Uttar Pradesh in November 2009.

4.70 A good C-DAP is sound in consitutional as well as technical aspects. The consitutional aspect emphasizes on a participatory bottom–up approach taking the gram sabha as a basic unit for planning. The technical aspect demands comprehensiveness with respect to a district's potential, problems, needs, prioritization, and so on; convergence and a good write-up of the document based on appropriate data and its analysis. Technical support institutes were to play a major role in this aspect. States like Assam, Madhya Pradesh, and Himachal Pradesh have done comparatively better in this regard.

National Food Security Mission

4.71 The National Food Security Mission (NFSM) is a new CSS, which was launched starting with rabi 2007–08. This scheme included three components—NFSM-Rice, NFSM-Wheat, and NFSM-Pulses. The main objectives of NFSM are to increase the production of rice, wheat and pulses through area expansion and productivity enhancement in a sustainable manner in certain identified districts of the country. The major interventions under NFSM relate to demonstration of improved production technology, distribution of High Yielding Variety (HYV) seeds, and popularizing newly released varieties, support for micro-nutrients, gypsum, zero tillage, rotavators, conoweeders, seed drills, Integrated Pest Management (IPM), Integrated Nutrient Management (INM), extension, water lifting and moisture saving devices, and training and mass media campaigns. This scheme is being implemented in 312 districts in the 17 states of Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

4.72 NFSM has also been generally well-received by the states. While the design and implementation of NFSM have received an overall positive response from the states, the specific choice of districts has been contested by many states suggesting that the potential success of NFSM could have been higher if the states were given a greater say in choosing sites for the scheme's interventions. The varieties supplied were almost the same as those that were popular earlier and many states asked for flexibility in extending the scheme to other districts.

4.73 It is reported that the production of wheat increased from 71.27 million tonnes at Triennium Ending (TE) 2006–07, the terminal year of the Tenth Plan to 80.28 million tonnes in 2009–10. The production of rice also increased from 89.42 million

Box 4.2
Some Findings of Peer Review of C-DAPs

Peer Review of C-DAP Indicates that:

- The states vary greatly in following the C-DAP guidelines with respect to: a) bottom–up participatory approach, b) comprehensiveness, c) convergence, and d) write-up.
- Institutionalization and operationalization of C-DAPS is still partial.
- Participatory approach: Assam, Kerala, Tripura, MP, Rajasthan, UP, and Punjab have made efforts in this regard. Himachal Pradesh, West Bengal, and Karnataka adopted selective participation.
- States were not overly enthusiastic to prepare C-DAPs. Technical support institutes were mostly used to prepare C-DAPs rather their being used as facilitators.
- A majority of the states focused C-DAP on the RKVY programme. All programmes were not converged. Non-governmental efforts were invariably not accounted for.
- Most importantly there is still very little awareness among farmers regarding C-DAPS.

tonnes for TE 2006–07 to 99.18 million tonnes in 2008–09 before declining to 87.56 million tonnes in 2009–10 due to the drought. The production of pulses also increased from 13.57 million tonnes for TE 2006–07 to 14.74 million tonnes in 2009–10. This mission has helped increase the food basket of the country with significant contributions coming from NFSM districts. The increase in seed distribution reportedly ranges from 43 per cent in Rajasthan to as high as 10 times that in Bihar. In pulses also, the increase in improved seed consumption ranged from 29 per cent in Rajasthan to more than 400 per cent in Chhattisgarh. From 2009–10, nearly 80 per cent of the pulses were brought under NFSM.

4.74 An area of concern is the sketchy nature of the baseline data for both NFSM and RKVY projects and the weak Monitoring and Evaluation (M&E) systems in the states to track the performance of these major interventions. Lack of strong benchmarking data and a common M&E system across states will reduce feedback on these programmes to expenditure statements and physical inventories. This output, while necessary for budget controllers, will miss the outcomes of these schemes and, to that extent, will leave us poorer in understanding how they worked and, no less important, in whose favour.

CENTRALLY SPONSORED SCHEMES—SOME GENERAL ISSUES

4.75 The mechanism of the State-Level Sanctioning Committee (SLSC) created for clearing RKVY projects, which is chaired by the Chief Secretary, with representation from the Planning Commission and MoA, is considered by the states as an effective method of implementing all CSSs. A similar flexible, decentralized arrangement needs to be examined for adoption with respect to other CSSs.

4.76 The pattern and methodology of releasing financial assistance by MoA to the states also needs to be more efficient. Norms for certifying expenditure need to be made more efficient. Despite some tentative beginnings, paperless, electronic reporting, and certification of expenditure has not become the norm, with most states still dispatching hard copies of utilization certificates. As a result of these process-related bottlenecks, a large percentage of funds meant for CSSs is being released in the last quarter of the financial year, and in fact, even as late as the month of March. It is a known fact that state governments keep a tight leash on expenditure during the period leading to the end of the financial year and each withdrawal has to be cleared by the state finance departments. Considerable unspent amounts are thus being carried over into the next financial year and states have to seek revalidation of these monies from MoA to be able to use them, an exercise that can stretch till the end of the first quarter of the new financial year (that is, 30 June).

4.77 There appears to be a disconnect between overarching strategic goals for the agriculture sector at the state level and the linking of interventions (both under CSSs and those supported by state funds) in achieving strategic goals. Further, the states do not have a clear targeting strategy. MoA can help the states and UTs in defining certain clear strategic goals for agriculture and preparing a choice of tactical interventions to achieve these goals. This can be followed with greater support, especially in the field of capacity building for monitoring and evaluation and project formulation (two areas in which the states have considerable gaps). The attempt should be to align a state's own perception of its problems and priorities with the choice of projects supported both through CSSs (especially RKVY) as well as those with state budgetary funds.

Box 4.3
Immediate Action Points to Strengthen Food Grain Security

- Significantly higher investments are needed in modern bulk handling storage of basic food grains, preferably under the private sector or under the PPP mode. The current storage capacity with state agencies is much lower than the stocks that they often carry, leading to large wastages (8–10 per cent); reassessment of the optimal level of storage of food grains in the wake of increasing volatility needs to be taken up on a high priority.
- Special focus groups, including reputable agri-business leaders, on eastern India need to be set to harness groundwater to help raise rice, wheat, and maize yields with a combination of incentives and infrastructure investments.

4.78 A key assumption underlying CSSs is that central financial assistance can be efficiently channelled at the state level through departmental functionaries to reach intended beneficiaries with minimum delay and without leakages. This would require a combination of administrative, technical, and financial management capacities on the part of the state. Wherever necessary, new capacities would have to be created to match higher outlays to meet new responsibilities. Large staff vacancies are known to exist in field cadres, especially in extension, in most of the large states, burdening existing personnel with new challenges, even as training and the computerization of work processes remain weak areas of performance.

FUTURE SOURCES OF GROWTH IN AGRICULTURE AND AUGMENTING FARMERS' INCOMES

4.79 Food security at the national level remains of paramount concern for the government and therefore growth in food grain production must be a central policy focus (see Box 4.3). However, food grains account for less than 25 per cent of the value of output in agriculture and allied sectors. So the future sources of growth have to come mainly from the non-grain sector, which have to grow at much higher rate than 4 per cent. This is well recognized and spelt out in the Eleventh Plan document. After ensuring a stable growth rate of 2.0–2.5 per cent per annum in food grains and building up adequate stocks the focus should be on diversification to augment farmers' incomes and to accelerate growth.

4.80 Commercial crops like cotton have displayed dramatic growth since 2002–03 (by more than 10 per cent per annum), doubling production and yields, and making India the second largest exporter of cotton (more than 8 million bales) in 2007–08.

Diversification to High-Value Agriculture and Farm Incomes

4.81 However, it is the high-value segment (fruits and vegetables, livestock, and fisheries) that holds the key to future sources of growth in agriculture, given its higher expenditure elasticity compared to food grains. This is also a segment where a great deal of employment for women is generated, especially in livestock, and is dominated by small holders. Per ha productivity of major crop groups in the country ranges from Rs 13,000 for pulses to Rs 1.23 lakh for fruits and vegetables (see Table 4.9). Shifts in crop patterns from low productivity crops to high productivity crops in value terms offers vast scope for raising agricultural output and gross returns.

TABLE 4.9
Per Hectare Value of Output from Different Crop Groups, 2007–08

Crop Group	Output per Hectare (Rs)	Ratio of Productivity of Crop Group to Average of Crop Sector
Pulses	13,061	0.39
Cereals	19,498	0.58
Oilseeds	25,901	0.77
Cotton	33,977	1.01
Sugarcane	66,061	1.96
F & V	1,22,657	3.63
All Crops	33,754	1.00

Source: Basic data from NAS and Agricultural Statistics at a Glance.

