CHAPTER 2

AGRICULTURAL PRODUCTION

The momentum of agricultural growth established during the early eighties, leading up to a peak production of over 152 million tonnes of foodgrains in 1983-84, has been seriously disturbed by adverse weather conditions during the last few years. A run of four poor monsoons culminated in one of the worst droughts on record in 1987. Foodgrain production, which declined from over 150 million tonnes in 1985-86 to about 144 million tonnes in 1986-87, is expected to go down by a further 7 to 10 per cent in the current year. Non-food crops such as oilseeds and cotton are also estimated to have suffered substantial production losses in the last kharif season.

2.2 Famines of the type experienced during the colonial period have little chance of recurrence any more, thanks largely to the tremendous contribution of our farmers and agricultural scientists towards achieving higher productivity and the farsighted policy of laying emphasis on growth, self-reliance and food security pursued by India. The performance of Indian agriculture, nevertheless, remains highly sensitive to the vagaries of weather. The current drought has underlined this problem and drawn attention to the long term measures in irrigation, land and water management, afforestation and ecological regeneration which must be given priority in order to free Indian agriculture from the constaints of weather. These are being examined in the mid-term review of the Seventh Five Year Plan. Some measures have already been initiated and a few of these are discussed further below.

Current Drought and Its Impact

The Extent of Monsoon Failure

2.3 The country this year experienced poor rainfall for the fourth year in succession after the last good monsoon year of 1983-84. The south west monsoon rainfall in 1987 has been the poorest as compared to the last few years and even as compared to severe drought years in the past. As many as 21 out of a total of 35 meteorological zones, suffered deficient and scanty rains compared to 14 in 1986 and to 19, 16 and 12 respectively in the earlier drought years of 1965, 1979 and 1982 as shown in Table 2.1.

TABLE 2.1

Monsoon Rainfall (June-September)
Number of Meteorological Sub-divisions

	1965	1979	1982	1986	1987
Excess/Normal	16	19	23	21	14
Deficient/scanty	19	16	12	14	21
No data . .	..	..	..	..	..
Total .. .	**35**	**35**	**35**	**35**	**35**

2.4 The south west monsoon set in over Kerala around the normal date on June 2 and its progress till June 17 was quite satisfactory. After June 17, further advance of the monsoon was rather slow. Normally by July 8, monsoon should have arrived over the entire country except over western most part of West Rajasthan. But it had not yet arrived in northern parts of Gujarat State, parts of Uttar Pradesh, parts of Rajasthan, Haryana and Punjab. It was only by 27th July that the entire country was covered. Upto July end, the rainfall was normal only over West Bengal, Bihar, Assam, Arunachal Pradesh, Telangana, North-interior Karnataka, Marathwada and Konkan and Goa. It was during the middle of August that exceptionally good rains were received in as many as 20 sub-divisions. During the first week of September, West Bengal and the north eastern States continued to have heavy rains but by the third week of September, the south west monsoon had withdrawn from Gujarat, Rajasthan, Madhya Pradesh, Punjab, Haryana and Uttar Pradesh.

2.5 Table 2.2 gives the comparative picture of rainfall deficiency during the current year and a few earlier drought years. Comparision of monsoon rainfall

TABLE 2.2

Regional Rainfall Indices : 1979, 1982, 1986 *and* 1987

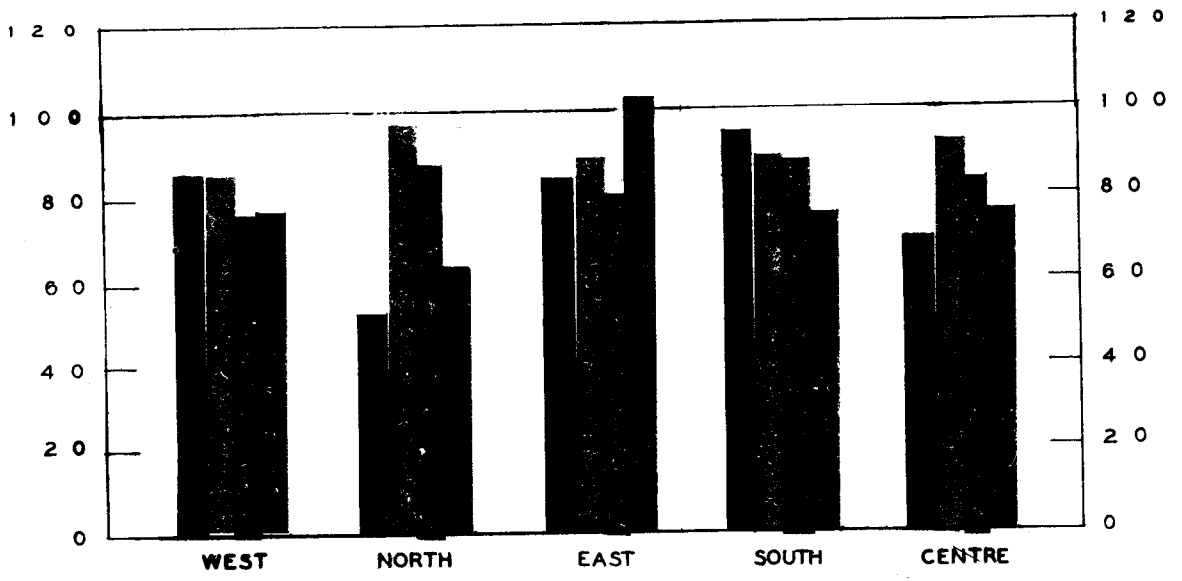
(*June to September*)

Year	All India	West	North	East	South	Centre
1979 .	77.0	85.2	52.1	84.4	94.8	69.0
1982 .	89.4	83.5	94.9	87.8	88.8	93.1
1986 .	85.3	78.4	88.9	83.7	89.9	86.5
1987 .	88.7	75.6	62.5	103.6	75.5	77.4

on the basis of an All India Rainfall Index for the entire season (constructed by using weights of area sown under rice in each meteorological zone during kharif) does not reveal the region specific conditions which are important in determining the impact of drought on crop production. Regionwise comparisons show that, except for the eastern region which suffered floods this year, all other regions had greater rainfall deficiency than in 1982 and 1986. However, the

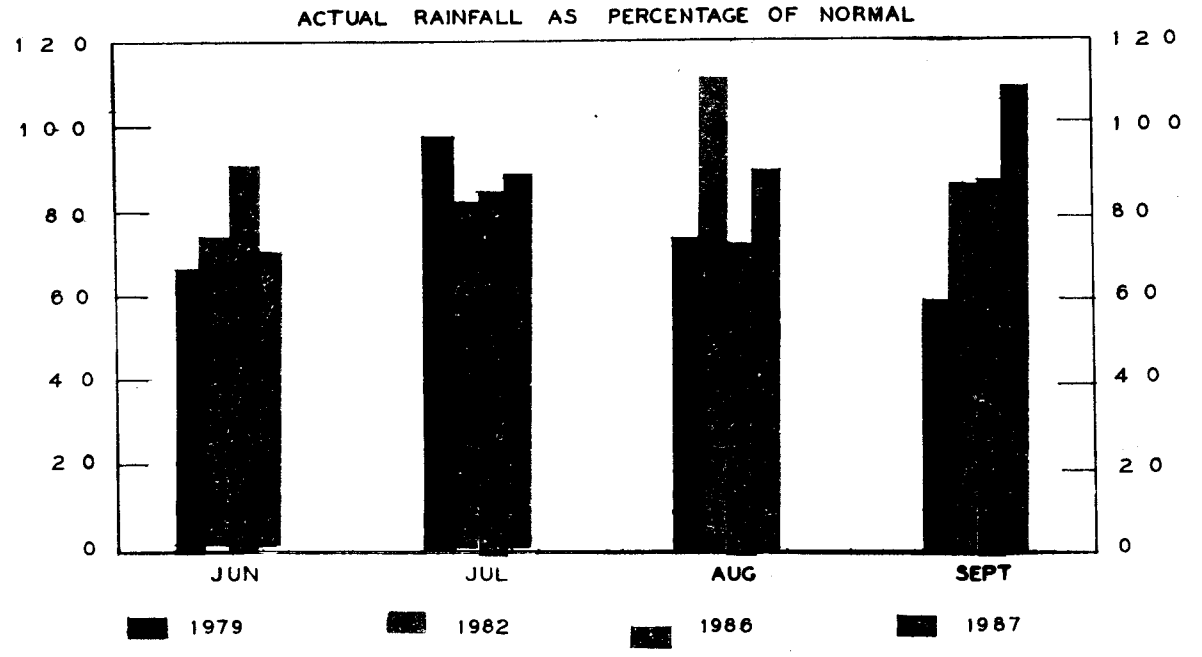
REGION-WISE COMPARISON OF RAINFALL

ACTUAL RAINFALL AS PERCENTAGE OF NORMAL [JUN-SEPT]



MONTH-WISE COMPARISON OF RAINFALL

ACTUAL RAINFALL AS PERCENTAGE OF NORMAL



NOTE:- WEST – RAJASTHAN , GUJARAT AND MAHARASHTRA
NORTH – H. P. , J.K. , PUNJAB , HARYANA AND U. P.
EAST – ASSAM , W.B. , BIHAR AND ORISSA
SOUTH – A.P. , KARNATAKA , KERALA AND TAMIL NADU
CENTRE – M. P.

