Adhoc Study No.58

A STUDY ON
IMPACT OF 1987-88 DROUGHT
ON
RURAL POPULATION
IN
BALAGHAT DISTRICT, M.P.

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C O N T E N T S

LIST OF TABLES

CHAPTER - I

INTRODUCTION

1.1 Drought

The term drought is interpreted differently by those concerned with it. For a meteorologist drought is a rainless situation for an extended period during which some precipitation is normally expected. But to the agriculturist, drought is a shortage of moisture for his crops, while for the hydrologist drought means recession of surface and underground water levels and a diminution of stream flows. To the economist drought on the other hand, will connect a situation under which water shortage ultimately affects the established economy in the area of his interest.

According to another definition "wet season to consist of weeks with a normal daily rainfall of 5mm and the week of drought as week with actual rainfall equal to half the normal rainfall or less". On the other hand, the meteorological office has defined absolute drought as a period of at least fifteen consecutive days none of which had a rainfall of 0.1 inch (2.5 mm) or more".

1.2 Classification of Drought

The National Commission on Agriculture has devoted a full volume in its 15 Volume Report, to the analysis of climate and agriculture.[1] This is based mainly on the work done by the Indian Meteorological Department.

The volume contains information on classification of drought as described below:-

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1. "Report of the National Commission on Agriculture, 1976, Vol.IV- "Climate and Agriculture". Ministry of Agriculture and Irrigation, Government of India, New Delhi.

The help provided is in many forms viz. supply of drinking water, drought relief works, supply of foodgrains free of cost or at subsidised rates, medical relief, sinking of new wells, deepening of old wells, energisation of pumps, supply of fodder and veterinary aid, postponement of recovery of revenue etc.

These are the traditional measures Government had been taking whenever drought occurred. The planners associated with the five year plans, noted that there are some areas where drought occurred more frequently than others. In other words some districts of the country were identified as 'drought prone' and needed special treatment in the planned programmes of development. So was the necessity of the "Drought Prone Area Programme (D.P.A.P.)".

1.4 Drought Prone Area Programme

The Drought Prone Area Programme, initially designated as Rural Works Programme, was started during 1970-71 with the objective of obviating in the long run, emergent scarcity by providing employment on a sustained basis through labour intensive works such as soil and moisture conservation, irrigation, afforestation and construction of roads.

After the mid-term appraisal of the Fourth Five Plan, the programme was re-designated as the 'Drought Prone Area Programme'. The Programme was operated in 74 districts of 13 States till 1981-82. Since 1982-83 it is in operation in 510 blocks of 69 districts of 13 States. In Madhya Pradesh, the D.P.A.P. Scheme is being taken up in 6 districts namely Dhar, Jhabua, Khargone, Betul, Sidhi, and Shahdol covering more than 48 blocks.

The main objectives of programme is to attain integrated development of D.P.A.P. area so as to increase and stablize the income of the weaker sections and to minimise the impact of drought in agricultural production and bring about the improvement in ecological balance.

The above objective of the programme can be achieved by following efforts :-

(a) Promoting a more productive dryland agriculture on the basis of the soil water-climate resources of the area.

(b) Development and productive use of the water resources of the area.

(c) Soil and moisture conservation including promotion of proper land use practices.

(d) Afforestation including farm forestry.

(e) Livestock development including development of pasture and fodder resources.

The main components of the programme are irrigation, soil conservation and dryland farming, afforestation and pasture development, livestock development, sericulture ,horticulture and fisheries development.

The funding of the programme is on 50:50 matching basis by the Central and State Governments. The funds are allocated annually at the rate of Rs.15 lakhs per block in the Sixth Plan Period.[2]

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2. As quoted in the "Review of Sixth Plan and Perspective, Seventh Five Year Plan 1985-90 and Annual Action Plan for 1985-86 and 1986-87, Dhar district, Madhya Pradesh, District Rural Development Agency, Dhar, (M.P.)

1.5 Impact of Drought

The problem of yield uncertainty in agriculture is of no less importance if not more than that of growth in agriculture. The nature, magnitude and impact of uncertainty in agricultural output is of vital concern to the economy as a whole, as much as to the farmers.

The risk of crop failure or droughts has double effect of reducing the availability of output to consumers and of reducing the incomes of those engaged in cultivation viz. farmers and agricultural labourers. The latter effect in turn reduces the income of others whose prosperity depends on the prosperity of farmers. Though buffer stocks can be expected to stabilise fluctuations in the availability to consumers, crop failures still pose a problem in the case of vast majority of agricultural commodities even from the point of the limited objective of price stablisation.

Even if buffer stocks achieve price stabilisation they can not provide purchasing power to those dependent on agriculture for livelihood. A failure of crops can ruin the economy of the farmers concerned, especially the small farmers. A drought can lead to expropriation of small peasants ultimately pushing them irreverseably into the ranks of agricultural labourers. They tend to sell off capital equipments, livestock and even land in the event of a drought. As a result, they even lose the wherewithal to undertake cultivation in the next crop season unless the necessary help is provided. Thus the impact of drought may vary from the small increment in the prices of agricultural commodities and slightly lowering of per capita income of agricultural population to total uprooting of the rural masses and an unsurmountable

burden of liabilities on them.

1.6 The Study

In the meeting of the Officers-in-Charge held on 12th February, 1988 the Additional Secretary, Ministry of Agriculture stressed the need for conducting studies on the current topics of importance. It was desired that the report on the studies be submitted within a period of 4-6 months. In this reference a need to know the impact of the drought of 1987-88 was put forward and it was agreed to conduct a quick study on 'Impact of 1987-88 drought on rural population' by majority of the Agro-Economic Research Centres.

1.7 Objective

As the title suggests, the objective of the study obviously was to examine the impact of 1987-88 drought on the economic conditions of rural people in Balaghat district of Madhya Pradesh State.

1.8 The Sample

For the purpose of selection of a district, the data compiled by the office of the Production Commissioner, Madhya Pradesh, on rainfall till 30th September 1987 in different districts of the State were collected. It indicated that Balaghat district of the State had the maximum negative percentage of variation from the normal rainfall till 30.9.87 (Table 1.1). As mentioned in para 1.6 above, this was a quick study therefore, it was thought fit to select only one district.

In the selected district, Balaghat block was selected in consultation with the concerned officials of the district. In Balaghat block five villages were selected and from these villages 50 households formed the sample. They represented small (20),

Table 1.1 Rainfall in 4 most deficient districts of Madhya Pradesh (from 1.6.87 to 30.9.87)

(In mm)

S.No.	Name of the district	Actual	Normal	Diff. in (+,-)	Percentage variation
1.	Balaghat	669	1589	-920	-57
2.	Bhind	293	678	-385	-56
3.	Gwalior	363	793	-430	-54
4.	Khandwa	444	951	-507	-53

Source : Meteorological Centre, Bhopal

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medium (10) large (10) cultivators and landless agricultural labourers (10). The cultivators were grouped into three categories according to the size of land holdings:

(i) Small cultivators : Those with land holdings upto 2 hectares.

(ii) Medium cultivators : Those with land holdings from 2.1 hectares to 4 hectares.

(iii) Large cultivators : Those with more than 4 hectares of land holding.

The relevant secondary data about drought situation and allied aspects were collected from the publications of government agencies.

An interview schedule was canvassed among the respondents for collecting primary data. The schedule pertained to landholding details, crop pattern, cultivation practices of the crops for the year 1986-87 and 1987-88 and experience regarding different aspects of drought etc.

1.9 Reference Year :

Field work for collecting primary data was done in the first week of July 1988. The reference period of the study for the primary data related to two agricultural years; viz. 1st July, 1986 to 30th June 1987 and 1st July 1987 to 30th June 1988.

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C H A P T E R -II

THE ECONOMY OF BALAGHAT DISTRICT

Balaghat is one of the developing districts in Madhya Pradesh having plenty of natural resources required for the growth and development. The district has not only rich deposits of minerals viz. manganese, dolomite and copper but also rich in forests having valuable species like teak, sal, bamboo etc.

Agriculture, minerals and forests thus have ample scope for the industrial development in the district. Balaghat district finds important place on the map of India for rich deposits of copper at Malajkhand and the manufacture of mangalore tiles.

2.1 Location

The district is situated in the south corner of Jabalpur Revenue Division between $21^{\circ}19'$ and $22^{\circ}24'$ north latitude and $79^{\circ}39'$ and $81^{\circ}03'$ east longitude. The district is bounded in the east by Khairagarh and Kawardha tahsils of Rajnandgaon district, in the north by Mandla district and in the west by Seoni district. Bhandara district of Maharashtra State forms common boundary of the district in the south. The district is spread over 9,229 square kilometers.