4.82 The share of high-value agriculture in total agriculture (crops, livestock, and fisheries) has gradually increased over years and today it accounts for more than half the value of agriculture. This segment of agriculture is perishable in nature and therefore needs a very different approach than has been the case in food grains. It must be recognized that development of this high-value segment of agriculture will be possible only when it is pursued as a demand led strategy, closely linked to modern logistics, processing, and organized retailing, all as a part of one integrated agri-system in the form of value chains.

4.83 With only about 5 per cent share in total area under cultivation in the country, fruits and vegetables account for more than 25 per cent of the value of output of the crop sector and about 18 per cent of the total value of agriculture output (including livestock and fisheries). A regional picture reveals that in the north-west Himalayan states and in West Bengal, Bihar, and Orissa fruits and vegetables account for more than 45 per cent of the output of the crop sector.

4.84 With increasing per capita income, Indians are consuming more fresh and processed horticultural products. Exports and imports of horticulture products are increasing, although lately imports have been increasing faster than exports. This indicates growing scope for horticulture not only for exports but also for import substitution by improving crop productivity and efficiency in the value chains.

4.85 Several initiatives were taken in the horticulture sector during the Tenth Five Year Plan. These include setting up the National Horticulture Mission, Technology Mission for Integrated Development of Horticulture in North-East and Northern Hill States, National Bamboo Mission, and a Central Institute of Horticulture. These and other programmes like the National Horticulture Board (NHB), Coconut Development Board (CDB), micro-irrigation, and development of oil palm as a part of the Technology Mission on Oilseeds were continued in the Eleventh Plan. Special focus on planting material, organic horticulture, protected cultivation, modern methods of post-harvest management, contract farming, setting up of a central certification agency, and a planting material authority to take care of good quality planting material were also proposed. In general, the performance under the National Horticulture Mission (NHM) during the Eleventh Plan has been good in area expansion, development of nurseries, rejuvenation, IPM, and adoption of organic farming. However, adequate attention to post-harvest management and market development and processing has yet to pick up, and is the weakest aspect of NHM.

NATIONAL HORTICULTURE MISSION

4.86 The Mission was launched in 2005–06 with the objective of providing holistic growth to the horticulture sector by adopting an end-to-end approach involving production, post-harvest management, processing marketing, capacity building, and human resource development. It is operative in 357 districts in 18 states and two union territories. Under NHM a number of crops, such as fruits, cashew, spices, flowers, and medicinal and aromatic plants are covered. Vegetables are covered for seed production, protected cultivation, INM/IPM, and organic farming. The approach is cluster-based crop development. This approach is meant to develop a production base not only for fresh consumption but also to provide raw material for setting up infrastructure for post-harvest management, processing, and marketing.

4.87 The allocation and expenditure during 2007–08 to 2009–10 is given in Table 4.10. During the Eleventh Plan an allocation of Rs 3,350 crore was made during the first three years of the Plan, which is about 35 per cent of the Eleventh Plan allocation leaving a large unutilized amount for the remaining two years.

TABLE 4.10
Plan Allocation and Expenditure under NHM, 2007–08 to 2009–10

Year	Outlay (RE) (Rs crore)	Expenditure (Rs crore)
Eleventh Plan	8,809	
2007–08	1,150	917.32
2008–09	1,100	1,010.49
2009–10	1,100	800 (BE)
Total	3,350	2,727.81

PERFORMANCE OF NHM

4.88 The targets for Eleventh Plan for some of the activities and achievements made during the first three years in given in Table 4.11.

TABLE 4.11
Physical Achievement of NHM, 2007–08 to 2009–10

Activities	Target for Eleventh Plan	Achievement 2007–08 to 2009–10
Area coverage (lakh ha)	9.93	12.15
Establishment of nurseries (no.)	946	1523
Rejuvenation of senile orchards (lakh ha)	5.20	2.04
Protected cultivation (ha)	356.86	526.00
IPM (lakh ha)	15.00	5.70
Community tanks (no.)	2,450	13,120.00
Honeybee colonies (lakh)	340	1.59
Wholesale market (no.)	15	8.00
Rural markets (no.)	599	54.00

4.89 There has been a positive impact of the programme resulting in 12.4 per cent increase in area under horticulture and increase in yield of annual crops like banana, spices, and vegetables leading to increased availability of horticultural produce.

Many farmers are reported to have ventured into horticulture for the first time due to NHM. Development of nurseries under NHM has led to better access to planting material of improved varieties. Organic farming in horticulture is also gaining popularity. Investment in community tanks has improved water conservation and groundwater recharge in some of the places. Implementation of NHM has also resulted in the micro-irrigation scheme taking off.

4.90 The Mission has not been able to get adequate attention from the states for post-harvest management and market development. As a result, processing has yet to pick up and is the weakest aspect of the NHM. While only 11 states have taken an initiative in establishing 109 cold storages and eight states have established 51 *apni mandis,* there is virtually no progress in the setting up of wholesale markets except in Kerala.

4.91 For better performance of NHM certain aspects require greater attention. Some of these are: including certain crops and activities like pineapples and mushrooms and activities like high density planting, mechanization, cool chain management, GAP certification, which was not included in the original scheme, pursuing the development of post-harvest and market infrastructure, more attention to trained manpower at the district level, modification in the guidelines of MGNREGA to include NHM activities, ensuring convergence with schemes like micro-irrigation, RKVY and watershed development programmes at the department level, rural road connectivity with NHM clusters, convergence with programmes of the Ministry of Food Processing Industries for processing of horticultural produce and value addition, and prioritizing infrastructure needs to be linked with clusters being developed under NHM. Further, convergence with programmes of the Ministry of Commerce to promote coordinated development of agri-export zones, with the National Medicinal Plant Board with respect to the development of medicinal plants, and with the Ministry of Railways to provide necessary wagon facilities at the nearest railway heads of production clusters are also needed.

Technology Mission for Integrated Development of Horticulture (TMNE)

4.92 The centrally sponsored TMNE scheme has been operational since 2001–02 in the eight North-Eastern states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim. During the Tenth Plan, the scheme was extended to the other three Himalayan states of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand, making the TMNE operational in 11 states. The TMNE comprises of four mini-missions—MM-I (Research), MM-II (Production and Productivity), MM-III (Post-Harvest Management and Marketing), and MM-IV (Processing). The scheme has 100 per cent financial assistance from the Centre. TMNE envisages harnessing the potential of horticulture, maximizing economic, ecological, and social benefits through desirable diversification, developing infrastructure for production of planting material,storage and processing, and generating skilful employment.

4.93 Out of the allocation of Rs 1,500 crore for the Eleventh Plan, the expenditure during first four years has been around Rs 1,372 crore, that is, there has been 91 per cent utilization. The TMNE has become popular in all the North-Eastern states as is evident from the achievements under area expansion and other production related components. There has been promotion of commercial cultivation of several potential crops in the North-East like citrus, bananas, pineapples, strawberries, kiwi, apples, passion fruit, anthurium, rose, lilium, orchids, and high-value vegetable crops like cherry, tomato, bird eye chilli, king chilli, and coloured capsicum. As a result there has been significant improvement in the income of farmers engaged in horticultural activities.

4.94 A large number of apple plantations in the Northern Hill States are over aged, with old and unproductive trees. There is, therefore, an urgent need for launching a replanting programme on the lines of those undertaken for coconut and tea. There has been very little progress in post-harvest management (PHM) and creation of market infrastructure. The objectives of increasing the area under perishable horticulture crops will only be served if adequate PHM infrastructure is created.

4.95 One of the important oil yielding horticultural crops, oil palm, has been a part of the Integrated Scheme of Oilseed, Pulses, Oil Palm, and Maize (ISOPOM) with effect from 1 April 2004 (Tenth Five Year Plan). The objective of the scheme is to promote cultivation of oil palm with a view to augmenting domestic supply. The progress made in area expansion in the Eleventh Plan shows the acceptance of oil palm as a commercial crop in several states. Being the highest oil yielding crop, it has the potential of producing 5 million tonnes of palm oil and 1.5 million tonnes of kernel oil. Keeping in view the increasing population and the present and future gap in oil availability, oil palm cultivation needs priority attention in the Eleventh Plan. This can be done by transferring it from ISOPOM to the horticultural division of the ministry for its systematic and scientific development with an independent budgetary allocation.

ANIMAL HUSBANDRY AND DAIRY SECTOR

4.96 The Eleventh Plan set a growth target between 6 to 7 per cent per annum for the sector as a whole, with the milk group achieving a growth rate of 5 per cent and meat and poultry achieving 10 per cent. As against these targets, actual growth in livestock GDP during 2007–08 and 2008–09 (at 2004–05 prices) was 4.9 and 5.1 per cent respectively.