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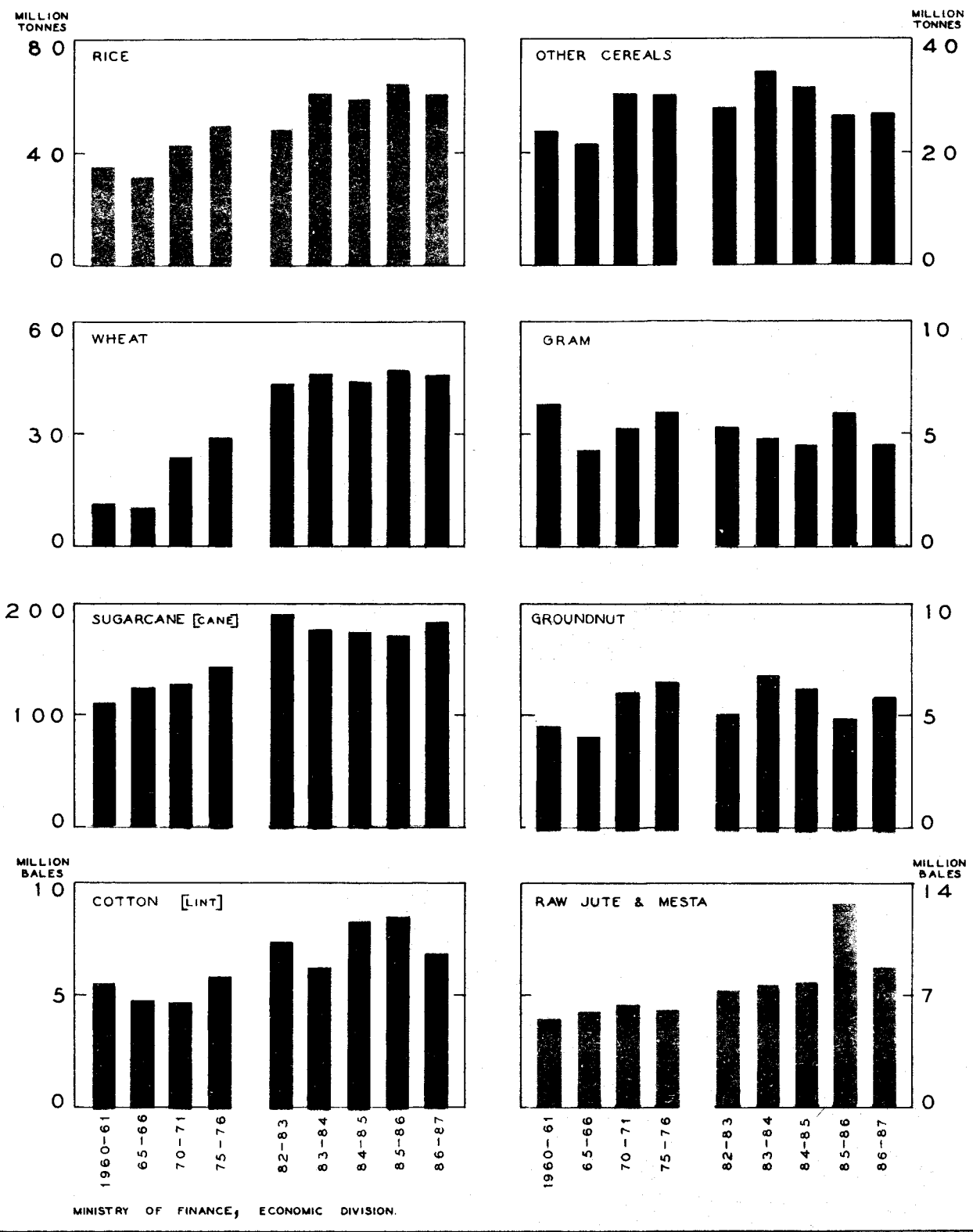
AGRICULTURAL PRODUCTION



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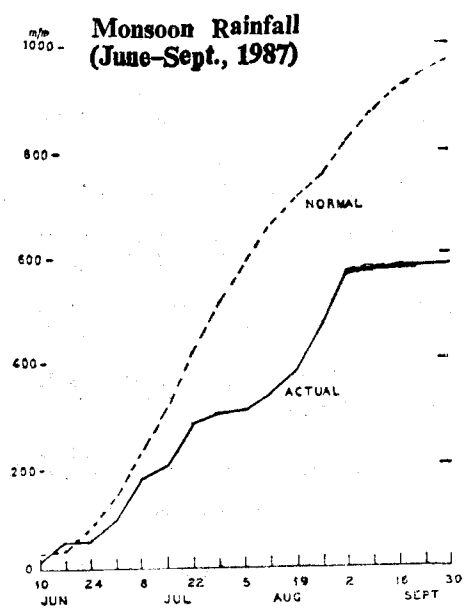
northern, eastern and central regions were worse off in 1979 as compared to this year. (Upper Graph).

2.6 More than the total precipitation, it is the timing and duration of the rainfall which affects yields. Monthwise comparison on the basis of the composite rainfall index shows that the rainfall situation was particularly bad in the months of June and July this year. However the overall position improved subsequently (Lower Graph). The rains in late August and September should have a beneficial effect on the winter crop. However, in the area sown under kharif, the crop prospects depend, to a large extent, on rains in the first two months of the monsoon season, i.e, June and July. Because of the delayed monsoon in many States, the critical sowing operations could not take place this year.

2.7 The areas that were particularly deficient in rain were Gujarat, Rajasthan, Punjab, Haryana, Chandigarh, Delhi, Uttar Pradesh, Himachal Pradesh and Orissa. Out of these, Gujarat and Rajasthan were the worst affected this year and have had poor rainfall for the past three or four years.

2.8 In Gujarat, the actual rainfall was below normal almost throughout the season and the State was deficient by 42 per cent (Graph). Saurashtra region in Gujarat, which accounts for a third of total groundnut production, was deficient by 74 per cent. It is estimated that no sowings have been done in over 75 per cent of the normal groundnut area in Gujarat. This is likely to have resulted in a very large fall in kharif groundnut production during 1987. The monsoon pattern for Rajasthan is similar to that in Gujarat. In the second week of June, the rains had been good, infact more than normal, but there were hardly any rains during July and early August. In the last two weeks of August, good rains were received but then there was a cessation of monsoon rainfall since early September. During the monsoon months (June to September), Rajasthan State was deficient by 51 per cent. Because of the severe drought in this State, the area and production of bajra as well as other rainfed crops, is likely to be adversely affected.

GUJARAT



Impact of Drought

2.9 Rainfall deficiency mainly affects the kharif crop, the major rabi crop being wheat, which is largely sown under irrigated conditions. The kharif crop is normally sown at the on-set of the monsoon during June and July in most areas. It accounts for about 60 per cent of India's foodgrain production, 80 per cent of coarse grain production, more than 50 per cent of oilseed production and 33 per cent of pulses.

2.10 The large food stocks this year were useful in mitigating the effects of the drought. However, agricultural production itself is highly sensitive to adverse weather conditions. Foodgrain production, in particular, is badly affected. In the drought year of 1979-80 total foodgrain output fell by 16.8 per cent, while kharif foodgrain prodution fell by 19 per cent. In 1982-83 total foodgrain production fell by 2.8 per cent while kharif foodgrain output fell by 12 per cent.

2.11 In recent years, the impact of poor rain on oilseed production has also been pronounced. The nine major oilseeds production fell by 20.5 per cent in 1976-77, 13.5 per cent in 1979-80, 17.2 per cent in 1982-83. In 1985-86 oilseed output fell by about 16 per cent as both kharif and rabi oilseeds production showed a substantial fall over the previous year.

2.12 During the year 1986-87, the second year of the Seventh Five Year Plan, there was a substantial fall in foodgrain production. It was the third successive drought year and total foodgrain output at 144.1 million tonnes was 6 million tonnes lower than the previous year's output of 150.4 million tonnes. Kharif production fell by 3.7 million tonnes to 81.5 million tonnes while rabi production fell by 2.65 million tonnes to 62.5 million tonnes. Among foodgrain crops, there was a fall in the production of rice, wheat, pulses, and a marginal increase in the production of coarse grains. Among non-foodgrain crops, there was a substantial fall in the production of cotton, raw jute and mesta. Oilseed production and sugarcane

production, however, have shown an increase. Sugarcane production, in particular, has shown an impressive increase of nearly twelve million tonnes.

2.13 During 1987-88, there is likely to be a further substantial decline in production, with the severe drought this year coming after three successive years of poor monsoon over some parts of the country. Kharif production has been the worst affected as usual. There are likely to have been crop losses in almost all kharif crops. Coarse grains and oilseeds appear to have been the worst affected. The groundnut crop in Gujarat which accounts for the bulk of India's groundnut production was almost totally lost.

2.14 In the case of foodgrains the extent of shortfall in production will depend on the size of the rabi crop, in particular the wheat crop. About 70 per cent of wheat production is concentrated in the three large surplus producing States, i.e., Uttar Pradesh (35 per cent), Punjab (23 per cent) and Haryana (11 per cent). Much of the area under wheat cultivation is irrigated. However, there is some risk of crop losses in non-irrigated wheat production, despite good rains in the post-monsoon period. There is also a potential problem even in the irrigated areas since 47 important reservoirs of the country had only 52 per cent of capacity storage at the end of September, 1987 as compared to 75 per cent a year ago. It is, therefore, unlikely that crop losses during the kharif season will be off-set by the rabi crop. Total foodgrain production in 1987-88 is now expected to be lower than the production of 1986-87 by about 7 to 10 per cent.