2.2 Administrative Setup

Balaghat district is a part of Jabalpur Revenue Division, and has following tahsils and blocks.

	Tahsil		Blocks
(1)	Balaghat	(i)	Balaghat
		(ii)	Kirnapur
(2)	Lanji	(i)	Lanji

(3) Waraseoni	(i)	Waraseoni
	(ii)	Lalbarra
	(iii)	Khairlanji
(4) Katangi	(i)	Katangi
(5) Baihar	(i)	Baihar
	(ii)	Birsa
	(iii)	Paraswada

2.3 Towns

There are five towns in the district out of which first three are municipalities and Municipal council was established at Baihar from 24th May 1984.

Name of Towns	Population (1981 Census)
1. Balaghat	49,563
2. Waraseoni	17,672
3. Katangi	11,748
4. Bharweli	5,995
5. Tirodi	11,202
6. Baihar	9,508

2.4 Population

As per 1981 census, the population of Balaghat district is 11,47,812 as against 9,77,583 in 1971. The rural population is 91.3 per cent against the State average of 79.71.

The density of population per sq.k.m. is 124 as against 118 for the state. The schedule castes and schedule tribes are 7.17 and 21.83 per cent respectively in the district as against state average of 14.10 and 22.97 per cent respectively. The

concentration of tribals is higher in Baihar tehsil and hence the tehsil is covered under tribal plan.

2.5 Literacy

The literacy percentage is 33.89 as against 29.87 per cent for the State.

2.6 Occupational Distribution

Out of the total workers 25.92 per cent are engaged in agricultural and allied activities, 6.14 per cent in household and other industries and 11.24 per cent in other services.

2.7 Soils

The soils of the district are light, sandy, alluvial and black.

2.8 Climate

The climate of the district is moderate. The maximum temperature is 45°C in May, while the minimum is 4.0° in December.

2.9 Rainfall

The rainfall data of Balaghat district was collected for the years 1981-82 to 1987-88 (Table 2.1). The minimum rainfall was 1892.6 mm. in 1983-84. The average rainfall of the seven years was 1363.4 m.m. Out of the seven years only 1983-84 had rainfall above normal while consecutively for the years 1984-85, 1985-86 and 1986-87 the rainfall was below normal. The above information highlights the instability and severity of shortage of rainfall consecutively for three years. The total annual rainfall during the reference year (1987-88) was 92[illegible].00m.m. and mansoon has been very weak in this year in the district. In the month of June the district received scanty rains and in the month of July district

Table 2.1 Monthly total Rainfall (m.m.) for Balaghat district (1981-82 to 1987-88)

Year	June	July	August	Sept.	October	Nov.	Dec.	Jan.	Feb.	March	April	May	Total Rainfall
1981-82	222.8	521.3	403.0	260.3	9.8	-	5.1	25.7	29.0	-	-	-	1480.2
1982-83	89.7	205.3	786.7	57.5	54.8	8.6	-	-	26.2	-	2.0	20.3	1251.1
1983-84	144.7	276.4	534.1	701.0	29.6	-	17.8	107.8	81.2	-	-	-	1892.6
1984-85	120.3	406.7	633.2	54.0	5.4	-	-	89.4	19.5	-	2.8	-	1330.0
1985-86	128.7	363.7	344.4	140.1	35.0	-	-	19.6	117.4	14.2	15.4	-	1184.3
1986-87	578.1	340.4	229.8	153.7	7.0	-	59.1	33.8	41.1	14.4	-	27.8	1485.2
1987-88	39.7	390.4	195.4	84.9	130.6	54.8	-	22.2	3.0	-	-	-	921.0
Average	189.1	357.7	446.6	207.3	38.8	9.0	11.7	42.6	45.3	4.0	2.8	6.8	1363.4

Source : Office of the Deputy Director of Agriculture, Balaghat district, (M.P.)

received widespread rainfall which gave some relief, but afterwards the situation deteriorated fast in the absence of rains or only scanty rains and the kharif crops were adversly affected. Under such a situation there was a great deal of agricultural instability in the district.

2.10 Forest

Forests cover 25.5 per cent of the total area of the district. The important forest products are teak and bamboo.

2.11 Minerals

The production of copper for the year 1986-87 was about 14,95,271 metric tonnes at copper project, Malajkhand, manganese, 2,53,277 metric tonnes at Bharweli, Ukwa and Tirodi mines and dolomite was about 12,800 metric tonnes.

2.12 Agriculture

The proportion of net cultivated area to total area is 42 per cent. The major crops of the district are paddy, wheat, maize, urad, kodo-kutki, linseed and gram. The area under double cropping is about 31.82 per cent as against the state average of 18.6 per cent. The proportion of area sown during kharif and rabi work out to be 72:28. The average size of operational land holding is 1.95 hectares as compared to 4 hectares for M.P. State.

2.13 Irrigation

The major source of irrigation is canals and commands 61 per cent of the gross irrigated area. The percentage of net irrigated area to net sown area is 42 as against 15.4 for M.P. State.

2.14 Use of Fertilizers

The use of fertilisers per hectare of gross cropped area in Balaghat district was 19 kgs. in 1986-87.

2.15 Roads

The district has 1,255 kms. of metalled and 393 kms. of unmetalled roads. The length of kutcha roads is 1,459 kms. The state highway number 11 and 26 run through the district. Thus the district has good communication. The road length per 100 sq.km. is 17.74 kms. in the district as compared to 13.1 kms. for M.P. state. District headquarters is well connected by meter guage train and road with cities and towns viz. Jabalpur, Chhindwara, Mandla, Seoni, Bhilai, Durg, and Raipur.

2.16 Electrification

In the district 830 villages have already been electrified and there is a plan to cover additional 199 villages during Seventh Plan period.

2.17 Industries

The industries in the district are generating employment for 29,862 persons as per 1981 census. The existing industries are agro-based, forest based and mineral based. Rural and cottage industries also exist in the district. The district has been categorised as Backward District Category "B" for the purpose of grant of concessions and facilities by the Government for industrial development.

2.18 Cooperative

There are 112 Primary Agricultural Credit Societies in the district and 19 branches of District Central Cooperative Bank and 5 branches of District Land Development Bank through which short term and medium term loans are distributed.

The following statement shows some important statistics in respect of the Balaghat district during the year 1987-88.

S.No.	Particulars	Number
I.	LOCATION	
1.	Number of towns	05
2.	Number of total villages	1,384
3.	Number of gram sabhas	441
4.	a) Total Population	11,47,810
	b) Rural Population	10,48,008
	c) Urban Population	99,802
5.	a) Schedule Caste Population	73,118
	b) Schedule Tribe Population	2,42,263
II.	OCCUPATIONAL DISTRIBUTION (1981)	
1.	No.of workers (Percentage to total workers in brackets)	
	1) Cultivators (% to total)	2,75,779 (56.70%)
	2) Agricultural labourers (% to total)	1,26,072 (25.92%)
	3) Cotttage & Household Industries (% to total)	29,862 (6.14%)
	4) Others (% to total)	54,677 (11.24%)
	5) Total workers	4,86,380
III.	INFRASTRUCTURES	
	(A) Power	
	Rural Electrification	
1.	No.of villages already covered	830
2.	No.of additional villages to be covered during the seventh plan	195

(B) Roads and Communications

1.	Total length of metalled roads (in kms.)	1,255
2.	Total length of unmetalled roads (in Kms.)	--
3.	Total length of kutcha roads (in Kms.)	1,459
4.	No.of villages towns connected by packa road	393
5.	Total length of railway tracks (Kms.)	140
6.	No.of Post Offices	206
7.	No.of Telegraph Offices	20

IV. DISTRIBUTION OF AREA (in hectares)

1.	Total reporting area	6,58,608
2.	Net cultivated area	2,78,021
3.	Current fallows	10,476
4.	Area under forest	1,67,886
5.	Area not available for cultivaton	1,16,186
6.	Other uncultivated area	4,365
7.	Area under waste land	40,986

V. IRRIGATION

1.	Net irrigated area (in hectares)	1,16,934
2.	Percentage of irrigated areas to net area sown	42.06%
3.	Mode of Irrigation (Irrigated area in hectares)	
	a) Wells (Dug wells,bore wells etc.)	7,959
	b) Canals	71,188
	c) Others (Tanks & Ponds)	37,783