4.97 The milk sub-sector, which contributes about 70 per cent of the total output of the livestock sector, showed a growth of 3.93 per cent during 2007–08. A quantum jump in the milk group output is possible through increase in productivity and linking small holders to large-scale processors. This requires innovative approaches in breeding, feeding, and management on the production side and more emphasis on marketing and processing.

4.98 Currently, only about 18 per cent of the fluid milk is being processed through the organized sector, which is shared equally by cooperatives and the private sector. The projections for the next 5–10 years indicate an increasingly larger share of the private sector. There is obviously tremendous scope for value addition in the milk and dairy sector. Experience shows that market linkages between milk producers and buyers either through cooperatives or the private organized sector are critical to raise milk production and processing in the country. But such linkages are not expanding at the expected rate, and therefore, sustainable high growth rates in milk production remain a challenge.

4.99 No central assistance or schemes are available currently for the meat sector and even the incentives given to this sector in the form of export subsidy have been gradually withdrawn. The restrictions imposed by the World Organization for Animal Health (which retains its acronym OIE from its earlier name Office Internal des Epizooties) are posing a hindrance to exports. The certification process needs to be streamlined.

4.100 Value addition in the meat sector has been almost non-existent except in the case of buffalo meat processing, which is primarily meant for the export market. Livestock markets and abattoirs are mostly in the unorganized sector. For the meat sector to be more vibrant, profitable, export-oriented, and a provider of safe meat, it is necessary that a perceptible shift takes place from the unorganized to the organized sector.

4.101 The poultry sector has slowly transformed from backyard farming to a well-structured industry organized on commercial lines over the years. Poultry meat (4.7 per cent) and eggs (5.1 per cent) were among the highest growing components in the gross value of output, at 1999–2000 prices, of the livestock sector during last five years (2003–04 to 2007–08). The production of eggs is increasing at over 6 per cent per annum (2003–04 to 2007–08) with India being the fourth highest producer of eggs in the world. Further growth in this organized segment requires focus on improved Feed Conversion Ratios (FCR) and tackling of outbreak of diseases like Avian Influenza and other newer emerging diseases.

FISHERIES

4.102 Fish production is targeted to reach 10 million tonnes by the end of the Eleventh Plan from the base level of 6.87 million tonnes during 2006–07. Out of the two segments of fish production, marine fish production has reached stagnation at around 3.0 million tonnes and there seems to be no further scope to raise this output. Inland fish production has been

growing steadily and reached a level of 4.2 million tonnes during 2007–08. India has considerable scope to raise production of a variety of inland fish species and aquaculture. There are a number of areas where private sector investments or projects in the PPP mode can be promoted. These include composite fish culture, ornamental fisheries, establishment of extruded pellet production plants, commercial ventures in the cage and pen culture, domestic marketing, and management of fishing harbours.

4.103 An analysis of the fisheries sector shows that it grew by 5.9 per cent during the first two years of the Plan. Its exports crossed Rs 8,000 crores. The National Fisheries Development Board (NFDB) has become fully functional and has reached out to the states. However, some of the areas that need attention include implementation of the Model Inland Fisheries and Aquaculture Bill; adoption of fish seed certification and hatchery accreditation guidelines; installation of quarantine systems for fish and shellfish; establishment of brood-fish banks and seed banks for carps and catfish; implementation of the Code of Conduct for Responsible Fisheries (CCRF) and regulations in coastal fisheries; greater facilitation of fishing harbours and provision of facilities at jetties; installation of Vessel Monitoring Systems (VMS) and Fish Aggregating Devices (FADs); evolving guidelines for Illegal, Unregulated, and Unrecorded (IUU) fishing in compliance with the EU requirements effective from January 2010; marine fisheries census, 2010, along with assessment of income, health, and literacy levels of fishers; strengthening domestic markets for fish and fish products; strengthening the database and GIS in both marine and inland fisheries; and more focused programmes by NFDB towards reservoir fisheries and domestic marketing.

4.104 As indicated earlier, the growth of this high-value segment (horticulture, livestock, and fisheries) has to be demand-led, from plate to plough and very closely coordinated between input suppliers, farmers (especially small holders by 'clustering' them into groups), logistics players (including cold storages and warehouses), large-scale modern processers, and organized retailers in an integrated value chain of the modern agri-system. The major players driving this change will come from the private sector. The role of government policy is to create an enabling environment for private entrepreneurs to enter this agri-system, coordinate the sourcing of their supplies from millions of farmers, and delivering them to consumers in processed or fresh forms. This requires a high degree of coordination all along the value chain, and only then will the risks be minimized and the benefits accrue to farmers, which incentivizes them to produce more.

PRIORITIES FOR THE REMAINDER OF THE ELEVENTH PLAN

4.105 Since rapid growth of the high-value segment of agriculture is essential for achieving 4 per cent agricultural growth, it is necessary to evolve a comprehensive strategy to achieve this objective (see Box 4.4).

Box 4.4
Accelerating Agri-Growth through the High-Value Segment (Horticulture, Livestock, and Fisheries)

Accelerating agri-growth through the high-value segment (horticulture, livestock, and fisheries):

- Incentivize the states to ensure that APMC is reformed and notified for direct buying from farmers; encourage 'clustering' of farmers in groups through NGOs, be it in the form of cooperatives, farmer clubs, or contract farming.
- Promote a model land lease act to free up the lease market.
- Encourage NABARD to re-finance SHGs at a 7 per cent interest rate with the condition that they will not charge more than 11 per cent from farmers.
- Encourage organized logistics players, processors, and modern retailers (both domestic and foreign) by freeing them from any restrictions and supporting them to form links directly with clusters of farmers.
- Rationalize taxes and commissions by abolishing them on fresh produce and replacing them by taxes only on value addition.

Work on Reforming the Three 'I's: Investments, Incentives, and Institutions

4.106 While public investment in agriculture is critical and important, in reality it forms only less than one-third of the total investment in agriculture, two-thirds coming from the private sector, including as farm investmernt. The private sector depends critically on incentive structures in agriculture. Thus, reforming the incentives in agriculture is as important, if not more, as public investments in agriculture, to spur private investments that can transform agriculture (see Box 4.1).

Reforming Incentives

4.107 Price and Marketing Policy: The main government intervention in agricultural markets currently comes through its policy of MSP for 24 crops. In practice, however, it works for rice, wheat, sugarcane, and cotton, where in there is some significant degree of procurement. Over time, this MSP has become de-facto an incentive price and discourages farmers to diversify into high-value crops that do not have such a support or procurement price.

4.108 To make the system more market-oriented, it is critical to de-link support price from procurement price, where the latter can be changed (up or down) depending upon market conditions and in full competition with private trade within the same marketing year. This calls for abolition of all levies (on rice or sugar), free movement of goods across the country (one unified national market), abolition of stocking limits, of export bans, and of bans on future markets on private trade. The country has been debating this for a number of years, but the system remains full of strangling controls dissuading any major private sector investments in logistics and storage. The net result is huge wastage and losses in the fragmented value chains. State governments must recognize that these controls persist because of vested interests and they must be removed in the interest of both the farmers and the final consumer.

Reforming Institutions

4.109 Marketing and Warehouse Facilities: Improving marketing conditions and encouraging private sector participation require reforming the APMC Act and abolishing the Essential Commodities Act (ECA). What started as a protective regime to prevent exploitation of farmers in marketing their produce and ensuring fair prices has resulted in excessive government control. Cleaning up these archaic provisions can trigger private sector investment in developing regularized markets, logistics and warehouse receipt systems, futures markets, and in infrastructure (such as cold storage, grades and standards, and quality certification) for large domestic markets as well as imports and exports.

4.110 These steps are particularly relevant for the high-value segment that is currently hostage to high post-harvest losses and weak farm–firm linkages. The introduction of the Model APMC Act in 2003 was directed towards allowing private market yards, direct buying and selling and also to promote and regulate contract farming in high-value agriculture. Several states (about 16) have passed a new act but only Andhra Pradesh, Rajasthan, Maharastra, Orissa, Himachal Pradesh, Karnataka, Madhya Pradesh (only for special licence for more than one market), and Haryana (only for contract farming) have notified the amended rules so far. Tamil Nadu already has provisions for the envisaged reforms and Bihar (act repealed), Kerala, Manipur, and the UTs (except Delhi and Puducherry) do not have the APMC Act and hence do not require these reforms. The Planning Commission should undertake an evaluation study of the way APMC reforms are being implemented in different states with a view to making specific recommendations for the Twelfth Plan.

4.111 Reforming Land and Credit Markets: Linking small and fragmented farms with large-scale processors and retailers remains a challenge in the high-value sector, and restricted land (lease) markets tend to compound the problem. Allaying the fears of a farmer from possible alienation from his own land on leasing out land to the retailer and processor requires freeing up land lease markets. Legalizing lease markets protects the interests of the retailer and processor and enables him to undertake larger investments. In this context, it may be helpful to ensure registration of land deeds and computerization of land records (as Karnataka

and Andhra Pradesh have done) for bringing about greater transparency and reliability.