TABLE 2.3

Agricultural Production

(Million Tonnes/Bales*)

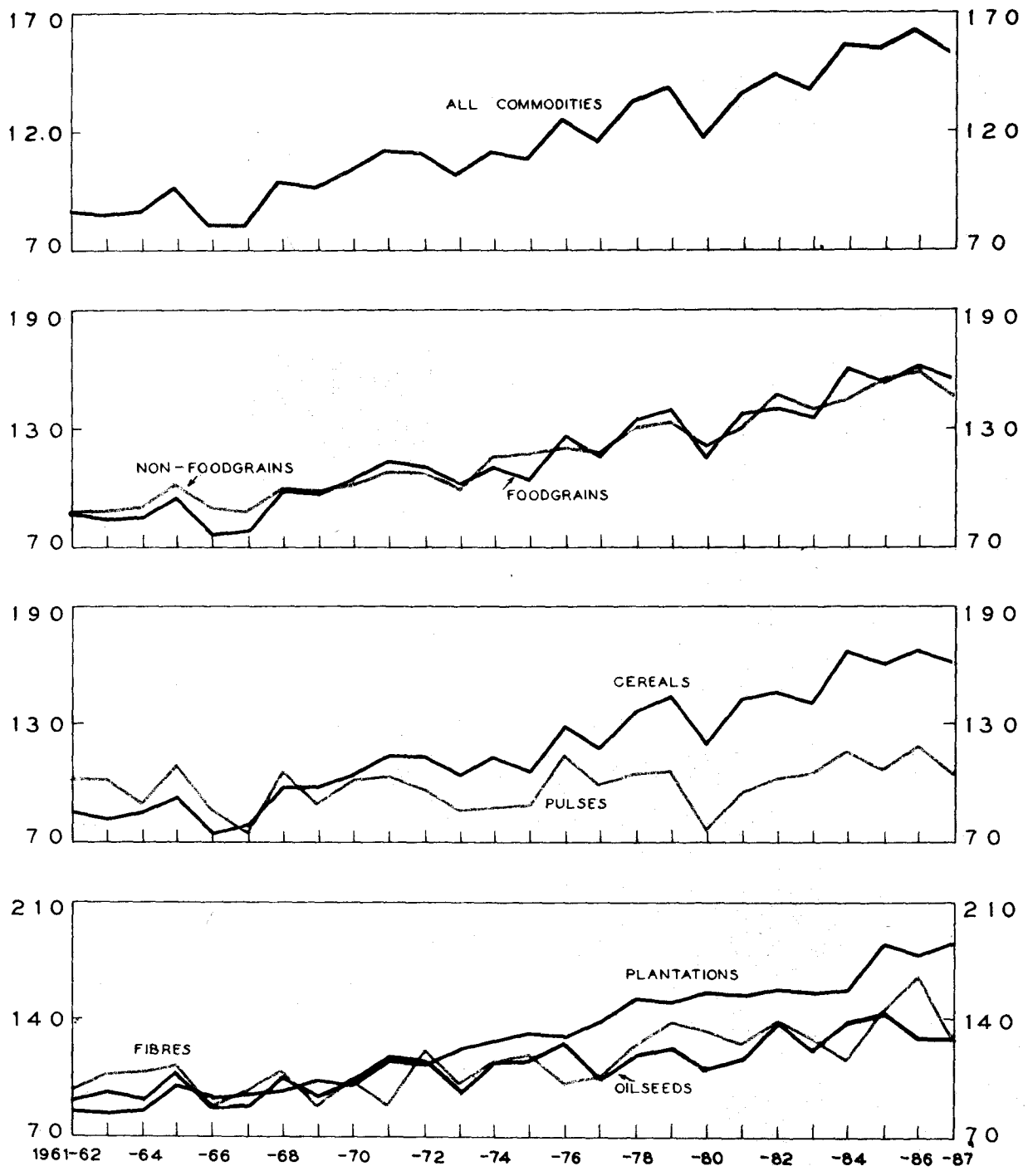
Crop	1965-66	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87
Rice . . .	30.59	41.92	52.67	53.77	42.33	53.63	53.25	47.12	60.10	58.34	63.83	60.42
	(-22.18)	(-14.00)	(25.66)	(2.09)	(-21.28)	(26.70)	(-0.71)	(-11.51)	(27.55)	(-2.93)	(9.41)	(-5.34)
Wheat . . .	10.40	29.01	31.75	35.51	31.83	36.31	37.45	42.79	45.48	44.07	47.05	45.57
	(-15.20)	(0.55)	(9.44)	(11.84)	(-10.36)	(14.07)	(3.14)	(14.26)	(6.29)	(-3.10)	(6.76)	(-3.14)
Pulses . . .	9.94	11.36	11.97	12.18	8.57	10.63	11.51	11.86	12.89	11.96	13.36	11.74
	(-19.92)	(-12.9)	(5.37)	(1.75)	(-29.64)	(24.04)	(8.28)	(3.04)	(8.68)	(-7.21)	(11.70)	(-12.12)
Coarsegrains . .	21.42	28.88	30.02	30.44	26.97	29.02	31.09	27.75	33.90	31.17	26.20	26.34
	(-15.58)	(-5.03)	(3.95)	(1.40)	(-11.40)	(8.60)	(7.13)	(-10.74)	(22.16)	(-8.05)	(-15.94)	(0.53)
Kharif Foodgrains .	N.A.	66.53	77.72	78.08	63.25	77.65	79.38	69.90	89.23	84.52	85.25	81.53
		(-10.0)	(16.8)	(0.46)	(-19.0)	(22.8)	(2.2)	(-11.9)	(27.6)	(-5.3)	(0.86)	(-4.36)
Rabi Foodgrains .	N.A.	44.64	48.69	53.82	46.45	51.94	51.92	59.62	63.14	61.02	65.19	62.54
		(-5.3)	(9.1)	(10.5)	(-13.7)	(11.8)	(3.8)	(10.6)	(5.9)	(-3.4)	(6.83)	(-4.06)
All Foodgrains .	72.35	111.17	126.41	131.90	109.70	129.59	133.30	129.52	152.37	145.54	150.44	144.07
	(-19.04)	(-8.15)	(13.7)	(4.34)	(-16.83)	(18.13)	(2.86)	(-2.83)	(17.64)	(-4.48)	(3.37)	(-4.23)
Groundnut . .	4.26	5.26	6.09	6.21	5.77	5.01	7.22	5.28	7.09	6.43	5.12	6.06
	(-29.00)	(-22.07)	(15.59)	(1.87)	(-7.09)	(13.34)	(44.4)	(-20.87)	(34.28)	(-9.30)	(-20.37)	(18.36)
Rapeseed & Mustard	1.30	1.55	1.65	1.86	1.43	2.30	2.38	2.21	2.61	3.07	2.68	2.63
	(-11.94)	(-20.1)	(6.45)	(12.73)	(-23.12)	(60.84)	(3.48)	(-7.14)	(18.10)	(17.62)	(-12.70)	(-1.86)
Oilseeds@ . .	N.A.	8.43	9.66	10.10	8.74	9.37	12.08	10.00	12.69	12.95	10.83	11.45
		(-20.5)	(14.6)	(4.5)	(-13.5)	(7.2)	(28.9)	(-17.2)	(26.9)	(2.1)	(-16.5)	(5.72)
Sugarcane (Tonnes) .	123.99	153.01	176.96	151.66	128.83	154.25	186.36	189.51	174.08	170.32	170.65	182.48
	(1.70)	(8.83)	(15.66)	(-14.3)	(-15.05)	(19.73)	(20.82)	(1.69)	(-8.14)	(-2.16)	(0.19)	(6.93)
Cotton (lint)* . .	4.85	5.84	7.24	7.96	7.65	7.01	7.88	7.53	6.39	8.51	8.73	7.01
	(-19.28)	(-1.85)	(23.97)	(9.94)	(-3.89)	(-8.37)	(12.41)	(-4.44)	(-15.14)	(33.18)	(2.58)	(-19.70)
Jute & Mesta* .	5.78	7.10	7.15	8.33	7.96	8.16	8.38	7.17	7.72	7.79	12.65	8.63
	(-24.59)	(20.14)	(0.7)	(16.5)	(-4.44)	(2.51)	(2.57)	(-14.34)	(7.67)	(0.91)	(62.39)	(-31.78)

*170 Kgs. each for cotton and 180 Kgs. each for jute and mesta.

@Nine major oilseeds including groundnut, castorseed, sesamum, rapeseed and mustard, linseed, sunflower, nigerseed, safflower and soyabean.

INDEX OF AGRICULTURAL PRODUCTION

BASE:- TRIENNIUM ENDING 1969-70=100



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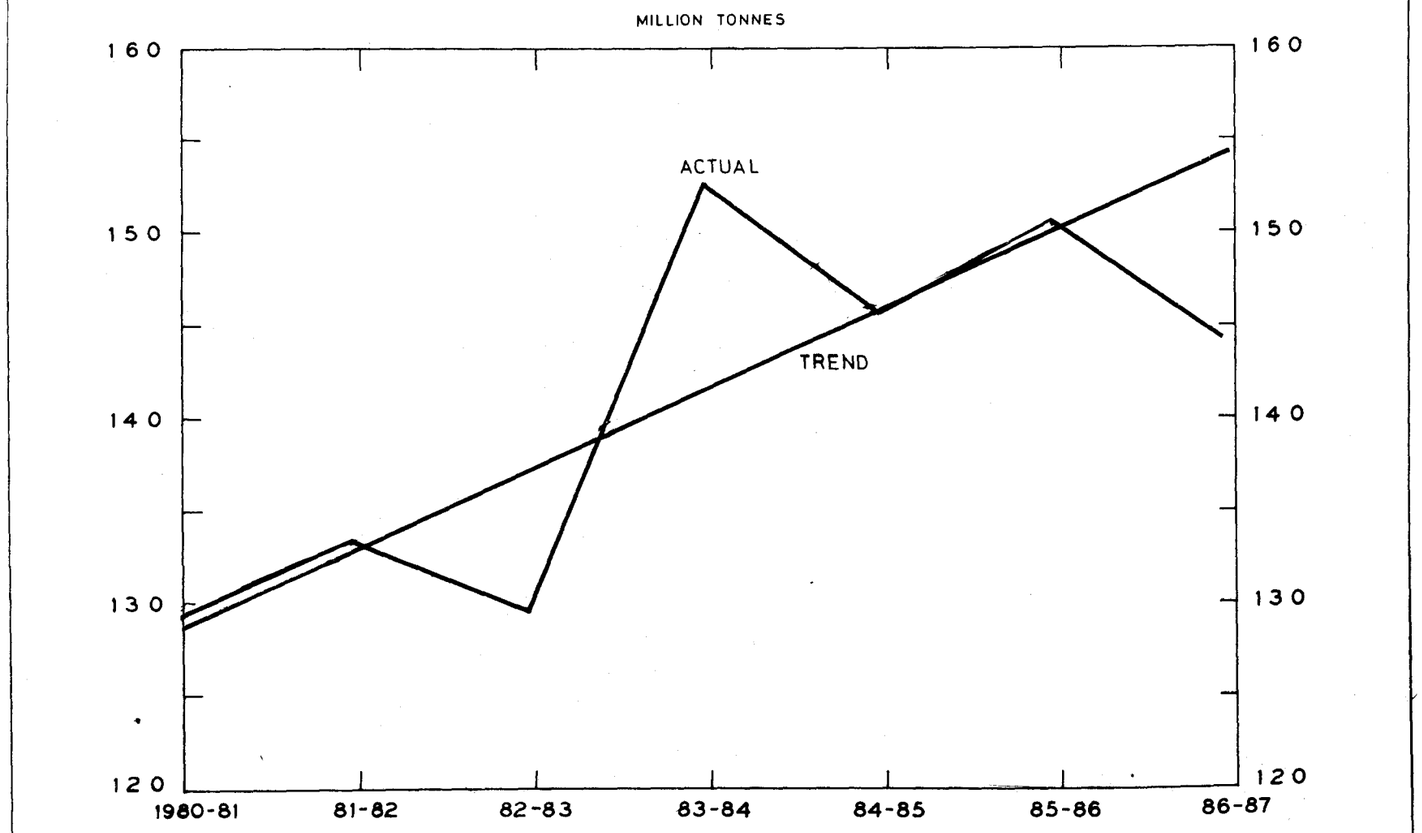
RECENT TRENDS IN FOODGRAINS PRODUCTION



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Management of the Drought

Drought and Distress

2.15 Poor people living in rural areas bear the brunt of all the distress and dislocation of every day life caused by a drought. Consisting largely of agricultural labourers and small and marginal farmers, the rural poor do not have the resources necessary to cushion the effects of a drought. Yet it is this section of our community which is most directly and severely affected by the drought because of the loss of incomes and jobs.