VI	CROPPING PATTERN (Area in hectares)	
	1. Double/Multiple cropped area	88,473
	2. Percentage of double/multiple cropped area to net area sown	31.82%
	3. Gross cropped area	3,66,494
	4. Area under main crops	
	a) Paddy	2,33,360
	b) Wheat	20,884
	c) Linseed	28,878
	d) Urad	17,058
	e) Gram	8,211
VII	SIZE OF HOLDINGS	
	1. Less than 1 hectare	56,938
	2. 1 to 2 hectares	31,885
	3. 2 to 4 hectares	27,359
	4. 4 to 10 hectares	18,448
	5. above 10 hectares	3,668
VIII	FERTILISERS	
	1. Consumption of chemical fertilisers (in tonnes)	5,206
	2. Average consumption of fertilisers (in kgs.) per hectare of irrigated area	44
	3. Average consumption(in kgs) per hectare of gross cropped area	14
IX	FARM EQUIPMENT	
	1. No.of Tractors	123
	2. No.of Power Tillers	01
	3. Irrigation Pumpsets	
	a) Oil Engines	2,823
	b) Electric Engines	2,600
	c) No.of Power Threshers	11

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C H A P T E R-III

ECONOMIC CHARACTERISTICS OF SAMPLE FARMS

3.1 General

This chapter describes the economic characteristics such as size of family size of holdings, land use pattern, source of irrigation and cropping pattern of the sample farms. This provides the back-ground information and resource endowment of the farmers in the area which will help in the proper understanding of the results of the study.

3.2 Size of family and its composition

The average size of the family of the sample households was seven of which about 70 per cent were workers. Among the size group of holdings, the largest size of family was in the large size group (about 9 members) followed by medium sized holders. The size of the family was more or less the same among the small sized holders and landless labourers.

About 92 per cent males were working on the farm, and the remaining 8 per cent were non-farm workers and non-workers. Among different size groupsthe percentage of those working on farms was highest (96 per cent) in the medium size farm, followed by small (94 per cent), large (84 per cent) size group of farms and landless labourers (83 per cent). As regards females, 87 per cent of the total were the farm workers while the remaining 13 per cent were the non-farm workers and non-workers. At overall level only about 10 per cent of the total children were working on the farm. (Table 3.1)

Table 3.1 Size of family and its composition

(Ave.Number)

S.No.	Particulars	Landless labourers	Size groups of Holding (Hect.)			Overall
			Small	Medium	Large	
(A)	MALES					
1.	Working on farms	2.0 (83.33)	1.7 (94.44)	2.4 (96.00)	3.0 (83.33)	2.2 (91.66)
2.	Non-farm workers	0.3 (12.50)	-	0.1 (4.00)	0.2 (5.56)	0.1 (4.17)
3.	Non-workers	0.1 (4.17)	0.1 (5.56)	-	0.4 (11.11)	0.1 (4.17)
	Total :	2.4 (100.00)	1.8 (100.00)	2.5 (100.00)	3.6 (100.00)	2.4 (100.00)
(B)	FEMALES					
1.	Working on farms	1.5 (75.00)	1.4 (93.33)	2.3 (92.00)	3.2 (94.12)	2.0 (86.96)
2.	Non-farm workers	0.5 (25.00)	-	0.2 (8.00)	0.2 (5.88)	0.2 (8.70)
3.	Non-workers	-	0.1 (6.67)	-	-	0.1 (4.34)
	Total	2.0 (100.00)	1.5 (100.00	2.5 (100.00)	3.4 (100.00)	2.3 (100.00)
(C)	CHILDREN					
1.	Working on farms	0.2 (16.67)	0.2 (9.09)	0.3 (10.34)	0.1 (5.56)	0.2 (9.52)
2.	Non farm workers	-	-	-	-	-
3.	Non workers	1.0 (83.33)	2.0 (90.91)	2.6 (89.66)	1.7 (94.44)	1.9 (90.48)
	Total	1.2 (100.00)	2.2 (100.00)	2.9 (100.00)	1.8 (100.00)	2.1 (100.00)
Total working on farm		4.5 (60.36)	3.3 (60.00)	5.3 (67.09)	6.7 (76.14)	4.6 (69.70)
Total Non workers		1.1 (19.64)	2.2 (40.00)	2.6 (32.91)	2.1 (23.86)	2.0 (30.30)
GRAND TOTAL :-		5.6 (100.00)	5.5 (100.00)	7.9 (100.00)	8.8 (100.00)	6.6 (100.00)

3.3 Cultivated Area

It is observed that all 20 cultivators belonging to the category of small farmers owned together an area of 17.09 hectares. The average area owned by each small farmer, thus, comes to 0.85 hectare. The 10 medium sized cultivators owned in all an areas of 27.89 hectares. This works out to an average figure of 2.79 hectares. The total and the average area owned by the 10 large cultivators was 59.12 and 5.91 hectares respectively. The total area owned by all the 40 sample farmers was, thus, 104.10 hectares which gives an average of 2.60 hectares per household. In other words, the average area owned by small cultivators was one-third of the average of total sample farmers; that of medium sized cultivators was slightly higher; and that of the large cultivators was more than double of the average of total sample farmers. The distribution of land ownership between the sample farmers was, thus, much skewed and uneven.

The position relating to the area operated was not very much different from that of the area owned. All the 20 small cultivators together operated an area of 16.41 hectares. The operational holding per household, thus, comes to 0.82 hectares (as against owned area of 0.85 hectares). Similarly the total area operated by the 10 medium sized cultivators was 27.69 hectares while the average operated area was 2.77 hectares which was equal to average area owned by them. In the case of 10 large cultivators, the total operated and average operated area were 58.92 and 5.91 hectares respectively and these were equal to area owned by the large cultivators. The area operated was almost equal to area owned by the cultivators in almost all the three size groups of holdings. This suggests that the system of lease in and lease

out of land was not prevalent in the sample households at the time of this survey. The total operated area of all the forty sample households was 103.02 hectares and of this nearly 31.64 hectares (30.71 per cent) had irrigation facilities. The percentage of the area irrigated to the total operated area was not, of course, similar in the three categories of cultivators. For instance, in the category of small cultivators, the irrigated area was only 24.01 per cent of the area cultivated. But the corresponding percentage was 34.99 in the case of medium-sized cultivators and 30.57 in the case of large cultivators. It is clear that it was only in the case of small farmers that the irrigated area in terms of percentage was less than the total sample households. In contrast, the percentage of area irrigated to total area operated was higher than the total sample households in case of both medium-sized and large cultivators. (Table 3.2)

3.4 Cropping Pattern

Paddy, jowar, kodo-kutki, tur, urad, soybean and mixed crops were the important kharif crops of the sample cultivators. All these crops occupied a total operated area of 103.40 hectares during the reference year (1987-88) as compared to 103.21 hectares during the previous year (1986-87). An analysis by the category of cultivators shows that only medium sized cultivators sowed slightly more area in 1987-88 than in 1986-87. In contrast, the sown area of small and large cultivators remained the same during both the years.

On analysing the area sown under various kharif crops it is evident that the area devoted to paddy, jowar, soybean, and mixed crops during 1987-88 was 42.84 hectares, 1.62 hectares 1.22 hectares and 51.16 hectares respectively as compared to corresponding areas

Table 3.2 Area owned, Area Cultivated and Area Irrigated of Sample Households during the year 1987-88

Size group of cultivating holdings	No.of H.H.	Area Owned		Area Cultivated		Average area owned (hect.)	Average area Culti-vated (hect.)	Percentage of area cultivated based owned	Area Irrigated	
		Total Area in (hect.)	Percentage to total	Total Area in (hect.)	Percentage to total				Total Irrigated Area (hect.)	Percen-tage to Culti-vated area.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Small	20	17.09	16.42	16.41	15.93	0.85	0.82	96.02	3.94	24.01
Medium	10	27.89	26.79	27.69	26.88	2.79	2.77	99.28	9.69	34.99
Large	10	59.12	56.79	58.92	57.19	5.91	5.89	99.66	18.01	30.57
Total :-	40	104.10	100.00	103.02	100.00	2.60	2.58	98.96	31.64	30.71

of 43.47 hectares, 2.02 hectare 1.62 hectares and 53.99 hectares respectively under these crops in the year 1986-87. Thus the area sown under these crops in the reference year (1987-88) was less than the previous year (1986-87). It was only in case of urad that the area sown in 1987-88 (5.05 hectares) was more than the area sown in 1986-87 (0.60 hectares). Other important features of the cropping pattern during kharif season were that only two crops viz. paddy and kodo kutki were grown by the small farmers and similarly two crops viz. paddy and mixed crops were grown by the medium sized cultivators. Kodo-kutki was conspicuous by its absence in the cropping pattern of large cultivators. Wheat, gram, urad and linseed were the main rabi cropsof the sample cultivators. The total area sown under all these crops was 15.65 hectares in 1987-88 as compared to 14.83 hectares during 1986-87. Only the medium sized cultivators have cultivated less area in 1987-88 (3.84 hectares) as compared to the year 1986-87 (4.24 hectares). There was no change in the area sown in both the years by the small cultivators. On the contrary the area sown by the large-sized cultivators increased from 3.82 hectares in 1986-87 to 5.04 hectares in 1987-88.