4.112 The land and credit markets are intricately linked and improving the land markets will enhance farmers' access to institutional credit that requires pleading of collaterals. One of the most cost effective ways of reaching credit or insurance services to the farmers is through the cluster approach. According to NSSO's 2003 estimates, farmer households with less than 2 ha of land accounted for 80 per cent of the indebted farmer households, and availed nearly 50 per cent of their loan requirements from non-institutional sources. What aggravates their plight is that nearly 38 per cent of loans is acquired at a staggering rate of 30 per cent. One could think of bringing traditional moneylenders into the organized network as Non-Banking Financial Intermediaries (NBFIs), wherein NABARD can take the responsibility of refinancing them, say at an interest rate of 7 per cent, while they can still charge farmers up to a 12 per cent rate of interest. A similar approach can be adopted with SHGs to bring down the rates of interests for farmers.

4.113 Freeing the Restrictions on Organized Retail, Mainstreaming *Kirana* Stores through Franchises, and Clustering Farmers in Groups: For the agri-system to be demand-led, restrictions on FDI in organized retail (multi-brand) need to be eased to create competition for domestic players, but more importantly, to bring in new technologies and management practices. The concerns of *kirana* stores can be accommodated by mainstreaming them in modern value chains through the franchise route (say by reserving 20 per cent space for franchises). The small farmers need to be 'clustered' through cooperatives, or farmers clubs or contract farming to create a scale in marketing their produce. Government policy needs to encourage this through NGOs, which will also help correct the power balance within the value chain.

4.114 Rationalizing Taxes and Commissions on Fresh and Processed Agri-produce: Although agriculture income is supposed to be free from income tax, there are several taxes and commissions that are imposed on fresh agri-produce; these have become even bigger as the produce is processed. In Azadpur market, for example, the commission rates range from 6 to 10 per cent and in Vashi market in Mumbai from 8 to 14 per cent. As these goods get processed, the tax burden goes up further making the processed goods out of range for a large mass of the consumers. These taxes need to be cut down drastically, and commissions and purchase taxes on fresh produce need to be brought to less than 1 per cent, to give a major boost to this high-value segment. The private sector should be encouraged to set up its own mandis to attract commission and tax-free transactions. This will encourage large investments to modernize the deteriorating and messy mandi system, saving billions worth of fresh produce from rotting.

THE LAND QUESTION

4.115 India has had a long history of social discrimination, especially against scheduled castes and women, which has denied them access to land. Specific land tenure systems prevailing at the time of independence also created their own set of problems. The deteriorating quality of land records administration over the last four decades has compounded the hardships of the poor. And in the recent past, the drive to acquire land for development has posed fresh challenges, most especially for scheduled tribes. The last few years have also witnessed a number of new government initiatives, including the Hindu Succession (Amendment) Act, 2005, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, and the National Rehabilitation and Resettlement Policy, 2007, which are a response to both historical injustices and recent challenges.

4.116 A Land Acquisition (Amendment) Bill and a Rehabilitation and Resettlement Bill have also been proposed and are under consideration by the Parliament. In January 2008, the Prime Minister approved the constitution of two high level bodies—the National Council for Land Reforms under the Chairmanship of the Prime Minister and a Committee on State Agrarian Relations and the Unfinished Tasks in Land Reforms under the Chairmanship of the Union Minister for Rural Development. Expeditious and effective action on these initiatives is of the utmost importance, given the growing disenchantment with

the state, especially in the remote hinterlands of tribal India, where governance is breaking down and Maoism poses a stern challenge to Indian democracy.

Land Records

4.117 Accurate and updated land records are a veritable lifeline for millions of small and marginal farmers in India. They provide them security against a range of vulnerabilities and allow them to access credit and agricultural inputs, as also the benefits of various anti-poverty programmes. In most states a multitude of departments are involved in land record management. People need to approach several agencies to obtain complete land records—the Revenue Department for textual records and mutations; Survey and Settlement (or Consolidation) Department for maps; Registration Department for verification of encumbrances and registration of transfer, mortgage, and so on; and panchayats for mutation. The harassment they potentially suffer can be imagined. Also because these departments work in relative isolation from each other, updation by any one of them makes the records of the others outdated. Absence of integration of textual and spatial records makes it hard to get maps-to-scale with the records of rights (RoRs).

4.118 Unambiguously recorded land rights, which are firm in law, are the foundation for investments in higher farm productivity. On the other hand, chaotic land management results in sporadic encroachments and fratricidal litigation, at great cost to the poor. It also creates a governance regime within which rent-seeking and exploitation of the weak flourish unchecked.

4.119 Once land revenue began to decline in significance as an element in state income, especially in the 1970s, land record administration underwent great neglect. The most important activity for updating land records—original survey for cadastral mapping—has been neglected by many states. In many areas, especially the tribal hinterlands, land records have not been updated for decades. Mutation of names in the records does not happen (as it should) upon transfer of possession and ownership of land. Millions of cases of mutation and measurement remain pending across the country.

4.120 The current system of land registration in India is based on the Registration Act, 1908, which provides for registration of deeds and documents, and not titles. Only the transaction is recorded. The transfer of ownership title remains merely presumptive. The massive time-lag between registration and mutation provides space for fraudulent transactions, such as in land and litigation. An alternative and more direct system used in many other countries (such as the US, UK, Australia, New Zealand, Canada, Switzerland, Singapore, Kenya, and Malaysia) is that of 'conclusive titles' (Torrens System), which confers a legal indefeasible title to the holder of the land.

4.121 The system of conclusive titles is based on four fundamental principles: (a) a single agency to handle land records to ensure consistency and reduce conflicts between different sources; (b) the 'mirror' principle, whereby the cadastral records mirror the reality on the ground; (c) the 'curtain' principle, which indicates that the record of the title is a true depiction of ownership status, so that mutation is automatic following registration, referring to past transactions is not necessary and the title is a conclusive, rather than a mere presumptive, proof of ownership; and (d) title insurance, which guarantees the title for its correctness and indemnifies the title holder against loss arising on account of any inaccuracy in this regard. At present, land records in India do not reflect any of these principles.

National Land Records Modernization Programme

4.122 In order to move decisively in the direction of a Torrens System of land records in India, the National Land Records Modernization Programme (NLRMP) was launched in 2008. The NLRMP was formed by the merger of two pre-existing CSSs—Strengthening of Revenue Administration and Updating of Land Records (SRA&ULR, started in 1987–88) and Computerization of Land Records (CLR, launched in 1988–89). The main aims of NLRMP are:

- To usher in real-time land records
- Automated and automatic mutation
- Integration between textual and spatial records
- To ultimately replace the present deeds registration

and presumptive title system with that of conclusive titling with title guarantee (see Box 4.5).

Citizen Services and Benefits

4.123 Real-time records will be available, which will be tamper-proof. Automatic and automated mutations will significantly reduce scope for fraudulent deals. Since records will be placed on the website with proper security IDs, landowners will have free access to their records while maintaining confidentiality. Single window service or web-enabled anytime-anywhere access will save time and effort. Due to IT interlinkages, time for obtaining RoRs and maps will reduce drastically. Free access will decrease interface with officials, thereby reducing corruption and harassment.

4.124 Abolition of stamp papers and payment of stamp duty and registration fees through banks will also reduce interface with the registration bureaucracy.

4.125 Conclusive titling will reduce land disputes and litigation. E-linkages to credit facilities will become possible. Certificates based on land data (domicile, caste, income, and so on) will become available through the web. Issue of land passbooks will become easier.

IMPLEMENTATION AND TIME-FRAME

4.126 A district will be taken as the unit of implementation, where all activities under the programme will converge. The NLRMP is to be implemented in a time-bound manner and all the districts in the country are expected to be covered by the end of the Twelfth Plan. The country could move into a Torrens System during the Thirteenth Five Year Plan.

Progress So Far

4.127 The manual distribution of RoRs has stopped in eight states. In 18 states legal sanctity to computerized copies of RoRs has been accorded. In 11 states, RoRs have been placed on websites. Twenty states have taken up digitization of cadastral maps, while 15 have begun effecting mutations using computers.

4.128 Computer centres have been set up in 4,434 tehsils/taluks, 1,045 sub-divisions, 392 districts, and 17 state headquarter monitoring cells. Sixteen states have completed the construction of about 1,200 land record rooms, while nine states have completed the construction of about 2,000 patwari/talathi office-cum-residences. In 19 states revenue/survey training institutes have been strengthened through construction, renovation, upgradation, and providing modern equipment.