2.16 The access of the rural poor to their means of subsistence, meagre at the best of times, is sharply eroded in a year of drought. To begin with, monsoon failure leaves large tracts of cultivable land unsown. The volume of agricultural operations is consequently cut down and whole communities are left with little employment or income. Additionally, the real purchasing power per rupee of whatever meagre income is earned gets further eroded by the rise in prices which inevitably follows the loss in production and reduced supplies. There is extreme distress and the very poor find it difficult to cope unless their entitlement to minimum limits of consumption is restored through a large scale relief employment programme or some other institutional arrangements.

2.17 In Rajasthan, for example, there are about 7 lakh agricultural labourers, 20 lakh marginal workers, 13 lakh marginal farmers and nearly 9 lakh small farmers among the 105 lakh persons estimated to be below the poverty line. These sections are largely dependent on agriculture and their means of livelihood depend on the state of the crop. This year it is reported that hardly 37 per cent of the normal cropped area was sown, and about two-thirds of this has withered. It has been estimated that about 83 per cent of the 29 lakh agricultural labourers, marginal farmers and small farmers, i.e., about 24 to 25 lakh persons, have been affected by the drought. The number would be higher if marginal workers were included. In addition about 66 per cent of the livestock population amounting to 326 lakh animals including cattle, camels, horses, pigs, etc., have been affected by the drought. Of this an estimated 163 lakh animals belong to agricultural labourers and small/marginal farmers. Their cattle losses alone could be around 15,000 heads.

2.18 It is not difficult to imagine the enormous dislocation of every day life in severely affected States, especially those where this year's drought is the third or fourth consecutive year of drought as, for example, in Rajasthan. As a result not only have agricultural operations collapsed but the declining water table has left an acute shortage of drinking water. In this grim situation government relief employment programmes, cattle camps and drinking water supply arrangements have become the crucial guarantees of survival for the distressed population.

2.19 In order to reduce distress, the Government has taken a number of measures to deal with the immediate effects of the drought on agricultural production and rural employment, fodder, drinking water, power generation, reservoir storage and availability of essential commodities. Some long term measures have also been initiated to reduce the vulnerability of agriculture to adverse weather conditions. Some of these measures are discussed below.

Agricultural Production and Income Generation

2.20 The Government has taken up various action programmes to boost rabi production. Detailed strategies have been worked out for individual crops, regions and watersheds. Instructions have also been issued on appropriate technological practices for each region. The Government has made arrangements for supply of adequate quality and quantity of seeds and other inputs apart from expanding rabi acreage. State Governments have been advised to ascertain the requirements of seeds and take advance action to ensure that there is no shortage. The States have also been directed to carefully monitor the use of water available in various reservoirs. Priority has been given to providing drinking water in all scarcity areas, particularly Gujarat and Rajasthan. The water available after meeting drinking requirements is being used for irrigation purposes. To augment the supply of water, efforts are being made to ensure the availability of power for the operation of tubewells for 8-10 hours every day. The supply and repair of rigs for digging tubewells has also been stepped up.

2.21 To recover at least a part of the kharif loss in rural incomes, cultivation of a short duration cash crop was undertaken wherever possible. The supply of adequate inputs for this purpose was arranged. In order to minimise the income loss of rural labour households, the various employment generation programmes have been supplemented by Scarcity Relief Works Programmes wherever these have been necessary. Additional foodgrains have been released every month to support these programmes. In Rajasthan, for example, apart from 4 lakh persons already employed under National Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP) etc., another 3 lakh persons were employed daily on relief programmes upto

August. Subsequently it was targetted to step this up to about 11 lakh persons. An attempt has been made to rotate this employment between families to ensure that all affected families have been covered.

Irrigation

2 22 The Central Government has made an extra allocation of Rs. 236 crores to accelerate the execution of selected irrigation projects in the drought affected areas. Of this total outlay, about Rs. 153 crores is for major and medium irrigation projects and Rs. 81 crores for minor irrigation projects. This additional outlay is expected to create additional irrigation potential of nearly 1,42,800 hectares. The major beneficiaries have been Gujarat (29,369 ha), Rajasthan (18,500 ha), Uttar Pradesh (23,800 ha), Maharashtra (14,500 ha), Madhya Pradesh (13,750 ha), Andhra Pradesh (12,500 ha) and Karnataka (11,000 ha).

2.23 As against a plan target of 2.27 lakhs as many as 3.53 lakh irrigation pumpsets were energised during the period April to December alone, of which 2.27 lakhs are in drought affected areas. An additional 2.8 lakh inoperative sets have been repaired and made operational as against a target of 1.3 lakhs. Thus an extra 6.3 lakh pumpsets became operational during this period.

Fodder

2.24 There has been an acute shortage of fodder in the drought affected regions, especially Rajasthan and Gujarat. The supply of fodder to these areas has been augmented through the collection of fodder from forests and other adjoining regions. Areas have also been identified to increase fodder production and subsidies have been given for this purpose. Adequate 'Ways and Means Advances' have also been released to support these programmes. Fodder production has also been augmented through the application of fertilisers in various areas. Supply of molasses to cattle-feed plants has been ensured and protection has been offered to the cattle population in specially organised cattle camps and transport has been arranged to transfer cattles to these camps.

Drinking water

2.25 The supply of drinking water to scarcity areas has been arranged through normal Plan programmes and with permanent and semi-permanent schemes of extension of piped water supply. Additional hand-pumps have been introduced and arrangements have been made for tanker supply to certain drought affected areas where no other alternative arrangement was possible. The first priority has been given to the use of water available in reservoirs for drinking purposes. The State Governments have drawn up contingency plans to combat the scarcity of drinking water and 'Ways and Means Advances' have been released for this purpose. 'Ways and Means Advances' have also been released for purchase of rigs and other equipment for digging tubewells. Physical and financial progress of implementation of the contingency plan and optimum utilisation of rigs have been closely monitored.

Power Supply

2.26 Instructions have been issued by the Ministry of Power to the States to ensure that power supply for agriculture is maintained for at least 8 to 10 hours a day. They have also been advised to issue instructions to regulate availability of power to prevent over-drawal of water where the availabilty of ground water is inadequate. The Department of Power has also advised the State Electricity Boards to restore power supply to pumpsets which were disconnected due to arrears of payments.

Management of Water Resources

2.27 Instructions have been issued to the State Governments to carefully regulate the utilisation of water stored in the reservoirs. Evaporation losses have been minimised through the use of chemical retardants. Water budgets have been prepared for each reservoir covering drinking water, kharif/rabi requirements and evaporation losses.

Vegetable Production

2.28 Vegetable production has been supported in those areas where minor irrigation sources are available, especially in the proximity of urban agglomerations, through distribtuion of mini-kits containing vegetable seeds, fertilisers and plant protection chemicals. Such mini-kits have also been provided in the 19 identified cities and towns where there is heavy demand for vegetables.

Distribution of Essential Commodities

2.29 Government policies to ensure adequate supply of foodgrains have been discussed further below. in chapter 5. Apart from foodgrains, essential commodities like edible oils, controlled cloth, etc., have also been made available in adequate quantities. The demand gap in the case of edible oils has been met through imports. Similarly, the shortage of milk has been met through the import of milk powder and butter oil. NAFED has also been advised to import pulses over and above the imports under OGL undertaken by private traders. About 5,600 new PDS outlets have been opened during the year. Of these,

over 3,000 including many mobile outlets, have been opened in drought affected areas. The latter, in particular, have proved to be very popular. The anti-hoarding drive and prosecution against hoarders have been stepped up and food stocks held by private traders have been closely monitored. The availability and prices of essential commodities have also been kept under constant watch through a monitoring system stretching from district headquarters to the Central control room in New Delhi.

Financial Assistance

2.30 A ceiling of about Rs. 1798 crores for expenditure on Relief Measures against drought and other calamities has been approved. Of this, the share of the Centre is about Rs. 1456 crores. The amount is required to be utilised only for specified relief measures in the affected villages and towns. Financial assistance has also been extended by banks on a priority basis to persons affected by drought and floods. This includes credit to undertake second sowings or raising alternative short duration crops, including fodder, production of seeds or for setting up fair price shops. Instructions have been issued for conversion of short term loans into medium term loans and re-scheduling of investment credit. Banks have also been advised to process and sanction loans for minor irrigation quickly. The limit for consumption loans to small and marginal farmers and other weaker sections of society has been raised from Rs. 250 to Rs. 500.