An analysis of area sown under various rabi crops it is clear that the area sown under wheat crop decreased from 9.28 hectares in 1986-87 to 8.88 hectares in 1987-88. While the area under gram increased in the corresponding years, there was no change in the area sown under linseed crop.

Another important feature of the cropping pattern was that the medium-sized cultivators were least interested in growing urad and linseeds crops in both the years. The large-sized cultivators have neither grown urad during 1986-87 nor linseed during 1986-87 and 1987-88.

The area sown under vegetable crops (kharif) was identical and also very negligible in both the years (Table 3.3)

Table 3.3 Croping pattern of sample farmers during previous year (1986-87) and reference year (1987-88)

Size group of holding	K H A R I F C R O P									
	Paddy		Jowar		Kodo - kutki		Tur		Urad	
	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88
Small	16.31 (70.36)	16.31 (70.36)	-	-	0.10 (0.43)	0.10 (0.43)	-	-	-	-
Medium	5.27 (16.50)	5.46 (17.21)	-	-	-	-	-	-	-	-
Large	21.89 (34.79)	21.07 (32.85)	2.02 (3.21)	1.62 (2.53)	-	-	0.20 (0.32)	0.20 (0.31)	0.60 (0.95)	5.05 (7.87)
Total	43.47 (36.83)	42.84 (35.98)	2.02 (1.71)	1.62 (1.36)	0.10 (0.08)	0.10 (0.08)	0.20 (0.17)	0.20 (0.17)	0.60 (0.51)	5.05 (4.24)

Table continued....

Table 3.3 Continued.....

Size group of holding	K H A R I F C R O P							
	Soybean		Mixed Crop		Vegetables		Total	
	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88
Small	-	-	-	-	-	-	16.41 (70.78)	16.41 (70.79)
Medium	-	-	22.43 (70.23)	22.43 (70.69)	-	-	27.70 (86.73)	27.89 (87.90)
Large	1.62 (2.57)	1.22 (1.90)	31.56 (50.16)	28.73 (44.79)	1.21 (1.92)	1.21 (1.89)	59.10 (93.93)	59.10 (92.14)
Total	1.62 (1.37)	1.22 (1.02)	53.99 (45.74)	51.16 (42.97)	1.21 (1.03)	1.21 (1.02)	103.21 (87.44)	103.40 (86.85)

Continued.....

Table 3.3 Continued.....

Size group of holding	R	A	B	I	C	R	O	P	S	Gross Cropped Area	
	Wheat		Gram		Urad		Linseed		Total		
	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88	1986-87	1987-88	1986-87 1987-88
Small	3.63 (15.66)	3.63 (15.66)	0.89 (3.84)	**0.89 (3.84)**	0.60 (2.59)	0.60 (2.59)	1.65 (7.12)	1.65 (7.12)	6.77 (29.21)	6.77 (29.21)	23.18 (100.0) 23.18 (100.00)
Medium	3.03 (9.49)	2.63 (8.29)	1.21 (3.79)	**1.21 (3.81)**	-	-	-	-	4.24 (13.27)	3.84 (12.10)	31.94 (100.0) 31.73 (100.00)
Large	2.62 (4.16)	2.62 (4.08)	1.20 (1.91)	**2.02 (3.15)**	-	0.40 (0.62)	-	-	3.82 (6.07)	5.04 (7.86)	62.92 (100.0) 64.14 (100.00)
Total	9.28 (7.86)	8.88 (7.46)	3.30 (2.80)	**4.12 (3.46)**	0.60 (0.50)	1.00 (0.84)	1.65 (1.40)	1.65 (1.39)	14.83 (12.56)	15.65 (13.15)	118.04 (100.00) 119.05 (100.00)

C H A P T E R - IV

IMPACT OF DROUGHT ON THE ECONOMY OF SAMPLE CULTIVATORS DURING KHARIF SEASON, 1987-88

The impact of drought may be both economic and social in nature. In this chapter, the impact of drought on the economy of sample cultivators during 1987-88 kharif season has been analysed.

4.1 Area Sown during 1987-88 (kharif)

The average area sown by the sample cultivators during 1986-87 under kharif crops was 103.21 hectares. The area sown under various kharif crops in 1987-88 (reference year) was 103.40 hectares. Thus the area sown under various kharif crops was found to have increased by 0.18 per cent in 1987-88 as compared to 1986-87. This fact suggests that the quantity of rainfall was normal at the time of sowing of kharif crops. The situation turned into an unprecendented drought only later. This is evident from the fact that Balaghat district received 390.4 m.m. of rainfall during the month of July in 1987-88 as against the 340.4 m.m. rainfall in the corresponding month (July) during the previous year (1986-87). The entire areas sown under various kharif crops in 1987-88 was affected by drought.

An analysis by the category of cultivators shows that the area sown under various kharif crops (1987-88) was found to have increased by 0.68 per cent in the case of medium-sized cultivators, while the area sown by the small and large cultivators was identical. (Table 4.1)

Table 4.1 Area sown under kharif crops during 1987-88

Size group of holdings	Area sown in 1986-87 (in hectares)	Area sown in 1987-88 (in hectares)	Percentage of sown area in 1987-88 to area sown in 1986-87
(1)	(2)	(3)	(4)
Small	16.41	16.41	100.00
Medium	27.70	27.89	100.68
Large	59.10	59.10	100.00
Total	103.21	103.40	100.18

4.2 Production of kharif crops during drought year 1987-88

The production of foodgrains during kharif season in 1987-88 was 91.43 per cent of the production of such crops in the previous year (1986-87). On analysing the production of foodgrains in 1987-88 by the size of holding it is clear that small farmers could produce 84.97 per cent of their foodgrains production during 1987-88 whereas medium-sized and large cultivators produced 84.75 per cent and 95.88 per cent of their previous year's production during kharif season in 1987-88.respectively. Whereas the percentage loss in production during 1987-88 as compared to 1986-87 in the case of small and medium — sized farms was around 15 per cent, it was only 5 per cent in the case of large-sized farms.

It is worthwhile to find that the production of non-food crops in the kharif season of 1987-88 was 74.22 per cent of the previous year's (1986-87) production. While the production of medium-sized cultivators was found to have decreased to 78.99 per cent, the production of all the respondents from the categories of both small and large cultivators decreased to 71.12 per cent and and 73.33 per cent respectively of the previous year's(1986-87) production. (Table 4.2)

Table 4.2 Impact of Drought on the Production of Kharif crops, 1987-88

(in quintals)

Size groups of holdings	Foodgrains			Non-food crops		
	Production in 1986-87	Production in 1987-88	Column (3) as percentage of column(2)	Production in 1986-87	Production in 1987-88	Column (6) as percentage of column (5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Small	164.05	139.40	84.97	2.77	1.97	71.12
Medium	382.40	324.10	84.75	5.95	4.70	78.99
Large	812.50	779.00	95.88	22.50	16.50	73.33
Total :	1358.95	1242.50	91.43	31.22	23.17	74.22

4.3 Loss in per hectare yield

It is clear from table 4.3 that per hectare yield of all the kharif crops (Paddy, jowar, kodo-kutki, tur, urad and soybean) was found to have declined substantially during 1987-88. The maximum reduction in yield per hectare was found in the case of tur, where the yield declined by 200 kgs/per hectare. Similarly the reduction in per hectare yield of soybean, paddy, jowar, kodo-kutki and urad was 134 kgs. 117 kgs. 76 kgs. 50 kgs and 39 kgs respectively. (Table 4.3)

Table 4.3 Loss in Per Hectare of Yield of Kharif Crops Due to Drought

(yield in kgs/hectares)