THE UPCOMING CHALLENGES

4.129 There are several challenges that will need to be tackled in the coming years. As much as 2.16 million sq. km of cultivable area has to be surveyed. The survey and settlements have to be done for 140 million landowners with 430 million records. There are 92 million ownership holdings each with 4–6 parcels of land. Around 42 million field measurement blocks and around 1 million village maps have to be digitized.

4.130 Establishing Ground Control Points (GCPs) across India over 3.29 million sq. km will be a major challenge. So far, 300 GCPs (satellite) have been established at a spacing of 200–300 km; 2,220 points at a distance of 30 to 40 km (aerial) have to be undertaken in the second phase; the third phase will have GCPs at a spacing of 8 to 10 km (cadastral). Further, 42 million field measurement books and 1 million village maps will have to be digitized.

4.131 Of the 4,018 registration offices in the country, 1,896 are yet to be computerized. Nearly all of them have to be interlinked with the state revenue departments. As many as 1.5 lakh patwaris, the staff of 5,000 tehsils, 4,000 registration offices, and 50,000 survey staff need to be trained.

4.132 These challenges demand a greatly stepped up order of preparation on the part of the Department of Land Resources and the states. The most critical bottleneck that is likely to arise is in the capacity building of human resources. There is need to both strengthen the profile of the personnel deployed, as also to train those currently in service, whose skill sets are currently completely out of sync with the demands posed by the radically new architecture visualized for NLRMP.

Box 4.5
Core Activities under NLRMP

1 Computerization of all land records including data entry/re-entry/conversion of all textual records (current land records, mutation, and other land attributes data), digitization of cadastral maps, integration of textual and spatial data, data centres at tehsil/district/state levels, and inter-connectivity among revenue offices.
2 Surveying/re-surveying and updating all survey and settlement records using various modern technology options, including high resolution satellite imagery (HRSI) and the global positioning system (GPS).
3 Computerization of registration: Computerization of the Sub-Registrar's offices (SROs), data entry of valuation details, entry of legacy encumbrance data, and scanning and preservation of old documents.
4 Modern record rooms/land records management centres at tehsil/taluk/circle/block levels
5 Creating a core Geographic Information System (GIS): Village index base maps by geo-referencing cadastral maps with satellite imagery for creating the core GIS.
6 Training and capacity building: Training, workshops, strengthening of the survey and revenue training institutes.
7 Necessary legal changes: Amendments to Registration Act, 1908, the Indian Stamp Act, 1899, and a new model law for conclusive titling.
8 Programme management activities like programme sanctioning and monitoring committee, Core Technical Advisory Group, IEC activities, and evaluation.
9 Establishing inter-connectivity among revenue and registration offices using appropriate technology.

Land Ceiling

4.133 Ever since independence, land reforms have been a major instrument of state policy to promote both equity and agricultural investment. Unfortunately, progress on land reforms has been slow, reflecting the resilience of the structures of power that gave rise to the problem in the first place. The 2003 NSS data shows that 14 million (10 per cent) rural households in India are landless. Independent estimates suggest that this figure may actually be much higher. While the average landholding size over the last 30 years has halved from 2 ha to 1 ha, inequality in landholdings has grown with the Gini coefficient rising from 0.583 in 1960–61 to 0.624 in 2003. Over 80 per cent of the farmers are small and marginal but they own only around 40 per cent of the operated land area, whereas the largest 3 per cent farmers own 38 per cent of the land.

4.134 The main instrument for realizing more equitable distribution of land is the land ceiling laws. These laws were enacted by several states during the late-1950s and 1960s; the early 1970s saw more stringent ceiling laws to plug loopholes in the earlier laws. But the record of implementation has been dismal. Around 3 million ha of land has been declared surplus so far, which is hardly 2 per cent of the net sown area in India. About 30 per cent of this land has not yet been distributed, being caught up in litigation. Besides, a number of benami and clandestine transactions have resulted in illegal possession of significant amounts of land above ceiling limits. There are widespread reports of allotment of inferior, unproductive, barren, and wasteland to landless households, many of whom have been forced to sell it off in the absence of resources to make it productive. In many instances land allotted to the rural poor under the ceiling laws is not in their possession. In some cases, *patta*s were issued to the beneficiaries but possession of land shown in the *patta*s was not given or corresponding changes were not made in the records of rights.

4.135 The balance of power in rural India is so heavily weighed against the landless and the poor that implementing land ceiling laws has become a virtual non-starter. It is clear that without massive mobilization of the rural poor and a deepening of democratic governance in rural India, very little can be achieved in this direction. West Bengal, with more than half of India's ceiling surplus land beneficiaries, provides an example of what could be achieved. The Eleventh Plan outlines a charter of reforms that could help achieve some progress:

- Speedy disposal of court cases to release and distribute landlocked in litigation.

- Where land has been distributed but there is lack of a well-defined title, survey and reopen the cases and restore the land to the entitled family.
- Special squad of revenue functionaries and gram sabha members to identify benami and fictitious transactions in a time-bound manner.
- Survey of government land encroached upon by ineligible persons and distribution to the landless.
- Inventory of government land so that surplus land could be distributed to the landless.
- Purchase of land by the state for distribution to the poor.

Tenancy Reform

4.136 Unfortunately, most tenancy laws have driven tenancy underground or made it even more informal (see Box 4.6). Micro-studies from different states show that the proportion of leased-in land is significantly higher than reported by both the NSS and the Census. In some cases, it is much as high as 20–25 per cent of the gross cultivated area. Tenancy contracts are oral and for a short period. The proportion of leased-in land is higher in agriculturally developed regions compared to backward regions. All classes of households participate in the lease market both as lessors and lessees. However, while in backward agricultural regions, the traditional pattern is more common wherein the small and marginal farmers dominate the lease market as lessees and large and medium farmers as lessors, in agriculturally advanced regions, the lease market is in a state of transition where all classes of households participate. The trend towards reverse tenancy is more pronounced in these regions.

4.137 The Report of the Eleventh Plan Sub-Group on Land Related Issues suggests that there is, therefore, a strong case for legalizing tenancy and allowing leasing-in and leasing-out land with adequate safeguards to protect the interests of small and marginal farmers. Liberalization of the lease market does not mean abrogation of existing tenancy legislations. These must be suitably amended to permit leasing-in and leasing-out of land, while making ownership rights non-alienable and secure, fixing tenure of lease, recording of lease, and allowing landowners to resume land for cultivation after expiry of lease. Reforming tenancy laws would allow all sections to appropriately participate in the lease market depending upon their resource endowment.

4.138 Studies have shown that in states like Punjab and Haryana, large and medium farmers who lease-in land from small and marginal farmers invest in modern inputs, reap economies of scale, and raise farm productivity. The small and marginal farmers who lease-out their land also gain in terms of occupational mobility and higher incomes. In other states like Bihar and Orissa, with low wages and fewer employment opportunities, small and marginal farmers lease in land, enlarge their holding sizes, and thus afford a reasonable level of living with all attendant benefits of tenancy like borrowing from financial institutions. The medium and large farmers in these states migrate to urban areas to take up non-farm employment opportunities without any risk of losing their land. When their livelihoods become secure in the non-farm sector, they could sell their land. Liberalizing tenancy also helps in the consolidation of holdings as farmers prefer to lease out rather than sell a piece of land that is inconveniently located. Long-term tenancy contracts would also help raise agricultural productivity.

Women and Agricultural Land

4.139 The Hindu Succession (Amendment) Act (HSAA), 2005, makes significant amendments in the Hindu Succession Act, 1956, correcting existing inequities in women's rights to agricultural land, Mitakshara joint family property, parental dwelling house, and certain widow rights. This is a landmark legislation which lays the foundation for correcting gender inequality in property rights over land.

4.140 The challenge now is to ensure the implementation of these provisions. This will require a major drive towards awareness generation, not only among women but also revenue officials. Women's groups and civil society organizations must first acquaint themselves with the changes made under HSAA and then play a major role in this drive, ensuring that awareness is followed up by action on the ground.

Forest Rights Act

4.141 The passage of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest

Rights) Act, 2006, has set the scene for the correction of the historical injustice suffered by India's forest dwellers and tribal people. The effective implementation of the Forest Rights Act holds out the promise that finally the enormous bounty of natural resources that India's tribal areas are endowed with can be harnessed for the holistic development of the tribal people themselves. However, there are many concerns regarding the implementation of the Act on the ground. Overcoming these is vital if state power has to regain legitimacy in the eyes of the tribal people who have experienced growing alienation from the mainstream and have been caught in the internecine cross-fire of the Maoists and security forces.