Long Term Measures

2.31 Apart from the measures taken to meet the immediate effects of the drought, long term strategies have also been initiated against the background of the current drought to reduce the vulnerability of agriculture to adverse weather conditions. In recent years output growth has come largely from increases in yield, rather than acreage. However, yield increases are more sensitive to rainfall than acreage. Consequently, high average rates of growth have come along with large fluctuations in production. This is especially true of the kharif belt which is more dependent on rainfed agriculture. The rabi region is more stable because of the higher coverage by assured irrigation. This analysis of instability in Indian agriculture has led to the evolution of a long term strategy of agricultural development which has four major dimensions.

2.32 The most important element of the strategy is to maximise the area under assured irrigation. Though the share of irrigated agriculture has gone up from around 17 per cent of cropped area in the early fifties to about 30 per cent today, a large proportion of the additional irrigation has come from wells and tanks which get depleted in years of poor rainfall. Accordingly, the Plan allocation for major and medium irrigation projects is being augmented and greater emphasis is being placed on the full utilisation of potential already created in these projects. This will also help to give a better regional balance to agricultural growth.

2.33 Despite emphasis on assured irrigation, however, the major portion of cropped area will continue to depend on rainfed agriculture at least till the end of this century. Accordingly, the full exploitation of groundwater in high rainfall areas like the Gangetic region is being emphasised to achieve increases in gross acreage through multiple cropping. The National Watershed Development Programme for Rainfed Agriculture, started in 1986-87, is being reinforced for this purpose. A 'coarse grain policy' is also being worked out for rainfed areas which will integrate production plans with pricing, storage and procurement of coarse grains, while a special R & D thrust is being given to oilseed production under a Technology Mission set up for this purpose.

2.34 A third dimension of the strategy is to optimise water use in dryland agriculture by methods of water management which will maximise the area and output per unit of water. To this end, the focus of the type of works taken up under the rural employment programmes like RLEGP and NREP as well as Area Development Programmes like Drought Prone Area Programme (DPAP) and Desert Development Programme (DDP) have been sharpened to take up schemes which are intended to protect agriculture against drought. Henceforth, the thrust of agricultural research will also be redirected to support the development of rainfed and dryland agriculture. It is recognised that both water resources and fertile topsoils are being depleted because of rapid deforestation and the large scale loss of vegetable cover. Accordingly, afforestation programmes are being stepped up and integrated with programmes of irrigation and water management.

2.35 Implicit in this approach is the central role of regional factors in agricultural planning. Separate strategies are being worked out for each distinct agro-climatic region to suit the requirements of agricultural development specific to that region. For this purpose, separate spatial zones have been identified. The Planning Commission has now set up a group which is examining an eight point proposal for an action plan to ensure that targets in agriculture are realised,

Cropwise/Statewise Production

Rice

2.36 Rice production during 1986-87 declined to 60.4 million tonnes as against the record level of 63.8 million tonnes produced in 1985-86. The decline of 3.4 million tonnes is on account of the fall in kharif rice production by 4.3 million tonnes, which was partly compensated by an increase of about 1 million tonne of rabi rice production during 1986-87. Except for Punjab and West Bengal which reported an increase of 0.57 million tonnes and 0.47 million tonnes respectively all the other major rice producing States reported a decline in rice production. The States which showed substantial decreases were Madhya Pradesh (—1.15 million tonnes), Uttar Pradesh (—1.06 million tonnes) and Andhra Pradesh (—0.87 million tonnes). These 3 States taken together accounted for about 90 per cent of the fall in production of rice during 1986-87. In almost all the States the fall in production was associated with a decrease in area under rice. The States which showed a fall in production despite an increase in area, are West Bengal and Bihar.

2.37 During the current year 1987-88, rice production is likely to show a further fall since all the major rice growing areas have been adversely affected either by drought or by floods. About 69 per cent of the area under kharif rice is in the eastern States, including Uttar Pradesh and Madhya Pradesh where the monsoon was delayed by 3 weeks. Later heavy rains in August and September caused extensive floods in Bihar, Assam and West Bengal damaging the standing crop in these regions to some extent. States in the northern region like Punjab, Haryana and Jammu and Kashmir have also been severely affected by the drought. Although farmers in Punjab and Haryana mainly grow the crop under assured irrigation conditions, the crop coverage might lag behind because of lower water tables. In the southern region, the crop condition is considered to be satisfactory, though in Tamil Nadu there has been an acute moisture stress which might lead to shrinkage in area. However, the fall in kharif rice acreage might be partially offset by an increase in area under rabi rice.

Wheat

2.38 The production of wheat during 1986-87 was 45.57 million tonnes, 1.46 million tonnes less than the record production achieved during 1985-86 but a little higher than the earlier peak production of 45.48 million tonnes achieved in 1983-84. Almost all the major wheat producing States, except for Punjab, recorded a fall in production during 1986-87. The States which showed substantial decreases in production include Uttar Pradesh (—0.48 million tonnes), Rajasthan (—0.32 million tonnes), Madhya Pradesh (—0.34 million tonnes) and Haryana (—0.20 million tonnes). Four States, namely, Uttar Pradesh, Rajasthan Madhya Pradesh and Haryana taken together accounted for almost 91 per cent of the fall in wheat output during 1986-87. However, Punjab showed an impressive increase of 0.16 million tonnes of production during 1986-87. About 1.7 million tonnes of wheat produced in Punjab was, subsequently, lost due to unseasonal rains in May 1987.

2.39 Total area under wheat during 1986-87 also showed a decrease of 0.19 million hectares. In some States like Gujarat, Madhya Pradesh and Maharashtra decrease in production is associated with a fall in area during 1986-87. However, in some other major wheat producing States, the yields seem to have gone down since there was a substantial fall in output despite an increase in the area under wheat. This is the case in Bihar, Haryana, Rajasthan, Uttar Pradesh and West Bengal.

Coarse Grains

2.40 The production of coarse grains during 1986-87 was 26.34 million tonnes showing an increase of 0.14 million tonnes over the previous year. The decline in production in Andhra Pradesh, Bihar, Haryana, Madhya Pradesh, Maharashtra and Rajasthan was more than offset by increases in production in Gujarat, Karnataka, Punjab, Tamilnadu, Uttar Pradesh and Himachal Pradesh. In most of the States, changes in production are directly related to changes in area under the crop. However, in Gujarat, Jammu & Kashmir and Punjab, production has increased despite a fall in area. Rajasthan is one State where despite a substantial increase in area under coarse grains, production has shown a decline.

2.41 The small net increase in coarse grains production is due to an increase in kharif coarse cereals which more than compensated for the decline in rabi coarse cereals. Among the kharif coarse cereals, there is a fall in production and acreage under jowar and small millets while there is an increase in production and acreage under bajra, maize and ragi. Among the rabi coarse cereals, there is a fall in both acreage and output of jowar and barley.

2.42 The jowar output during 1986-87 accounted for 34 per cent of total coarse cereals output. The output of jowar during 1986-87 was 8.87 million tonnes, about 1.3 million tonnes lower than the previous year. In Maharashtra, the single most impor-

tant jowar growing State, output fell by 0.83 million tonnes and area fell by 0.29 million hectares during 1986-87. This accounts for about 62 per cent of the fall in jowar output and about 64 per cent of the fall in jowar acreage during 1986-87. Other jowar growing States have also shown a decline in production and area. The States which have shown impressive increases in production include Karnataka, Tamil Nadu and Uttar Pradesh.

2.43 During the year 1987-88, the rainfall deficiency has been particularly damaging for jowar, bajra and other coarse cereals. The acreage sown in Haryana, Rajasthan and Gujarat has come down significantly. It is estimated that only about 60 per cent of the normal area under this crop might have been sown during kharif 1987. In Rajasthan, which is the largest bajra growing State, only about 30 per cent of normal area was covered upto July-end. However, the rains in the middle of August in Karnataka and Maharashtra have revived the prospects of jowar, bajra and ragi in these States.

2.44 The overall prospects for rabi coarse cereals are considered to be satisfactory since the important rabi jowar growing States of Maharashtra, Karnataka, Andhra Pradesh and Tamilnadu received adequate rains at the time of sowing. For rabi maize also, there is likely to be an increase in acreage in the two important States of Bihar and Karnataka.

Pulses

2.45 The production of pulses during 1986-87 was about 11.74 million tonnes showing a decline of 1.62 million tonnes from the peak level achieved in 1985-86. This is mainly on account of a fall in rabi pulses output by about 1.37 million tonnes. Production of kharif pulses also showed a decline of 0.25 million tonnes. Almost all the major pulse growing States reported a decline in production. The States which showed a substantial decline in production during 1986-87 are Rajasthan (—0.89 million tonnes), Madhya Pradesh (—0.18 million tonnes) and Gujarat (—0.10 million tonnes). These States taken together account for 72 per cent of the fall in production. Rajasthan alone accounted for more than 50 per cent of the fall in production and 59 per cent of the fall in acreage during 1986-87. The shortfall in Rajasthan occurred in the rabi season. Orissa and Bihar reported increases in both area and produtioen of pulses, while Karnataka showed an increase in production despite a large fall in area under the crop.

2.46 During the year 1987-88 production and area under rabi pulses are considered to be satisfactory since rains in the post monsoon season have been good. There might be some shrinkage of area in Rajasthan, Gujarat and Haryana. However, this is likely to be compensated by higher acreage in Madhya Pradesh, Bihar, West Bengal, Maharashtra, Karnataka, Uttar Pradesh, Orissa, Tamil Nadu and Andhra Pradesh, where Arhar and Greengram were taken up as contingency crops.

Oilseeds

2.47 While the demand for edible oil and hence oilseeds has grown steadily over the years, the growth of domestic production has been sluggish and erratic. This is especially true of the last few years of poor monsoons since oilseed production is largely based on rainfed agriculture. As a consequence, there has been a growing gap between demand and domestic production, which has had to be met through large scale imports leading to a substantial drain of scarce foreign exchange resources. The government has set up a Technology Mission on Oilseeds, to deal with this problem, details are discussed further below.