Size Group of holdings	Yield in year	Paddy	Jowar	Kodo-kutki	Tur	Urad	Soyb
Small	Yield in 86-87	1004	-	350	-	-	-
	Yield in 87-88	854	-	300	-	-	-
	Loss /Profits - +	- 150		- 50			
Medium	Yield in 86-87	1227	-	-	-	-	-
	Yield in 87-88	1034					
	Less /Profit - +	- 193					
Large	Yield in 86-87	1078	940	-	1200	375	462
	Yield in 87-88	1032	864	-	1000	336	328
	Loss /Profit - +	- 46	- 76		— 200	- 39	- 134
Total	Yield in 86-87	1124	940	350	1200	375	462
	Yield in 87-88	1007	864	300	1000	336	378
	Loss /Profit - +	- 117	- 76	- 50	- 200	- 39	- 134

On analysing the loss in per hectare yield of kharif crops by the size of holdings it was found that the medium cultivators suffered a loss in yield of 193 kgs. per hectare in the case of paddy as against a loss of 150 kgs. and 46 kgs.per hectare by small and large cultivators respectively. Jowar, tur, urad and soybean were grown only by large sized cultivators and they suffered a reduction of 76 kgs., 200 kg., 39 kg. and 134 kg. per hectare respectively. Small cultivators were found to suffer a loss of 50 kgs. per hectare in the case of kodo-kutki.

Although an analysis of reduction in yield by the size of holdings does not reveal any significant trend; but in general the per hectare yield of various crops tended to decline more sharply especially for the paddy crop in the case of relatively small and medium-sized cultivators. (Table 4.3)

4.4 Impact of Drought on Fodder

A drought may affect adversely not only the production of crop but also the production of fodder. During the preceding year (1986-87) nearly 1,677 quintals of fodder was produced in kharif season by all the 40 sample farmers. But during the year 1987-88 the production of fodder came down by 236 quintals; from 1,677 quintals to 1441 quintals. Thus the production of cattle fodder had come down by 14.05 per cent due to drought in 1987-88.

On analysing the impact of drought on kharif fodder by the category of cultivators, it is evident that small cultivators suffered a loss of 19.70 per cent in the production of fodder as campared to a loss of 19.50 per cent and 10.17 per cent respectively in the case of medium-sized and large cultivators. Thus, the loss in the production, of fodder decreased with the increase in the size of holdings. (Table 4.4)

Table 4.4 Impact of Drcught on Cattle Fodder

(in qunitals)

Size group of holdings	Quantity of fodder produced in kharif during 1986-87	Quantity of fodder produced in kharif during 1987-88	Loss/Profit of fodder in 1987-88 over previous year 1986-87	Percentage of loss/ profit in 1987-88 over 1986-87
(1)	(2)	(3)	(4)	(5)
Small	148.20	119.00	- 29.20	- 19.70
Medium	546.50	439.90	- 106.60	- 19.50
Large	982.00	882.15	- 99.85	- 10.17
Total	1676.70	1441.05	- 235.65	- 14.05

4.5 Opinion on Cattle Fodder

During the normal period the respondents followed two usual systems of feeding the cattle. These were (i) home grown fodder and (ii) grazing or a combination of two of the systems. Table 4.5 reveals that 32 out of 40 respondents (80.00 per cent) fed their cattles exclusively from their home grown field fodder, while 8 cultivators (20.00 per cent) maintained their cattle on both field fodder plus grazing. on analysing the situation during kharif 1987-88 by the category of cultivators, it is evident that large and medium-sized cultivators normally feed their cattles by their self produced fodder as against small cultivators who have to supplement their self-produced fodder by grazing in the pasture land.

Table 4.5 also reveals that the fodder supply of all the 40 sample cultivators was affected by the drought. Out of these 40 cultivators as many as 32 (80.00 per cent) indicated that only their fodder fields were demaged by the drought. The remaining 8 cultivators reported the effect of drought on their grazing grounds as the pastures had dried up due to drought in 1987-88 (kharif). An analysis by the size of holding shows that the fodder supply of all the sample cultivators was affected by drought irrespective of their size of holdings. (Table 4.5)

Table 4.5 Opinion of the sample cultivators regarding Impact of Drought on Cattle Fodder during kharif (1987-88)

Size group of holdings	Normal System of cattle Feeding			Type of effect on supply of fodder				Total
	Field Fodder only	Field Fodder grazing	Total	Affected	Non-affected	If affected, on what I		
						Field Fodder reduced	On grazing grass dried up	
Small	14	6	20	20	-	14	6	20
Medium	9	1	10	10	-	9	1	10
Large	9	1	10	10	-	9	1	10
Total	32 (80.00)	8 (20.00)	40 (100.00)	40	-	32 (80.00)	8 (20.00)	40 (100.00)

N.B. figures in the brackets are percentage to total.

4.6 Impact of Drought on Employment During kharif season

On perusal of the table it is clear that 40 out of the 50 sample households (or 80.00 per cent) complained about lack of employment. When asked about the extent of unemployment 6 households (12.00 per cent) reported to be completely unemployed while the remaining 34 (68.00 per cent) seemed to suffer from under-employment.

An analysis by the size of holdings reveals that 4 of the 6 households reporting complete absense of work belonged the category of small cultivators while that 2 were from the category of medium-sized cultivators. Similarly, out of 34 households who complained of under employment, 10 belonged to the category of landless labourers, 13 to the category of small farmers 6 each to the category of medium-sized and 5 to large cultivators. It is thus, clear that 80 per cent of the small cultivators reported to be unemployed and of these 20 per cent were totally unemployed and the remaining 60.00 per cent were under employed. Similarly 80 per cent of the medium sized cultivators reported to have faced the problem of unemployment. Of these unemployed households, 20 per cent each were completely unemployed and underemployed respectively. Half of the large cultivators complained about unemployment and the extent of their unemployment was partial in nature. We can infer from the above analysis that the incidence of unemployment due to drought has a definite tendency to decline with the increase in the size of holdings. The same inference is true about the extent of unemployment also, as bigger cultivators were generally found to suffer only from underemployment in contrast to small cultivators who were both underemployed and unemployed. (Table 4.6)

Table 4.6 Impact of Drough on Employment during kharif season (1987-88)

Size group of holdings	Total Number of households	Number of households reported unemployment problem	Extent of Unemployment	
			No work	Less work
(1)	(2)	(3)	(4)	(5)
Land less	10 (100.00)	10 (100.00)	-	10 (100.00)
Small	20 (100.00)	17 (85.00)	4 (20.00)	13 (65.00)
Medium	10 (100.00)	8 (80.00)	2 (20.00)	6 (60.00)
Large	10 (100.00)	5 (50.00)	-	5 (50.00)
Total	50 (100.00)	40 (80.00)	6 (12.00)	34 (68.00)

N.B. Figures in brackets are percentage to total

4.7 Drought and shortage of Foodgrain during kharif season.

It is clear from the table 4.7 that all the 40 sample cultivators suffered a total shortage of 191.66 quintals in their foodgrain requirement. This comes to a shortage of 4.79 quitals per household. On analysing the shortage in foodgrains caused by drought during kharif season by the size of holdings it is clear that the average quantity of shortage suffered by a small farmer was 7.10 quintals; that of medium-sized farmer was 2.75 quintals and that of a large cultivator was 2.22 quintals. The shortage in foodgrains suffered by sample farmers has a smooth trend to come down with the increase in size of holdings. (Table 4.7)

Table 4.7 Opinion of Cultivators regarding Impact of Drought on Foodgrains Via Kharif Crops (1987-88)

Quantity (in quintals)

Size group of holdings	Shortage of foodgrain because of failure of Kharif crops														
	1-3		3-6		6-9		9-12		12-15		15 & above		Total		
	No.of H.H.	Qtls	No.of H.H.	Qtls	No.of H.H.	Qtls	No.of H.H.	Qtls	No.of H.H.	Qtls	No.of H.H.	Qtls	No.of H.H.	Qtls	Per Household
Small	5	8.45	5	24.48	5	37.18	1	10.20	2	23.65	2	38.05	20	142.01	7.10
Medium	7	11.30	2	9.60	1	6.60	-	-	-	-	-	-	10	27.50	2.75
Large	8	10.65	1	4.00	1	7.50	-	-	-	-	-	-	10	22.15	2.22
Total	20	30.40	8	38.08	7	51.28	1	10.20	2	23.65	2	38.05	40	191.66	4.79

N.B. H.H. represents Households and Quintals denotes quantity.