4.142 The long history of tensions between the Forest Department and the tribal people are casting a shadow over the process of verification of claims to land. There is a need to also strengthen capacities of the gram sabhas to handle the onerous responsibilities they has been charged with. As per the Act, the gram sabha's recommendations have to go through two screening committees at the block and district levels. The district level committee makes the final decision. There are complaints that the procedures followed by these supra-local committees, which screen the decisions of the gram sabha, are often non-transparent. It is important that no changes are made in gram sabha decisions without placing the proposed changes before the gram sabha for consultation and approval. The verification by the block committee should be done transparently before the gram sabha.

4.143 The Act is not solely or even primarily about individual land claims. The most powerful sections of the Act concern the community's right to manage,

Box 4.6
Four Categories of States Based on Legal Restrictions on Leasing of Land

S. No.	State	Sections under which Leasing is Permitted	Category of Persons Permitted
1	Andhra Pradesh (Telangana area)	The Andhra Pradesh (Telangana Area) Tenancy and Agriculture Lands Act, 1950 (Section 7)	Disabled; Armed Forces Personnel; those landowners who own not more than three times a 'family holding' may lease out
2	Bihar	Bihar Land Reforms Act, 1961	Disabled; Armed forces; SC/ST/OBC may lease out
3	Karnataka	Karnataka Land Reforms Act, 1961 (Section 5)	Soldiers and seamen
4	Madhya Pradesh	Madhya Pradesh Land Revenue Code, 1959	Disabled, Armed forces personnel, or those imprisoned, others many also lease out for one year in any three years
5	Uttar Pradesh	Uttar Pradesh Zamindari Abolition and Land Reforms Act (Section 1957)	Disabled; armed forces personnel, imprisoned or bona fide students
6	Himachal Pradesh	Himachal Pradesh Tenancy and Land Reforms Act, 1972	Minor unmarried women, widow, divorce, disabled, or defence personnel

A. Leasing of land totally prohibited irrespective of any category: Kerala, J&K, Manipur
B. Leasing of land permitted to the following category of persons
C. States where there is no general restriction on leasing of land Andhra Pradesh (Andhra area), Orissa, Rajasthan, Haryana, and Punjab
D. States where leasing is permitted but the tenant acquires right to purchase land
   i. Assam: An ordinary tenant acquires right to occupancy after three years continuous possession and occupancy tenant has a right to purchase leased land.
   ii. Gujarat: Every tenant has a right to purchase leased land within one year of tenancy.
   iii. Haryana: Tenant acquires right to purchase leased land after six years of continuous occupation.
   iv. Maharashtra: Every tenant has a right to purchase leased land within one year of tenancy.
   v. Punjab: Tenant acquires right to purchase leased land after six years of continuous occupation.

protect, and conserve forests, the first step towards a genuinely democratic system of forest management. But action on this has been extremely slow. Recently, the villages of Mendha-Lekha and Marda in the Maoist affected Gadchiroli district of Maharashtra became the first two villages in India to be handed over the RoRs for community ownership of surrounding forests under the Act. This achievement reflects the many years of peaceful mobilization of the tribal people there.

Security of Homestead Rights

4.144 NSS data indicate that around 7.70 million households in rural India do not have homestead sites, without which they are unable to fulfil their need for shelter and avail benefits under various government housing schemes. The Eleventh Plan had set a target of providing homestead sites to all by 2012. In 2009 a proposal for providing homestead sites to rural BPL households was approved. Beneficiaries were to be selected from the permanent Indira Awas Yojana (IAY) waitlists as per priority in the list. Only those BPL households that have neither land nor house site would be eligible. In the first instance, the state government will regularize the land as a homestead site if it is presently occupied by a BPL household and if regularization is permissible as per the existing acts and rules. If this is not the case, the state government will allot suitable government land as homestead site to the eligible BPL household. In case suitable government land is not available for allotment as homestead sites, private land may be purchased or acquired for this purpose.

4.145 Financial assistance of Rs 10,000 per beneficiary or actual, whichever is less, will be provided for purchase/acquisition of a homestead site of an area around 100–250 sq. m. Funding will be shared by Centre and the states in the ratio of 50:50 while in the case of UTs, the Central Government will fund 100 per cent of the cost. The total central allocation for the scheme for the Eleventh Plan period would be Rs1,000crore (Rs 200 crore for 2009–10, Rs 300 crore for 2010–11, and Rs 500 crore for 2011–12). This amount is sufficient to meet about 25 per cent of the total requirement. State governments are expected to meet the remaining 75 per cent of the requirement by regularizing the presently occupied land, if any, or by allotting surplus government land, to fulfil the target set by the government for providing homestead sites to all by 2012. State governments will be incentivized by sanctioning additional houses under IAY to the extent homestead sites are provided to the landless rural BPL households.

Shift in Land Use from Agriculture to Non-Agriculture

4.146 As can be seen from Table 4.7, there has been a decline in net sown area of approximately 2 million ha over the last decade. While, on the one hand, this can be seen as an expected outcome of diversification of growth in rural India towards the non-agricultural sector, there is an equally valid concern regarding the future of agricultural output and agriculture-based livelihoods. An effort needs to be made to smoothly resolve the resulting trade-offs.

4.147 This becomes especially important because the last two decades have seen major contention over the issue of land acquisition and the rights of those displaced by development projects. Independent estimates place the number of people displaced following development projects over the last 60 years at 60 million, only a third of whom have been resettled in a planned manner. Most of these people are assetless rural poor, marginal farmers, poor fishermen, and quarry workers. Around 40 per cent of those displaced belonged to STs and 20 per cent to SCs. Given that 90 per cent of our coal, more than 50 per cent of most minerals, and the most prospective dam sites are in tribal regions, there is likely to be even more contention over issues of land acquisition in areas inhabited by some of our most deprived people. The national Rehabilitation and Resettlement (R&R) policy is a landmark initiative that lays the foundation for more satisfactory solutions to these conflicts in the future.

4.148 The preamble to the R&R Policy enunciates the three minima that must become the charter for all land acquisition processes hereon:

- Minimize the displacement of people due to the acquisition of land for the project.

- Minimize the total area of land to be acquired for the project.
- Minimize the acquisition of agricultural land for non-agricultural use in the project.

4.149 The R&R Policy constitutes a major step forward in protecting the interests of the weakest sections of society. The real challenge is the implementation of this policy in accordance with its true spirit, which is to make displacement of people the option of last resort and to safeguard the livelihoods of those displaced, if it were to be regarded as a completely unavoidable option. This demands a number of facilitating provisions to give teeth to the policy. These include ensuring that:

- The search for alternatives is a tangible process carried out transparently and involving all stakeholders.
- The meaning of public purpose is very carefully defined in a way that has unambiguous credibility.
- The social impact assessment is conducted by a credible independent agency with multi-disciplinary professional capabilities.
- The compensation scheme has unquestioned credibility. This requires that an independent regulatory commission with judicial powers oversees the whole process. All officials sought to be appointed under the policy would be answerable to this commission.
- The entire R&R process is completed before displacement/submergence takes place.

4.150 A major question that has arisen over the R&R Policy is its compatibility with the proposed Land Acquisition (Amendment) Bill (LAAB) and earlier land acquisition initiatives such as the SEZ Act. The key issue appears to be the doctrine of 'eminent domain'. The Supreme Court traces the doctrine to Hugo Grotius (*De Jure Belli et Pacis*, 1625):

> The property of subject is under the eminent domain of the state, so that the state or he who acts for it may use and even alienate and destroy such property … for ends of public utility, to which ends, private ends should give way … the state is bound to make good the loss to those who lose their property.

4.151 This doctrine is reiterated in LAAB. A blanket sanction to 'public purpose' is, therefore, a serious weakness. The fact that the Supreme Court has held that the state is the 'trustee of all natural resources' must be regarded as posing a challenge to the doctrine of eminent domain, for it qualifies the assertion of absolute sovereign power by the state over natural resources. Of course, everything hinges of the meaning given to public purpose. LAAB also does not include the three minima of the R&R Policy. Nor does it have an inclusive definition of PAFs, which is a hallmark of the R&R Policy. Thus, the inclusion of agricultural labourers and non-agricultural labourers, SC/ST families, vulnerable persons (disabled, destitute, orphans, widows, unmarried girls, abandoned women, or persons above 50 years of age, without alternative livelihoods), and the landless, is a very significant provision in the R&R Policy which must become part of LAAB. The LAAB and the SEZ Act also appear inconsistent with land ceiling laws and do not incorporate the special protection for STs in the Indian Constitution, whether those under Schedules V and VI, the Panchayats (Extension to the Scheduled Areas) Act, 1996, or the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

4.152 These are not minor matters of detail or legal inconsistency. They go to the very heart of what is being attempted through the R&R Policy. It needs to be clearly understood that the process of industrialization or infrastructure development in rural India cannot be sustained in the long-run if opposition by PAFs continues unabated and they are not made the very first beneficiaries of its outcomes. It has been estimated that 70 per cent of 190 infrastructure projects in the pipeline have been delayed due to land acquisition problems. An enlightened state policy aimed at ensuring long-term sustainability of the process must gain decisive ground over a short-sighted recourse to available legal loopholes. Only a win-win scenario can give momentum to the entire process. There are many possibilities here which need to be regarded as very small investments that ensure the long-term sustainability of the development process. One is to provide land in the command area of

irrigation projects, as mentioned in the R&R Policy. The other is to utilize the long period that separates project initiation and land acquisition as also the gap between first notification, displacement, and project construction to train PAFs in skills that could be used for the project. Facilities and products created by the project could be made available to PAFs. Compensation could also be tied more closely to future valuations in an inflation-adjusted monthly pension combined with a savings bond. The pension could be partially tied to the profits of the project. The best way could be to make PAFs shareholders in the proposed project given their contribution to a key element of share capital. The safest way to disincentivize land acquisition from degenerating into a real estate proposition (as it has, reportedly in quite a few cases) is to resort to leasing or temporary alienation, which will not severe the relationship of the landowner with her land. This would mean that if the project does not take off or shuts down or comes to a close, the land would be returned to the original landholder.