2.48 84 per cent of oilseed production in India is based on rainfed agriculture. In years of poor monsoon, oilseed production is always severely affected. During the Sixth Plan, the production of nine major oilseeds had increased from 8.74 million tonnes in 1979-80 to 12.95 million tonnes in 1984-85. But during the first year of the Seventh Plan (1985-86), production fell to 10.83 million tonnes. During 1986-87 production increased marginally to 11.45 million tonnes. Actually only kharif oilseed output increased by 0.65 million tonnes, while rabi oilseed production fell by 0.03 million tonnes. The two most important oilseed producing States, *i.e.*, Gujarat and Karnataka have shown substantial increases in production of 0.79 million tonnes and 0.42 million tonnes respectively. Madhya Pradesh, Tamilnadu, Uttar Pradesh and Rajasthan have, however, reported a decline in production during 1986-87.

TABLE 2.4
Production of Oilseeds

('000 tonnes)

		1985-86	1986-87
Groundnut	Kharif	3757.5	4691.8
	Rabi	1363.8	1367.7
	Total	5121.3	6059.5
Castorseed		308.3	236.6
Soyabean		1024.1	835.3
Sesamum		501.0	443.2
Nigerseed		192.3	132.1
Sunflower	Kharif	168.7	261.5
	Rabi	112.2	174.2
	Total	280.9	435.7
Rapeseed and Mustard		2680.5	2634.8
Linseed		376.2	343.2
Safflower		347.9	332.6
Oilseeds	**Kharif**	**5951.9**	6600.5
	Rabi	**4880.6**	**4852.5**
	Total	**10832.5**	**11453.0**

2.49 The nine major oilseeds are groundnut, rapeseed and mustard, sesamum, nigerseed, sunflower, safflower, soyabean, linseed and castor seed. Of these, the three most important oilseeds are groundnut, rapeseed and mustard and soyabean which together accounted for 83 per cent of total production in 1986-87. Among kharif oilseeds, production of kharif groundnut and sunflower increased while that of soyabean and sesamum declined. Among the rabi oilseeds, production of rabi groundnut and sunflower increased while that of safflower, rapeseed and mustard declined.

2.50 During the current year 1987-88 the prospects for oilseed production are not good since Saurashtra region in Gujarat, which accounts for more than a third of total groundnut production, has received very poor rainfall. It is estimated that only about 25 per cent of the normal area under the nine major oilseeds has been sown in Gujarat. The condition of the major rabi oilseed, rapeseed and mustard, is reported to be good in all the States except Haryana and Rajasthan. The condition of other rabi oilseeds is also reported to be satisfactory.

Groundnut

2.51 The production of groundnut during 1986-87 was 6.06 million tonnes showing an increase of 0.94 million tonnes over the previous year. This increase mainly occurred in kharif groundnut production. The increase in the groundnut production is partly due to an increase in area under the crop. All the States except Tamilnadu, Rajasthan and Maharashtra have shown an increase in production of groundnut during 1986-87. Gujarat and Andhra Pradesh are the two major groundnut producing States which have recorded increases. Gujarat, in particular, has recorded an increase of 0.84 million tonnes over the previous year's level and this accounted for nearly 90 per cent of the increase in groundnut production.

2.52 For kharif 1987, the area sown in Gujarat is estimated to be only four lakh hectares out of the normal area of 19 lakh hectares. Even in the area where the crop was sown, about 40 per cent of the crop is estimated to have been damaged by moisture stress. Crop conditions in Tamil Nadu and Andhra Pradesh were also unsatisfactory.

2.53 Rapeseed and mustard are the major rabi oilseed crops, accounting for about 55 per cent of rabi oilseed output and 23 per cent of total oilseed output in 1986-87. Production of rapeseed and mustard during 1986-87 was 2.63 million tonnes, 0.05 million tonnes less than the previous year's level. Among the major rapeseed and mustard producing States, increase in production was reported by Madhya Pradesh and Rajasthan while Haryana, Jammu and Kashmir, Punjab and Uttar Pradesh reported a fall in production. During the current year 1987-88, the area sown might increase since mustard and toria were grown where paddy crop could not be taken up due to deficient rains as in the upland areas of Punjab, Haryana and Uttar Pradesh.

2.54 Soyabean production during the current year was 0.84 million tonnes as against 1.02 million tonnes in the previous year. The decline in production of soyabean is mainly attributable to the decline in Madhya Pradesh (—0.18 million tonnes), the single most important soyabean producing State because of the drought conditions that prevailed in the State in 1986-87. There was also a fall in production of soyabean in Uttar Pradesh, while a small increase was reported by other States. During the current year 1987-88, the sowings of soyabean were late and acreage was affected in western Madhya Pradesh and Uttar Pradesh because of the late and weak monsoon. In Madhya Pradesh the coverage is expected to be of the same order as last year which itself was a drought year.

2.55 There was an impressive increase in production of sunflower in 1986-87 in both the kharif and rabi seasons. The important sunflower producing States are Karnataka and Maharashtra. Karnataka reported an increase in kharif sunflower production but a fall in that of rabi sunflower while Maharashtra reported a fall in output of kharif sunflower and an increase in rabi sunflower production.

2.56 Whereas the production of oilseeds and edible oils has remained more or less stagnant in recent years, its demand has been rising with increases in income and population. Along with measures to increase domestic availability through imports, the Government has launched a concerted effort to boost the production of oilseeds and move towards self-reliance through the Technology Mission on Oilseeds which was set up in May, 1986.

2 57 The Mission concentrates on 4 major areas of operation namely, making available more profitable crop technology to motivate the farmers, providing a strong support system to farmers through the extension system and input supply agencies for application of proper technology, making available modern post-harvest technology to motivate industry for better processing, storage etc. and ensuring remunerative prices and procurement to the farmers and extending necessary support to the edible oil industry in processing, storage and marketing.

2.58 The National Oilseeds Development Project (NODP), with an allocation of Rs. 170 crores, is being implemented during the Seventh Five Year Plan. The Oilseeds Production Thrust Project (OPTP) which is funded 100 per cent by the Central Government, was initiated in the current year 1987-88 to help the farmers in the matter of input supply and production.

2.59 In recent years, good progress has been made in the field of research both in crop and post harvest technologies. In crop technology, 31 improved varieties/hybrids have been evolved and the production of breeder seeds increased by 34 per cent over the previous year. A post-harvest processing technology for rice bran stabilisation and a superior technology for processing sunflower seeds was also evolved. In order to popularise cultivation in the country, 35 tonnes of a promising variety of sunflower seed was imported during kharif 1987. These have been multiplied and made available for use in rabi. 1987-88.

2.60 As a result of the measures taken in this direction, the area under sunflower and soyabean in kharif 1987 is reported to have increased by 40 per cent and 20 per cent respectively over the previous kharif season. In order to boost oilseed production, price incentives are also being given to oilseed growers.

Cotton

2.61 The production of cotton in 1986-87 is 7 million bales. This is 1.7 million bales less than the record production achieved during 1985-86. The decline in production during 1986-87 has been reported mainly by Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu. The major decreases were in Maharashtra (—1.1 million bales), Andhra Pradesh (—0.11 million bales), Gujarat (—0.90 million bales), Karnataka (—0.09 million bales) and Tamil Nadu (—0.14 million bales). The decrease in production was, however, offset to some extent by the increase reported in Punjab (0.3 million bales), Haryana (0.16 million bales) and Rajasthan (0.22 million bales).

2.62 The area under cotton during 1986-87 fell by 0.46 million hectares to 7.07 million hectares. The large decreases in area were in Andhra Pradesh (−0.2 million hectares) and Karnataka (−0.15 million hectares).

2.63 During the year 1987-88, the monsoon was deficient in many of the major cotton producing States. Drought affected the sowing of cotton crop in Gujarat, Punjab, Maharashtra, Haryana and Rajasthan. In Tamil Nadu no sowings were undertaken even by the second week of September. This might lead to a further decline in the area under cotton during 1987-88 and production also is likely to show a fall.

Jute and Mesta

2.64 In the case of both jute & mesta there was a substantial decline in production as well as acreage during 1986-87, the decline in production being more pronounced. The production of jute at 7.36 million bales during 1986-87 showed a decline of 32 per cent (−3.5 million bales) over the previous year and the decline in area at 0.81 million hectares was lower by 30 per cent (—0.34 million hectares). The decline in area and production during 1986-87 was reported by all the jute growing States. The three major jute growing States, i.e., West Bengal, Assam and Bihar accounted for more than 90 per cent of the fall in area and production during 1986-87.

2.65 In the case of mesta, the production during 1986-87 was 1.27 million bales, showing a fall of 28 per cent (—0.49 million bales) and the area cultivated was 0.27 million hectares, showing a fall of 23 per cent (—0.08 million hectares). The decline in mesta production during 1986-87 as compared to 1985-86 was reported by all the mesta growing States. Two States namely, West Bengal and Andhra Pradesh accounted for 74 per cent of the decline in production and 68 per cent of the decline in area during 1986-87.

2.66 During the current year 1987-88, it is estimated that there will be some fall in area under jute and mesta because of drought conditions that prevailed in Andhra Pradesh and floods in West Bengal. Measures that were taken by the Government recently to help jute growers and the jute industry include the creation of a Jute Modernisation Fund and a Special Jute Development Fund of Rs. 150 crores and Rs. 100 crores respectively. The funds are intended for modernising, restructuring/rehabilitating the jute industry and for the development of jute cultivation. The Government has also introduced mandatory use of jute packaging material for certain sectors of the economy.

Sugarcane

2.67 After achieving a record production of 189.5 million tonnes in 1982-83, sugarcane production suffered a set back in the next three years. However, during 1986-87 the production of sugarcane again increased to 182.5 million tonnes, an increase of 11.8 million tonnes over the level achieved during

1985-86. The States that contributed to this increase are Uttar Pradesh, Tamil Nadu, Haryana, Punjab, Madhya Pradesh and Karnataka. Large increases in production were achieved during 1986-87 in Uttar Pradesh (12 million tonnes), Tamil Nadu (1.6 million tonnes), Haryana (1.6 million tonnes), Punjab (1.1 million tonnes) and Karnataka (0.2 million tonnes). Four States namely Uttar Pradesh, Tamilnadu, Karnataka and Maharashtra accounted for almost 77 per cent of total sugarcane production in 1985-86. Of these, Uttar Pradesh, Tamil Nadu and Karnataka together showed an increase of about 14 million tonnes, while Maharashtra showed a decline of 2.8 million tonnes. The other States that showed large decreases in production during 1986-87 were Andhra Pradesh, Gujarat and Orissa.