4.8 Consumption of Food Items

Here we will examine various measures taken by the sample households on the availability of food items during the kharif season and afterwards in the year 1987-88 (Table 4.8)

The first group of landless sample households being without any land were completely dependent on current purchase of cereals (99.35 quintals). Purchased cereals accounted 141.48 quintals and 39.35 quintals by the small and medium sized sample cultivators. But in the large cultivators group there was absolutely no purchases of cereals either from the open market or fair price shop. This exception could be presumed due to the fact that because the large cultivators being better off in the farm production the drought effect was less felt as far as the consumption of cereals was concerned. While analysing the purchases of cereals from fair price shop it was maximum in absolute terms in small farmers group and landless labours ranked on the second place. Medium-sized sample farmers had the lowest purchases of cereals from the fair price shops. As regards pulses the kharif production of pulses meant for consumption was much poorer than the cereals hence all the sample households had purchased the pulses for their consumption from the open market.

Since sugar and edible oil have a sizeable difference between the prices of fair price shops and the uncontrolled open market price, all the four groups of sample households were supplied sugar and edible oil at subsidised prices by the fair price shops on the basis of family ration entitlement. On the whole the working of fair price shops appeared to be fairly satisfactory for consumption maintenance and relief in the sample villages. (Table 4.8)

Table 4.8 Quantities of Food Items Consumed by the Sample Households during kharif 1987-88

Categories / Households	Cereals			Pulses			Others			
	Current purchase			Current Purchase			Current Purchase			
							From Open Market		From Fair Price Shop	
	From Open Market (in Qtls)	From Fair Price shop (in Qtls)	Total (in Qtls)	From Open Market (in Qtls)	From Fair Price Shop (in Qtls)	Total (in Qtls)	Sugar (in Qtls)	Edible oil (in litres)	Sugar (in Qtls	Edible oil (in litres)
Land less labour	72.50	26.85	99.35	4.41	-	4.41	0.65	165	1.85	4
Small	111.73	29.75	141.48	6.38	-	6.38	4.37	356	2.92	47
Medium	36.83	2.52	39.35	1.90	-	1.90	1.65	195	1.15	6
Large	-	-	-	2.55	-	2.55	2.95	121	1.75	10
Total	221.06	59.12	280.18	15.24	-	15.24	9.62	837	7.67	67

4.9 Drought and Supply of Drinking Water

The normal sources of drinking water supply of the sample households were wells and handpumps. All the 50 sample households reported that none of the wells of their villages had completely dried up. The only thing was that their water level had gone down quite significantly and this had been responsible for facing the fearsome prospects of acute water scarcity in their villages. Suggestions were invited from the respondents for increasing the drinking water supply at the moment looking to the magnitude of drinking water problem. Thirty (60 per cent) out of 50 sample households were in favour of immediate boring of existing wells while 15 households (30 per per cent) wanted immediate digging of additional wells. The remaining 5 households (10 per cent) suggested for repairing the handpumps for improving the supply of drinking water. (Table 4.9)

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Table 4.9 Impact of Drought on the Supply of Drinking Water.

Size group of Holdings	Normal Source of Water Supply				Whether source of water supply gone dry		Suggestion to increase water supply of present			
	Wells	Hand Pump	Other (specify)	Total	Yes	No	Boaring of old wells	Addition of more wells	Repairing of hand pump	Total
Land less	9	1	-	10	-	10	6	3	1	10
Small	15	5	-	20	-	20	12	6	2	20
Medium	8	2	-	10	-	10	6	3	1	10
Large	8	2	-	10	-	10	6	3	1	10
Total	40	10	-	50	-	50	30	15	5	50

C H A P T E R- V

RABI CROPS : AGRICULTURAL PRODUCTION

The quality paddy producing district of Jabalpur revenue division of Madhya Pradesh, Balaghat has the proud privilege of having the second highest percentage of irrigated area in the state next to Morena. Besides, the district has a rich soil and a number of rivers, dams, bunds, nullahs and very large number of tanks. But during 1987-88 the monsoon was not kind enough and hence only those areas which were blessed with assured irrigation were spared while rest were starving for water and were badly hit by inadequate and insufficient rains, as till August, 1987, only about fifty per cent of normal rainfall was received in the district. Consequently, the kharif crops suffered unprecedented demage due to drought in 1987-88

5.1 Area Sown in Rabi Season

Gross area sown under rabi crops during the reference year (1987-88) was 13.96 hectares as against 14.96 hectares during previous year (1986-87). Thus gross area sown in 1987-88 was around 93 per cent of gross area sown in previous year (1986-87). (Table 5.1)

Table 5.1 Area sown in Rabi season during 1987-88

(in hectares)

Size group of holdings	Area sown in 1986-87 (in hectares)	Area sown in 1987-88 (in hectares)	Percentage of sown area in 87-88 to area sown in 1986-87
Small	6.89	6.89	100.00
Medium	4.24	3.64	85.85
Large	3.83	3.43	89.56
Total	14.96	13.96	93.32

5.2 Production of Rabi Crops

The production of rabi crops (wheat, gram, linseed and rape & mustard) during 1987-88 was less by 25.30 per cent as compared to the production of these crops in the previous year (1986-87).

An analysis by size of holdings revealed that small cultivators suffered a loss of 45.54 per cent in the production as compared to a loss of 10.53 per cent and 18.10 per cent by the medium and large sized cultivators respectively.

The consensus of the respondents was that the effect of drought on the crop production become less severe with the increase in the size of holdings as bigger cultivators enjoyed better drought fighting capacity than the small cultivators.

The non-foodgrain crops were grown only by the small sized farmers.The production of non-foodgrains (linseed and rape & mustard) during 1987-88 was less by 28.92 per cent as compared to the production of these crops in the previous year (1986-87). (Table 5.2)

This state of affairs was due to the fact that rabi crops needed frequent irrigation and the available water supply in 1987-88 would not match the demand water for irrigation due to drought.

5.3 Loss in Per Hectare Yield of Rabi Crops

The maximum reduction in per hectare yield was in the case of gram. Its yield in 1987-88 declined from 655 kg to 394 kg.per hectare or by 261 kg. This was closely followed by wheat where the

yield in 1987-88 was 671 kg. or 196 kg. less than that of previous year (1986-87). The minimum reduction in per hectare yield was in the case of linseed as its yield declined by 73.kgs.from 252kgs. in 1986-87 to 179 kgs.in 1987-88. From the above analysis it is clear that small cultivators had the maximum reduction in per hectare yield of various rabi crops (except gram). They were followed by large sized cultivators in that order in their wheat crop. The reduction in yield of various rabi crops was, thus negatively correlated with the size of holdings.

On analysing this table by the size of holdings it is clear that small cultivators were the worst sufferers so far as the reduction in per hectare yield of crops during 1987-88 (rabi season) was concerned. They faced reduction in per hectare yield of all crops. The reduction in per hectare yield, for instance, was 357 kgs.in case of wheat, in case of gram, 208 kgs. in case of urad 83 kgs. and 73 kgs.in case of linseed. The per hectare yield of wheat and gram remained unchanged during 1987-88 as compared to previous year (1986-87) in the case of medium-sized cultivators. Large cultivators, however, again suffered by considerable reduction in yield, but the reduction in yield of these cultivators was lower than that of the small farmers in case of wheat. So far as per hectare yield of gram is concerned, large sized cultivators suffered the highest loss of 630 kgs.per hectare as against 208 kgs.reduction by small-sized cultivators. (Table 5.3)

Table 5.2 Production of Rabi Crops during 1987-88

(in quintals)

Size groups of holdings	Food grains				Non-food grains			
	Production in previous year 1986-87	Production in reference year 1987-88	Deficit/ surplus	Deficit/ Surplus is percentage to the production of previous year 1986-87	Production in previous year 1986-87	Production in reference year 1987-88	Deficit/ surplus	Deficit Surplus as percentage to the production of previous year 1986-87
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Small	33.60	18.30	- 15.30	45.54	4.15	2.95	- 1.20	28.92
Medium	19.00	17.00	- 2.00	10.53	-	-	-	-
Large	52.50	43.00	- 9.50	18.10	-	-	-	-
Total	105.10	78.30	- 26.80	25.50	4.15	2.95	- 1.20	28.92

Table 5.3 Loss in per hectare of yield of Rabi crops due to Drought

(Yield in kg/hectare)

Size groups	Yield in years	Wheat	Gram	Urad	Linseed
Small	Yield in 1986-87	730	461	500	252
	Yield in 1987-88	373	253	417	179
	Loss/Profit	-357	-208	- 83	- 73
Medium	Yield in 1986-87	495	331	-	-
	Yield in 1987-88	495	331	-	-
	Loss/Profit	-	-	-	-
Large	Yield in 1986-87	1489	1125	-	-
	Yield in 1987-88	1260	495	-	-
	Loss/Profit	-229	-630	-	-
Total	Yield in 1986-87	867	655	500	252
	Yield in 1987-88	671	394	417	179
	Loss/Profit	-196	-261	- 83	- 73

C H A P T E R- VI

DROUGHT RELIEF MEASURES

During the period of drought the cultivators, who are its main victims, would generally take a number of protective measures to mitigate their sufferings. But in a welfare state the Government is dutybound to take various relief measures so that the normal life of the inhabitants is least affected. Here we will examine various protective measures taken by the sample cultivators and relief measures initiated by the Government during the kharif season and afterwards in the year 1987-88.