4.153 It is only these kinds of win-win scenarios that can help reinforce the faith of people in the democratic process, which is under strain in the remote hinterlands of India. The way forward is to move away from the vision of 'subjects' inherent in the eminent domain doctrine towards citizens, whose rights are guaranteed under the Constitution. Ultimately, we have to go beyond narrow legality to seek broader legitimacy. This demands giving a cutting-edge to the many generous provisions of the R&R Policy, making each of them mandatory and not reducing them to what they are in effect—conditionalities without consequences. But it also requires an unequivocal commitment to imaginatively explore ways of rebuilding the livelihoods of those adversely affected by development projects.

ANNEXURE 4.1

Rashtriya Krishi Vikas Yojana and Plan Expenditure on Agriculture and Allied Sectors by States/UTs

(Rs crore)

S. No.	States/UTs	Actual Expenditure 2007–08			Actual Expenditure 2008–09			Revised/Approved Outlay 2009–10			Average expenditure on agriculture & allied sectors during 2007–08 to 2009–10
		Agriculture & allied sector	Released under RKVY	RKVY as a per cent of agriculture expenditure	Agriculture & allied sector	Released under RKVY	RKVY as a per cent of agriculture expenditure	Agriculture & allied sector	Released under RKVY	RKVY as a per cent of agriculture expenditure	
1	2	3	4	5	6	7	8	9	10	11	12
1	Andhra Pradesh	994.04	61.08	6.14	2,636.62	297.17	11.27	854.86	410.00	47.96	5.0
2	Arunachal Pradesh	89.26	1.90	2.13	96.49	0.00	0.00	134.21	15.98	3.00	6.8
3	Assam	222.71	0.00	0.00	381.62	144.12	37.77	517.54	79.86	15.43	8.1
4	Bihar	283.74	57.77	20.36	657.69	148.54	22.59	765.30	110.79	1.54	4.4
5	Chhattisgarh	876.24	52.96	6.04	655.44	117.45	17.92	975.00	131.78	13.52	10.4
6	Goa	54.49	1.70	3.12	65.34	0.00	0.00	77.75	0.00	0.00	3.8
7	Gujarat	925.91	49.81	5.38	1,144.85	243.39	21.26	1,359.67	386.19	28.40	5.7
8	Haryana	204.36	21.52	10.53	309.10	39.50	12.78	409.68	112.77	29.97	4.0
9	Himachal Pradesh	213.75	16.17	7.56	248.98	15.11	6.07	327.72	33.02	10.08	11.1
10	Jammu & Kashmir	104.12	0.00	0.00	142.68	1.20	0.84	246.61	42.05	17.05	3.4
11	Jharkhand	336.29	55.68	16.56	283.47	29.31	10.34	357.00	70.13	19.64	4.8
12	Karnataka	1,415.05	154.30	10.90	1,638.43	314.14	19.17	1,805.56	410.00	22.71	7.3
13	Kerala	536.82	55.40	10.32	575.92	30.06	5.22	697.30	110.92	15.91	7.9
14	Madhya Pradesh	619.08	101.62	16.41	580.77	146.05	25.15	944.33	247.44	18.87	5.3
15	Maharashtra	964.80	128.20	13.29	1,324.84	261.77	19.76	2,589.87	404.39	13.36	6.8
16	Manipur	22.59	0.00	0.00	38.48	0.90	2.34	52.01	5.86	11.27	2.5
17	Meghalaya	98.07	6.37	6.50	126.29	6.77	5.36	165.55	24.68	14.91	9.7
18	Mizoram	71.42	0.00	0.00	79.98	0.80	1.00	74.90	0.00	0.00	8.3
19	Nagaland	88.86	3.19	3.59	101.82	6.95	6.83	130.77	20.38	15.58	9.7
20	Orissa	269.39	39.30	14.59	415.14	115.44	27.81	449.68	121.49	27.02	5.2
21	Punjab	142.64	36.05	25.27	165.25	87.52	52.96	224.00	43.23	19.30	2.8
22	Rajasthan	449.96	55.76	12.39	604.71	233.76	38.66	760.45	186.12	24.47	3.8
23	Sikkim	50.77	2.77	5.46	71.00	5.68	8.00	72.00	15.29	21.24	7.4
24	Tamil Nadu	1,307.65	153.60	11.75	1,307.65	140.38	10.74	1,335.41	127.90	9.58	8.0
25	Tripura	96.69	4.16	4.30	129.71	16.08	12.40	243.67	31.28	12.84	10.9
26	Uttar Pradesh	1,805.89	103.99	5.76	2,130.75	316.57	14.86	2,280.75	390.97	17.14	6.5
27	Uttarakhand	444.60	28.25	6.35	458.52	10.30	2.25	324.13	71.36	22.02	9.8
28	West Bengal	257.50	54.93	21.33	364.45	147.38	40.44	459.66	147.38	32.06	3.2
	Total (States)	12,946.69	1,246.39	9.63	16,735.99	2,876.34	17.19	18,635.38	3,751.26	19.38	6.0

	UTs										
1	A&N Islands	32.26		0.00	40.00	2.26	5.65	54.96	1.28	2.33	4.6
2	Chandigarh	8.28		0.00	16.48	0.14	0.85	6.52	0.42	6.44	2.5
3	Dadra & Nagar Haveli	7.65		0.00	8.02	0.00	0.00	8.54		0.00	6.8
4	Daman & Diu	1.83		0.00	2.87	0.26	9.06	5.33		0.00	2.7
5	Delhi	14.97	0.10	0.67		0.00			0.24		
6	Lakshadweep	32.88		0.00	17.69	6.14	34.71	20.34	1.09	5.36	9.6
7	Puducherry	69.84	0.40	0.57	78.96	0.00	0.00	107.64	0.00	0.00	6.1
	Total (UTs)	167.71	0.50	0.30	164.02	8.80	5.37	203.33	3.03	1.49	4.2
	Distt. Agri. Plans+NIRD								1.98		
	Grand Total	13,114.40	1,246.89	9.51	16,900.01	2,886.80	17.08	18,838.71	3,756.27	19.19	5.9

ANNEXURE 4.2
Progress of Expenditure under Three Major Programmes of Department of Agriculture and Cooperation (DAC)

(Rs in crore)