2.68 The massive increase in production is largely attributable to an increase of 0.21 million hectares in area under sugarcane over the previous year. This is mainly due to an increase in area under sugarcane in Uttar Pradesh. Orissa, Maharashtra and Gujarat have, however, shown a marginal decrease in area under sugarcane. Andhra Pradesh is a special case where production declined despite an increase in area under the crop.

2.69 During the current year 1987-88, the poor rainfall might adversely affect the yield of sugarcane crop although area under sugarcane might be somewhat higher. In view of the drought this year, the statutory minimum price (SMP) of sugarcane for 1987-88 season, which was fixed at Rs. 18 per quintal linked to a basic recovery rate of 8.5 per cent at the beginning of 1986-87 season, has been revised upwards to Rs. 18.50 per quintal. For the next season 1988-89, a SMP of Rs. 19 per quintal has been announced linked to a basic recovery of 8.5 per cent. The advance announcement of SMP has helped to eliminate uncertainty about the trend of future sugarcane prices in the minds of the farmers and consequently induce them to increase the production of cane.

2.70 Sugar production during 1986-87 achieved a record level of 85 lakh tonnes, which is more than the previous best attained in 1981-82 and 15 lakh tonnes more than production in the previous year. This impressive growth in sugar production is mainly attributable to the measures initiated by the Government for the 1986-87 season. Thus the ratio of levy to free sale sugar was reduced to 50:50 in 1986-87 from 55 : 45 in 1985-86 and the price of molasses was doubled from Rs. 60 per tonne to Rs. 120 per tonne. Also, while raising the rate of excise duty from Rs. 30 to Rs. 60 per tonne, a provision has been made to set off the duty where molasses are used for production of industrial alcohol. This was done to help the sugar industry to tide over its cash flow problem.

Agricultural Inputs

2.71 In order to increase yields per hectare and stabilise output growth, a major thrust is required to increase the share of cropped area brought under irrigation, alongwith more intensive use of inputs like improved/high yielding variety (HYV) seeds, and chemical or bio-chemical fertilisers. It is also important to ensure an augmented flow of agricultural credit.

Irrigation

2.72 The drought experienced this year has reemphasised the need for early completion of the on-going projects and full utilisation of the irrigation potential created. The most important long term requirement for agricultural development is maximisation of area under assured irrigation. Accordingly, the plan allocation for major and medium irrigation projects is being augmented and greater emphasis is being placed on full utilisation of potential already created. The Seventh Plan document had already given highest priority to the completion of on-going irrigation schemes and to improved operations and management of existing schemes.

2.73 The irrigation potential of 22.6 million hectares, which existed in 1951, nearly trebled to about 67.5 million hectares by the end of the Sixth Five Year Plan. The Seventh Plan envisages the creation of additional irrigation potential of 12.9 million hectares as against 10.9 million hectares of potential created during the Sixth Plan. The achievement during the first year of the Seventh Plan (1985-86) was creation of a potential of 2.1 million hectares. The anticipated achievement for the second year, i.e., 1986-87 is 2.32 million hectares, marginally lower than the target of 2.42 million hectares for the year 1986-87. The target for the year 1987-88 was additional irrigation potential of 2.38 million hectares which has been augmented as a part of the drought management programme.

2.74 While creation of additional potential is a pre-requisite for agricultural development, it is equally important that the potential is utilised promptly and efficiently. Past experience shows that there is a large gap beween the creation of additional irrigation potential and the utilisation of created potential. The gap in the potential and utilisation has increased from about 7.0 million hectares at the end of Sixth Plan (1984-85) to about 7.5 million hectares in 1985-86. In medium and major irrigation alone, the gap between the created potential and its utilisation has re-

mained at about 5 million hectares. In case of minor irrigation schemes although the gap is less, it has been increasing and had gone up to 2.74 million hectares in 1985-86.

TABLE 2.5

Development of Irrigation Potential and its Utilisation (cumulative coverage)

(Million hectares)

Year	Major & Medium Scheme		Minor scheme		All schemes	
	Poten-tial	Utili-sation	Poten-tial	Utili-sation	Poten-tial	Utili-sation
1979-80	26.60	22.60	30.0	30.00	56.60	52.60
1984-85	30.01	25.33	37.52	35.25	67.53	60.58
1985-86	30.53	25.78	39.09	36.35	69.62	62.13
1986-87 (Anticipated)	31.18	26.43	40.76	37.74	71.94	64.17
1987-88* (Additional)	0.70	0.64	1.68	1.41	2.38	2.05
Seventh Plan* (Addtional)	4.31	3.92	8.60	7.00	12.91	10.92

*Target

2.75 The basic problem with the utilisation of potential in case of medium and major irrigation works is the non-development of land in the command areas by way of land shaping, land-levelling or construction of field channels. Lack of extension work to induce the farmers to take advantage of available irrigation facilities and deficiencies in the management system, leading to inefficient distribution of water, have also emerged as serious problems.

2.76 Also, the crop pattern actually realised often does not conform to the pattern envisaged at the project formulation stage. Farmers at head reaches tend to grow crops which consume a lot of water in contravention of the crop pattern originally planned. This results in shortage of water at the lower reaches especially in poor monsoon years. Consequently, benefits often do not flow from the project in the manner envisaged. In case of minor irrigation, the factors that lead to a gap between created potential and utilisation include non-availability of power for agricultural pumpsets and tubewells, inadequate maintenance and lack of proper distribution system from public tubewells.

2.77 One of the important measures taken to reduce the gap between potential created and utilisation is to revamp the centrally sponsored Command Area Development Programme (CADP) which covers the activities of construction of field channels, field drains, land levelling, and extension work among farmers. As against 76 projects in the beginning of the Sixth Plan, the programme now covers about 132 selected major and medium irrigation projects. High priority in allocation of both physical and financial resources is being given to these projects. Emphasis is being laid on efficient management of water distribution system, more efficient and timely on farm water delivery and training of field staff and farmers in the management of water distribution systems below the outlet level. The programme will be continued in all 132 projects in 1987-88. The States have been asked to prepare detailed project reports for each project indicating total cost, phasing of the requirement of funds and the targets to be achieved. The Plan outlay for the CAD programme in 1987-88 is Rs. 318.23 crores as against the outlay of Rs. 307.12 crores and anticipated expenditure of Rs. 294.49 crores for 1986-87.

Seeds

2.78 A major element in the strategy for increased foodgrain production is to increase the area under high yielding varieties of paddy, wheat and other cereal crops. The area under high yielding varieties increased from 38 million hectares to 54 million hectares during the Sixth Plan. During the first year of the Seventh Plan, 1985-86, the area under HYV has increased further to 55 million hectares. However, during 1986-87, the area under HYVs declined to 54 million hectares, mainly because of a fall in the area under HYVs of jowar and bajra. The achievement in 1986-87 is also much lower than the target of 60.6 million hectares set for that year.

TABLE 2.6

Area Under HYV

(Million hectares)

Crop	1979-80	1984-85	1985-86	1986-87*	1987-88**
Paddy	15.99 (40.6)	22.78 (55.3)	23.37 (56.9)	23.48 (57.6)	26.53
Wheat	15.03 (67.6)	19.09 (80.9)	19.18 (83.5)	19.02 (83.3)	21.13
Jowar	3.05 (19.3)	5.07 (33.1)	6.08 (37.9)	4.94 (31.7)	6.45
Bajra	2.96 (28.0)	5.17 (49.0)	4.99 (47.2)	4.68 (42.0)	5.91
Maize	1.35 (23.7)	2.03 (34.5)	1.80 (31.0)	1.92 (32.5)	2.40
Total	38.38	54.14	55.42	54.04	62.42

*Anticipated **Targets

Figures in parenthesis give the percentage of HYV area to the total area under the crop.

2.79 Adequate production and distribution of the certified quality seeds is essential for increased agricultural production. During the Sixth Plan the distribution of certified seeds went up from 14 lakh quintals in 1979-80 to 48.5 lakh quintals in 1984-85. This further increased to 55 lakh quintals in 1985-86.

During 1986-87, however, there has only been a small increase in the distribution of certified seeds.

TABLE 2.7

Distribution of Certified/Quality Seeds

(Million hectares)

Year	Lakh quintals	Percentage increase over the preceding year
1980-81	25.01	..
1981-82	29.81	19.2
1982-83	42.06	41.1
1983-84	44.97	6.9
1984-85	48.46	7.8
1985-86 . . . . . (anticipated)	55.01	13.5
1986-87 . . . . . (likely achievement)	55.83	1.5

2.80 The main reason for this slow down in the distribution of certified/quality seeds is perhaps a diversification of area from high seed rate crops like groundnut (125 kgs./hectare) to low seed rate crops like rapeseed and mustard (5 kgs./hectare). Also crops sown because they require less irrigation typically have a low seed rate compared to wheat, paddy, groundnut, etc.

2.81 In order to achieve the seed distribution target **of 73 lakh quintals in 1987-88 and 11.74 million quintals by the end of the Seventh Plan, infrastructural facilities for seed production, processing quality control and distribution have to be extended beyond** the States presently covered by the National Seeds **Project to other States like Assam, West Bengal, Gujarat and Madhya Pradesh and the North Eastern Region. This is proposed to be achieved through** Phase III of the National Seeds Project which is **expected to be implemented during 1987-88. National Seeds Project I, for creating infrastructural facilities in Andhra Pradesh, Haryana, Maharashtra and Punjab and National Seeds Project II, covering Bihar,** Karnataka, Orissa, Rajasthan and Uttar Pradesh, were completed in December, 1984 and December, 1985 respectively. It is interesting to note that in the SRP Programme the share of the eastern region in paddy is now rising.

2.82 To review the present and future strategies in to seeds, the Government of India has set up an Expert Group on seeds. The Group will examine the adequacy and thrust of seed research, inter-linkage between various classes of seeds, effectiveness of production and delivery of seeds and mode of price fixation for improved seeds.