Rehabilitation of their kharif crops, hectic search of alternative source of income and employment and special efforts to avoid the shortage of drinking water and foodgrains supply are some of the steps which can be generally taken by the cultivators. Similarly, initiation of special employment programme for the area, opening of fair price shops, remission of land revenue and school fees, steps to ensure adequate supply of fodder, drinking and irrigation water and liberlization of credit facilities are some of the possible relief measures which the Government can undertake in a drought effected area.

6.1 Borrowing From Non-Institutional Agency

Moneylenders were the sole non-institution agency who were giving loans to the sample households. During the last two years i.e., 1986-87 and 1987-88, 5 out of the 50 sample households reported to have taken loan from the moneylenders. All the five indebted households had jointly borrowed a sum of Rs.15,600 from the moneylenders, which comes to Rs.3,120/ per indebted household.

An analysis of loan taken from the moneylenders by the category of households reveals that the three borrowers belonged to the category of landless agricultural labourers. Small cultivators did not take any loan from the moneylenders. In contrast, one each from medium and large-sized cultivators had taken loans from the moneylenders. It was perhaps due to their weak financial position and poor credit worthiness that nearly 30 per cent(3 out of 10 landless agricultural labourers) and 10 per cent of medium and large sized cultivators (1 each out of 10) were found to have taken loans from the moneylender's source during 1987-88 and previous year (1986-87). (Table 6.1) This table also contains information relating to total borrowing from all the sources in two years i.e. 1986-87 and 1987-88 separately. During 1986-87, 12 of the 50 sample households (24 per cent) had borrowed jointly a sum of Rs.34,900/- or Rs.2908/- per household. During the reference year (1987-88), however, the position was slightly different. The number of borrowers had come down to 7 (14 per cent) and their total borrowings was of the order of Rs.38,100/- which works out to an average figure of Rs.5443/- per borrower households.

Two conclusions emerge from the above discussion. First, there has been a decrease in the number of indebted households during 1987-88 as compared to previous year (1986-87) despite of the prevalent drought. Secondly, the amount of indebtedness per indebted household during 1987-88 was Rs.5443/- as compared to Rs.2,908/- in the previous year (1986-87). That means the quantum of debt per indebted household was substantially more than that of previous year. This shows that most of the borrowers had taken the loan for the purpose of purchasing reproductive assets rather than self-consumption.

Table 6.1 Total Amount Borrowed by the sample Households from Non-Institutional Agencies

Categories of Households	Amount borrowed from								Amount borrowed in					
	Money lender		Cooperatives		Nationalised Banks		Total		1986-87		1987-88		Total 86-87 and 1987-88	
	No.of H.H. borro-wed	Amount	No.of H.H. borro-wed	Amount	No.of H.H. borro-wed	Amount	No.of H.H. borro-wed	Amount	No.of H.H. borro-wed	Amount	No.of H.H. borro-wed	Amount	No.of H.H. borro-wed	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Land less agricultu-ral labourer	3	2,600	-	-	2	10,000	5	12,600	3	4,500	2	8,100	5	12,600
Small	-	-	7	16,600	-	-	7	16,600	6	13,600	1	3,000	7	16,600
Medium	1	10,000	4	26,800	-	-	5	36,800	3	16,800	2	20,000	5	36,800
Large	1	3,000	1	4,000	-	-	2	7,000	-	-	2	7,000	2	7,000
Total	5	15,600	12	47,400	2	10,000	19	73,000	12	34,900	7	38,100	19	73,000

6.2 Institutional Borrowings

Table 6.1 gives information relating to loans taken from the ccoperative society and naticnalised banks. During the year 1986-87 and 1987-88 there were as many as 12 cultivators— 7 small, 4 medium and 1 large sized, who were found to have taken some loan from the cooperative society. All the 12 cultivators together borrowed a total figure of Rs.47,400/- which comes to Rs.3,950/- per borrower cultivator. The average size of cooperative loan in the case of small cultivators was Rs.2,371/- as compared to Rs.6,700/- in the case of medium-sized cultivator. Only one large-sized cultivator was found to have taken loan of Rs.4000/- from the cooperative society.

So far as loan from nationalised bank is concerned, two landless agricultural labourers were reported to have taken a loan of Rs.10,000/- The general feeling of these respondents were that banks were lending their support to start petty shops to the poorer sections of the community.

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CHAPTER VII

SUMMARY AND SUGGESTIONS

I

Summary of the findings

7.1 Introduction

7.1.1 The term drought is interpreted differently by those concerned with it. For the meteorologist drought is a rainless situation for an extended period during which some precipitation is normally expected. But to the agriculturist, drought is a shortage of moisture for his crops, while for the hydrologist drought means recession of surface and underground water levels and a diminution of stream flows. To the economist drought on the other hand, will connect a situation under which water shortage ultimately affects the established economy in the area of his interest.

7.1.2 Droughts are of different kinds, for example meteorological droughts, hydrological drought and agricultural drought etc.

7.1.3 The scarcity is identified on the basis of estimation of prospective harvest. This system of assessment is called annawari in which the crop is assessed in terms of annas. Relief measures are taken in full-fledged manner after such estimates are made and the area officially declared as scarcity bound. The help provided is in many forms viz. supply of drinking water, drought relief works, supply of foodgrains free of cost or at subsidised rates, medical relief, sinking of new wells, deepening of old wells, energisation of pumps, supply of fodder and veterinary aid and postponement of recovery of revenue etc.

7.1.4 The Drought Prone Area Programme (DPAP) was started during 1970-71 by providing employment on a sustained basis through labour. From 1982-83 it is in operation in 510 blocks of 69 districts of 13 states. In Madhya Pradesh, the DPAP Scheme is being taken up in 6 districts namely Dhar, Jhabua, Khargone, Betul, Sidhi, and Shahdol covering more than 48 blocks.

The objectives of programme is to attain integrated development of D.P.A.P. area so as to increase and stablize the income of the weaker sections and to minimise the impact of drought in agricultural production and bring about the improvement in ecological balance. The main components of the programme are irrigation, soil conservation and dryland farming, afforestation and pasture development, livestock development, sericulture, horticulture and fisheries development. The funding of the Programme is on 50:50 matching basis by the Central and State Governments.

7.1.5 The impact of uncertainty in agricultural output is of vital concern to the economy as a whole as much as to the farmers concerned. The risk of crop failure or droughts has double effect of reducing the availability of output to consumers and of reducing the incomes of those engaged in cultivation like farmers and agricultural labourers.

A failure of crops can ruin the economy of the farmers concerned especially the small farmers. A drought can lead to expropriation of small peasants ultimately pushing them irreverseably into the ranks of agricultural labour. They tend to sell of capital equipment, livestock and even land in the event of a drought. As a result, they even loose the wherewithal to undertake

cultivation in the next crop season unless the necessary help is provided.

7.1.6 In the meeting of the Officer-in-charge it was agreed to conduct a quick study on "Impact of 1987-88 drought on rural population" by majority of the Agro-Economic Research Centres.

7.1.7 The objective of the study obviously was to examine the impact of 1987-88 drought on the economic conditions of rural people in Balaghat district of Madhya Pradesh State.

7.1.8 The Balaghat district of the State has been selected on the basis of maximum negative percentage of variation from the normal rainfall till 30.9.87. In the selected district, Balaghat block was selected in consultation with the concerned officials of the district. In Balaghat block five villages were selected and from these villages 50 households formed the sample. They represented small (20), medium (10), large (10), cultivators and landless agricultural labourers (10). The relevant secondary data about drought situation and allied aspects were collected from the publication of government agencies. An interview schedule was administered to all the respondents for collecting primary data.