S. No.	States/ UTs	NHM/TMNE			Macro-Management of Agriculture			National Food Security Mission		
		2007–08 Released	2008–09 Released	2009–10 *Released	2007–08 Released	2008–09 Released	2009–10 Allocation	2007–08 Expenditure	2008–09 Expenditure	2009–10 Allocation
1	2	3	4	5	6	7	8	9	10	11
1	Andhra Pradesh	78.36	129.68	95.66	46.43	34.28	65.35	26.07	83.78	147.15
2	Arunachal Pradesh	28.30	17.65	28.50	26.50	20.50	20.50			
3	Assam	26.80	36.75	39.00	15.94	8.12	16.26	2.75	30.42	27.28
4	Bihar	2.69	31.22	24.35	30.42	45.93	39.00	13.31	42.82	105.20
5	Chhattisgarh	62.52	30.00	60.00	24.55	21.70	21.7	1.98	53.71	85.79
6	Goa	0.03	1.00	1.50	4.32	1.40	1.00			
7	Gujarat	19.54	35.31	25.21	57.71	50.45	38.45	0.79	7.40	26.82
8	Haryana	64.76	33.00	56.00	22.5	23.00	16.90	3.62	22.99	39.40
9	Himachal Pradesh	24.00	21.00	17.00	22.14	25.85	20.00			
10	Jammu & Kashmir	20.00	18.15	17.00	25.54	30.26	36.60			
11	Jharkhand	7.81	50.00	30.84	8.50	5.32	10.65	0.00	4.49	11.93
12	Karnataka	85.71	125.36	80.01	73.46	48.85	50.25	2.21	18.71	62.49
13	Kerala	61.47	75.17		17.25	9.07	12.75	0.00	1.89	3.47
14	Madhya Pradesh	55.37	60.00	35.45	47.89	58.34	62.85	8.97	58.54	105.60
15	Maharashtra	132.24	130.21	91.73	120.34	103.13	92.75	7.42	68.90	104.40
16	Manipur	22.28	25.00	30.50	33.09	20.50	20.50			
17	Meghalaya	27	28.62	30.00	30	27.16	14.60			
18	Mizoram	30.95	30.50	35.00	9.25	14.25	23.25			
19	Nagaland	25.00	24.50	39.50	23.84	23.25	23.25			
20	Orissa	38.12	23.41	35.00	37.36	43.60	32.80	3.81	63.34	65.11
21	Punjab	24.09	14.12	25.78	6.5	17.50	17.50	24.29	43.52	56.88
22	Rajasthan	56.73	40.97	25.00	78.35	37.75	57.50	4.08	27.22	57.64
23	Sikkim	31.10	26.75	37.50	23.35	18.50	18.50			
24	Tamil Nadu	85.36	96.88	61.80	66.62	42.70	34.80	1.67	29.59	42.95
25	Tripura	24.00	17.00	30.00	14.44	18.50	18.50			
26	Uttar Pradesh	94.25	63.72	91.43	71.53	108.93	113.10	49.64	125.82	264.94
27	Uttarakhand	28.39	20.00	17.00	23.53	23.00	23.00			
28	West Bengal	6.81	6.07		33.64	38.11	44.25	9.23	38.52	88.08
	Total (States)	1163.68	1212.04	1060.76	994.99	919.95	946.56	159.84	718.54	1295.14
	UTs									
1	A&N Islands			2.00	0.20	0.08	0.08			
2	Chandigarh				0.10	0.00	0.00			
3	Dadra & Nagar Haveli					0.06	0.06			
4	Daman & Diu					0.00	0.00			
5	Delhi					0.00	0.40			
6	Lakshadweep	0.29			0.15	0.06	0.06			
7	Puducherry			0.33	0.25	0.17	0.40			
	Total (UTs)	0.29		0.29	0.7	0.37	1.00			
	Grand Total	1163.97		1061.05	995.69	920.32	947.56	159.84	718.54	1295.14

Source: Draft Eleventh Plan Mid-Term Review document of DAC.
Note: * Information provided by the DAC.

ANNEXURE 4.3
Consumption, Production, and Imports of Fertilizers, 2002–03 to 2008–09

(in lakh tonnes)

Year	Consumption	Production	Imports
2002–03	160.94	144.74	16.74 (10.4)
2003–04	167.98	142.66	20.18 (12.0)
2004–05	183.99	154.05	27.52 (14.9)
2005–06	203.40	155.75	52.53 (25.8)
2006–07	216.51	160.95	60.80 (28.1)
2007–08	225.70	147.07	77.21 (33.6)
2008–09 (E)	249.09	143.34	101.51 (40.9)

Source: Ministry of Chemicals and Fertilizers, Department of Fertilisers (2009).

Note: Figures in parentheses show share of imports in total consumption.

ANNEXURE 4.4
Central Subsidy on Fertilizer

(Rs crore)

Period	Subsidy at Current Price	Deflated by Implicit Price Index of Crop Sector	As per cent of Value of Crop Output
2001 to 2005	13,027	12,129	3.15
2005–06	18,460	16,952	3.52
2006–07	26,222	22,503	4.4
2007–08	32,490	25,600	4.8
2008–09	76,603	54,956	10.3
2009–10 RE	52,980	—	
2010–11 BE	49,981	—	

ANNEXURE 4.5
Status of C-DAP in Different States

S. No.	State	No. of Districts	No. of C-DAPs prepared	C-SAP (Y/N)
1	Andhra Pradesh	22	22	Y
2	Arunachal Pradesh	16	2	In prog
3	Assam	27	27	In prog
4	Bihar	38	38	Y
5	Chhattisgarh	18	13	Y
6	Goa	2	In prog	In prog
7	Gujarat	26	26	In prog
8	Haryana	20	20	Y
9	HP	12	11	Y
10	J & K	22	14	Y
11	Jharkhand	24	24	In prog
12	Karnataka	29	20	N
13	Kerala	14	14	In prog
14	Madhya Pradesh	48	48	Y
15	Maharashtra	35	35	In prog
16	Manipur	9	9	In prog
17	Meghalaya	7	In prog	In prog
18	Mizoram	8	In prog	In prog
19	Nagaland	8	In prog	In prog
20	Orissa	30	30	
21	Punjab	20	20	In prog
22	Rajasthan	32	28	In prog
23	Sikkim	4	In prog	Y
24	Tamil Nadu	29	29	Y
25	Tripura	4	4	Y
26	Uttarakhand	13	13	N
27	Uttar Pradesh	71	71	Y
28	West Bengal	18	18	In prog
	Total	606	535	

Note: Y= C-DAP prepared. In prog= In progress.

ANNEXURE 4.6
Progress of Peer Review of C-DAPs by AERUs and AERCs

S. No.	AERU	AERC	State	Districts
1	IDS, Jaipur	AERC, MP, & Chhattisgarh	Chhattisgarh	1. Durg 2. Rajnandgaon
2	IDS, Jaipur	AERC, MP, & Chhattisgarh	Madhya Pradesh	1. Jabalpur 2. Sagar 3. Bhopal 4. Chhindwara 5. Hoshangabad
3	IDS, Jaipur	AERC, Vallabh Vidyanagar	Gujarat	1. Anand 2. Junagandh 3. Bharuch or Banaskantha
4	IDS, Jaipur	AERC, Vallabh Vidyanagar	Rajasthan	1. Udaipur 2. Kota 3. Sirdhi
5	IDS, Jaipur	AERC, Bhagalpur	Bihar	1. Nawada 2. Samastipur 3. Katihar
6	IDS, Jaipur	AERC, Bhagalpur	Jharkhand	1. Ranchi 2. Dumka
7	ADRTC, ISEC, Bangalore		Goa	*Not identified*
	ADRTC, ISEC, Bangalore		Karnataka	1. Bidar* 2. Raichur* 3. Dakshna Kannada* 4. Chikkamagalur* 5. Udupi* 6. Chamarajanagra* 7. Mysore*
9	ADRTC, ISEC, Bangalore	AERC, Andhra Pradesh	Andhra Pradesh	1. Srikakulam 2. West Godavari 3. Chittoor 4. Anantapur 5. Warangal 6. Nizamabad
10	ADRTC, ISEC, Bangalore	AERC, Andhra Pradesh	Orissa	1. Parlakimundi 2. Cuttack 3. Jajpur 4. Sambalpur 5. Ganjam* 6. Koraput* 7. Bhadrak* 8. Sundergarh* 9. Bolangir*
11	ADRTC, ISEC, Bangalore	AERC, Chennai	Kerala	1. Palakkad 2. Karaikkal 3. Puducherry
12	ADRTC, ISEC, Bangalore	AERC, Chennai	Tamil Nadu	1. Thanjavur
13	ADRTC, ISEC, Bangalore	Gokhale Institute of Politics & Economics, Pune	Maharashtra	1. Ratnagiri 2. Amaravati 3. Nagpur 4. Parbhani 5. Aurangabad 6. Jalgaon
	Total		7	32

14	IEG, N. Delhi		Jammu & Kashmir	*Not identified*
15	IEG, N. Delhi	AERC, Allahabad	Uttar Pradesh	1. Jhansi 2. Meerut** 3. Hardoi 4. Allahabad
16	IEG, N. Delhi	AERC, Delhi	Haryana	1. Karnal* 2. Kaithal*
17	IEG, N. Delhi	AERC, Delhi	Uttarakhand	1. Dehradun*
18	IEG, N. Delhi	AERC, Jorhat	Assam	1. Kamrup** 2. Nowgong
19	IEG, N. Delhi	AERC, Jorhat	Meghalaya	1. Ribhoi 2. West Garo Hills
20	IEG, N. Delhi	AERC, Jorhat	Tripura	1. N. Tripura** 2. Dhalai**
21	IEG, N. Delhi	AERC, Ludhiana	Punjab	1. Amritsar* 2. Kapurthala* 3. Patiala* 4. Bathinda* 5. Hoshiarpur* 6. Ludhiana**
22	IEG, N. Delhi	AERC, Shimla	Himachal Pradesh	1. Shimla* 2. Solan* 3. Kinnaur**

Notes: ** Studied by Agricultural Economic Research Units (AERUs).
* Studied by Agro-Economic Research Centres (AERCs) only.