Fertilizer

2.83 During the Sixth Plan fertilizer consumption has increased from 52.6 lakh tonnes (nutrients) in 1979-80 to 82.1 lakh tonnes (nutrients) in 1984-85. In 1985-86, the first year of the Seventh Plan, it further rose to 87.4 lakh tonnes (nutrients) showing an **increase of 6.4 per cent over the previous year. During** 1986-87, however, there was no further increase in the consumption of fertilisers. In 1987-88, about 91.15 lakh tonnes of fertilizer nutrients are expected to be consumed as against a target of 103 lakh tonnes of nutrients.

TABLE 2.8

Offtake of Fertilisers

(Lakh tonnes of nutrients)

Year	Nitrogenous	Phosphatic	Potassic	Total NPK	Percentage increase
1979-80 .	35.0	11.5	6.1	52.6	2.7
1980-81 .	36.8	12.1	6.2	55.2	4.9
1981-82 .	40.7	13.2	6.7	60.6	9.9
1982-83 .	42.2	14.4	7.3	63.9	5.3
1983-84 .	52.1	17.3	7.7	77.1	20.7
1984-85 .	54.9	18.9	8.4	82.1	6.5
1985-86 . (Estimates)	58.2	20.7	8.5	87.4	6.4
1986-87 .	57.7	21.1	8.6	87.4	Nil
1987-88 . Targets	59.3	22.6	9.2	91.1	4.3

2.84 The production of fertilisers has shown a considerable increase from 29.8 lakh tonnes in 1979-80 to 51.8 lakh tonnes in 1984-85. During 1985-86 it further increased to 57.6 lakh tonnes and to 70.7 lakh tonnes during 1986-87. As a result, the share of imported fertilisers, has been coming down, from 20 lakh tonnes in 1979-80 to 13.5 lakh tonnes in 1983-84. Because of the tremendous increase in the consumption of fertilisers during the year 1983-84, imports were at an all time high level of 36.2 lakh tonnes in 1984-85. During 1985-86 production increased by 5.8 lakh tonnes and the imports were also kept high at 34 lakh tonnes. The increase in production in 1986-87 is of the order of 13 lakh tonnes and the imports were brought down

o 25 lakh tonnes because the off take of fertilisers during 1985-86 was 87.4 lakh tonnes. The target of ertilizer production for the year 1987-88 is 77 lakh tonnes and the imports are targetted to be brought down to 12 lakh tonnes, less than half of the imports of last year. Subsidy on imported fertilisers has been showing a continuous decline from 1984-85 onwards, mainly because of scaling down of the level of imports as also because of lower international prices. However, with the increase in indigenous production and comissioning of new units the subsidy on indigenous fertilizers has shown a continuous increase.

TABLE 2.9

Fertilizers : Production, Imports and Subsidies

Year	Production ('000 Tonnes)	Imports ('000 tonnes)	Subsidies (Rs. crores) on imported fertilizers	on domestic production	Total
1979-80	2983	2005	282	321	603
1980-81	3005	2759	335	170	505
1981-82	4093	2041	100	275	375
1982-83	4404	1132	55	550	605
1983-84	4533	1355	142	900	1042
1984-85	5181	3624	727	1200	1927
1985-86	5756	3399	324	1600	1924
1986-87	7070	2500	233	1700*	1933
1987-88 (Targets)	7700	1200	166	1750**	1916

*R.E. **B.E.

Credit

2.85 The objectives of agricultural credit policy are to provide adequate and timely credit to the farmers, with a focus on small and marginal farmers or other weaker sections, and to provide adequate credit support for areas selected under special programmes like Special Rice Production Programme (SRPP) and National Oilseeds Development Project (NODP), for dryland farming etc.

2.86 The quantum of agricultural credit disbursed by the institutional agencies has been increasing over the year. During the Sixth Plan, the total disbursements by these agencies increased from Rs. 2759 crores in 1979-80 to Rs. 5556 crores in 1984-85. During the first two years of the Seventh Plan, the disbursements have increased to Rs. 6886 crores in 1985-86 and to Rs. 7195 crores in 1986-87.

TABLE 2.10

Disbursement of Agricultural Credit

(Rs. crores)

	1979-80	1984-85	1985-86	1986-87	1987-88*
I. *Cooperatives*					
Short term .	1358	2334	2409	2670	3289
Term loan .	585	662	797	830	1056
II. *Commercial banks/Regional Rural banks*					
Short term & Term loans	815	2560	3680	3695	5300
Total (I+II)	**2759**	**5556**	**6886**	**7195**	**9645**

*Target

2.87 In view of the drought, the State Governments have been advised to step up credit support substantially to the farming communities during rabi 1987-88. The target for disbursements during 1987-88, has been fixed at Rs. 9645 crores.

2.88 For the weaker sections, certain relaxations like lower rate of interest, longer repayment schedule, lower down payment of margin for long term loans etc, were continued during 1986-87. Out of the total flow of credit of Rs. 7195 crores during 1986-87, the share of weaker sections was about 45 per cent.

2.89 The major problem faced by the lending institutions particularly the cooperatives, is the unsatisfactory level of over-dues. At the end of June 1985, the percentage of overdues at the Primary Agricultural Credit Societies (PACS) level was about 41 per cent while at the level of Primary Land Development Banks it was around 41.7 per cent. The State Governments have been advised to draw up and implement time bound programmes for special recovery drives. However, due to the drought this year, certain relaxations have been allowed. The RBI/NABARD has issued instructions to banks to reschedule outstanding loans and provide crop loans to farmers seriously affected by the drought to undertake second sowing or raise alternative short duration crops including fodder, production of seeds etc. Special facilities are being provided to farmers who have been affected by three or more years of drought, both in respect of complete rescheduling of loans and provision of new credit. The limit for consumption loans to small and marginal farmers and other weaker sections was raised from Rs. 250 to Rs. 500. Banks were also advised to process and sanction loans for minor irrigation quickly.

Crop Insurance

2.90 All the farmers availing of crop loans from Co-operatives, Commercial Banks and Regional Rural Banks for raising paddy, wheat, millets, oilseeds and pulses are covered under this scheme. The insurance premium is charged at the rate of 2 per cent of the sum assured for paddy, wheat and millets and 1 per cent of the sum assured for oilseeds and pulses. A part of the premium paid by the small and marginal farmers is subsidised by the Central Government and the concerned State Governments on a 50:50 basis. The progress of the Comprehensive Crop Insurance Scheme (CCIS) is indicated in Table 2.11.

TABLE 2.11
Crop Insurance Scheme

	Kharif 1985	Rabi 1985-86	Kharif 1986	Rabi 1986-87	Kharif* 1987
No. of States	11	13	15	15	18
No of Union Territories	2	3	4	3	3
No. of farmers covered (lakhs)	26.4	14.0	39.3	10.0	44.4
Area covered (lakh hect.)	53.7	22.4	76.7	17.0	75.2
Sum insured (Rs. crores)	542.7	245.6	863.6	196.5	1080.0
Premium collected (Rs. crores)	9.3	4.4	14.6	3.7	18.2
Claims paid/ payable (Rs. crores)	83.0	3.0	67.6**	N.A.	N.A.

*Provisional (as on 15-10-87).
**Total claims payable Rs. 159.4 crores.

2.91 So far 18 States and 3 Union Territories have implemented the scheme. The State Government of Rajasthan implemented the scheme in Rabi 1985-86 and kharif 1986 but later it had opted out. In order to make the scheme more attractive, the CCIS was modified from rabi 1986-87 season. Now for paddy and wheat there are 3 rates of indemnifiable limits viz. 80 per cent, 85 per cent and 90 per cent depending upon the coefficient of variation in yield. Such threshold yield will be determined on the basis of a moving average of last three years yield as against the average of last 5 years yield as originally provided under the scheme. During kharif 1987, the number of farmers covered has increased to 44.42 lakhs as compared to 39 lakhs in kharif 1986. There has been a fall in the area covered during the same period because of withdrawal of Rajasthan from the scheme.

Dryland Agriculture

2.92 Dryland agriculture covers about 70 per cent of the total cultivated area but is characterised by low productivity, high risk and low income. Stable growth of rainfed/dryland agriculture is, therefore, crucial for regaining the momentum of overall agricultural growth. Keeping this in view a National Watershed Development Programme for Rainfed Agriculture was initiated in 1986-87 in selected districts on a pilot basis. The programme lays emphasis on land and water management through introduction of optimal cropping systems, dryland horticulture, farm forestry, fodder production etc. Attempts are also being made to step up the pace of research in dryland agriculture.

Outlook

2.93 The severity of the drought this year and the slackening of agricultural production underlines the continuing sensitivity of agricultural performance to vagaries of weather, although there is no doubt that the ability of the economy as a whole to cope with a drought is much greater today than earlier.

2.94 Instability in agricultural production is mainly attributable to the fact that about 70 per cent of total cropped area is still rainfed. This is specially true of the kharif crops. Further, out of the 30 per cent of cropped area irrigated, a large proportion of the additional irrigation has come from wells and tanks which are themselves rain dependent and get depleted in years of poor rainfall. More specifically, it derives from the fact that agricultural growth has come largely from increases in yield rather than acerage during the last two decades and yield itself is highly sensitive to rainfall. The weather sensitivity of output growth is also probably reinforced by the uneven development of agriculture, with increases in production having come largely from a few regions or States. Drought in these regions, therefore, has a strong impact on aggregate national production.

2.95 Instability in output growth and the uneven regional distribution of growth in Indian agriculture have led to the evolution of a long term strategy which aims at stabilising growth through the greater coverage of cropped area by assured irrigation, emphasis on the availability of infrastructure and inputs in backward regions with high potential and better water management in rainfed or dryland agriculture. This strategy is also being integrated with the attempt to arrive at a more balanced cropping pattern, in particular, a thrust towards self reliance in edible oils through the Technology Mission on Oilseeds.

2.96 The government has now decided to give top priority to these strategic tasks in order to stabilise agricultural growth along a higher path. A high level group has accordingly been constituted to work out an action plan for the fulfilment of targets in the agricultural sector.