7.1.9 Field work for collecting primary data was done in the first week of July, 1988. The reference period of the study for the primary data related to two agricultural years, viz. 1st July 1986 to 30th June 1987 and 1st July 1987 to 30th June, 1988.

7.2 Balaghat District

7.2.1 The Balaghat district has rich deposits of minerals viz. manganies, dolemite and copper and also forest having valuable species like teak, sal and bambco etc. Agriculture, minerals and forest thus have ample scope for the industrial development in

the district. The district comprises five tahsils having ten blocks. As per 1981 census, the population of Balaghat district is 11,47,812 as against the population of 9,77,583 as per 1971 census. The rural population is about 91.3 per cent against the State percentage of 79.71. The density of population per sq.k.m. is 124 against 118 for the state. The literacy percentage is 33.89 per cent as against 29.87 per cent of the State. Out of the total workers 25.92 per cent are engaged is agricultural and allied activities, 6.14 per cent in household and other industries and 11.24 per cent in other services. The soil of the district in general is light sandy, alluvial and black. The climate is moderate. Forest covers 25.5 per cent of the total area of the district. The net cultivated area to the total area is 42 per cent. The major crops of the district are paddy, wheat, maize, urad, kodo-kutki, linseed and gram. The area under double cropping is about 31.82 per cent as against state average of 18.6 per cent. The percentage of area sown during kharif and rabi to gross cropped area work out to be 72.4 and 27.6 respectively. The average size of operation land holding is 1.95 hectares as compared to 4 hectares of M.P. State. The major source of irrigation is by canal and occupies 61 per cent of the gross irrigation area. The percentage of net irrigated area to net sown area is 42 per cent as against 15.4 per cent for M.P. State. The use of fertilisers per hactare of gross cropped area in Balaghat district was 19 Kgs. (year 1986-87). Live stock population of the district is having mainly non-script bound of cows, buffaloes and goats spread over in the district. The poultry development and pig rearing are not significant in the district on account of undeveloped atmosphere in the district. The existing daily collection of milk from 19 Dairy societies was 2,500 litres

however verage supply was a out 1,500 litres. There are 112 Primary Agricultural Credit Societies in the district and 19 branches of District Central Cooperative Bank and 5 branches of District Land Development Bank through which short term and medium term loans are distributed.

7.3 Economic Characteristics of sample Farms

7.3.1 The average family size of the sample households consisted of 7 members of which about 70 per cent were workers. The large sized family (9 members) was observed in the large sized holdings. At the overall level, about 92 per cent males were working on the farm, which about 70 per cent were workers. The large sized family (9 members) was observed in the large sized holdings. At the overall level, about 92 per cent males were working om the farm, whereas the remaining 8 per cent were non-farm workers and non-workers. As regards females, 87 per cent of the total were the farm workers while the remaining 13 per cent were the non-farm workers and non workers. Among the children about 10 per cent of the total children were only working on the farm.

7.3.2 It was revealed from the land utilization pattern that the average size of land holdings was 0.85, 2.79 and 5.91 hectares in small, medium and large size group respectively. The distribution of land ownership between the sample farmers was, thus, much skewed and uneven. The position relating to the area operated was not very much different from that of the area owned. The average size of operated area was 0.82, 2.77 and 5.91 hectares respectively which was almost equal to area owned by the cultivators in all the three size groups of holdings. This suggests that the system of lease-in and lease-out of land was not very prevalent in the sample households. It was also observed that 30.71 per cent operated area

of the forty sample households had irrigation facilities and the remaining 69 per cent had no irrigation. In medium-size group, the proportion of irrigated area was the highest (34.99 per cent), however it was 30.57 per cent and 24.01 per cent in the case of large and small size groups respectively.

7.3.3 The cropping pattern of the sample cultivators during previous year (1986-87) and also during reference year (1987-88) was found to be more or less the traditionally established one. Paddy, jowar, kodo-kutki, tur, urad, soybean and mixed crops were the important kharif crops of the sample cultivators. All these crops occupied a total operated area of 103.40 hectares during the reference year (1987-88) as compared to 103.21 hectares during the previous year (1986-87). Paddy occupied the prominent position which was mainly to meet the family food requirement. An analysis by the category of cultivators showed that only medium-sized cultivators sowed slightly more area in 1987-88 than in 1986-87. In contrast, the sown area of small and large cultivators remained the same during both the years. On analysing the area sown under various kharif crops it is evident that the area devoted to paddy, jowar, soybean and mixed crops during 1987-88 was 42.84 hectares, 1.62 hectares 1.22 hectares and 51.16 hectares respectively as compared to corresponding area of 43.47 hectares, 2.02 hectares 1.62 hectares and 53.99 hectares respectively under these crops in the year 1986-87. Thus the area sown under these crops in the reference year (1987-88) was less than the previous year (1986-87). It was only in case of urad that the area sown in 1987-88 (5.05 hectares) was more than the area sown in 1986-87 (0.60 hectares). Other important features of the cropping pattern during kharif season were that only two crops viz. paddy and kodo-kutki were

grown by the small farmers and similarly two crops viz. paddy and mixed crops were grown by the medium-sized cultivators. Kodo-kutki was conspicuous by its absence in the cropping pattern of large cultivators. Wheat, gram, urad and linseed were the main rabi crops of sample cultivators. The total area sown under all these crops was 15.65 hectares in 1987-88 as compared to 14.83 hectares during 1986-87. Only the medium-sized cultivators have cultivated less area in 1987-88 (3.84 hectares as compared to the 4.24 hectares in 1986-87). There was no change in the area sown in both the years by the small cultivators. On contrary the area sown by the large-sized cultivators increased from 3.82 hectares in 1986-87 to 5.04 hectares in 1987-88.

7.3.4 On analysis of area sown under various rabi crops it is clear that the area sown under wheat crop decreased from 9.28 hectares in 1986-87 to 8.88 hectares in 1987-88 while the area under gram increased in the corresponding year. There was no change in the area sown under linseed crop.

7.3.5 Another important feature of the cropping pattern was that the medium-sized cultivators were least interested in growing urad and lonseed crops in both the years. The large-sized cultivators have neither grown urad during 1986-87 nor linseed during 1986-87 and 1987-88. The area sown under vegetable crops (kharif) was identical and also very negligible during both the years.

7.4 Impact of Drought on the Economy of sample Cultivators during kharif season 1987-88

7.4.1 The area sown by the sample cultivators was 103.40 hectares in 1987-88 as against the area of 103.21 hectares in 1986-87 and thus increased by 0.18 per cent. This fact suggests that the quantity of rainfall was normal at time of sowing of kharif crops

and the situation turned into an unprecendented drought only later on. The area sown under various kharif crops (1987-88) was found to have increased by 0.68 per cent in the case of medium-sized cultivators only.

7.4.2 Production of Kharif Crops During Drought Year 1987-88

The production of foodgrains during kharif season in 1987-88 was only 91.23 per cent of the production of such crops in the previous year (1986-87). The small farmers could produce 84.97 per cent of their foodgrains production during 1987-88 where medium-sized and large cultivators produced 84.75 per cent and 95.88 per cent of their previous years production during kharif season in 1987-88. The production of non-food crops in the kharif season of 1987-88 was 81.22 per cent of the previous year's(1986-87).

7.4.3 The per hectare yield of all the kharif crops (paddy, jowar, kodo-kutki, tur, urad and soybean) have declined sub-stantially during 1987-88. The maximum reduction in yield per hectare was in the case of tur where the yield has declined by 200 kg. Similarly the reduction in per hectare yield of soybean, paddy, jowar, kodo-kutki and urad was 134 Kg. 117 Kg., 76 kg., 50kg., and 39 kg., respectively. The medium cultivators suffered a loss in yield of 193 kg. per hectare in the case of paddy as against a loss of 150 kg. and 46 kg.per hectare by small and large cultivators respectively. Jowar, tur, urad and soybean were grown only by large-sized cultivators and they suffered a reduction of 76 kg., 200 kg., 39 kg.,and 134 kg. per hectare respectively. Small cultivators were found to suffer a loss of 50 kg.per hectare in field of kodo-kutki. In general the per hectare yield of various crops lended to decline more sharply especially for the paddy crop in the case of relatively small and

medium-sized cultivators.

7.4.4 During the year (1986-87) nearly 1677 quintals of cattle fodder was grown in kharif season by all the 40 sample farmers. But during the year 1987-88 the production of cattle fodder came down by 236 quintals i.e. 14.05 per cent due to drought. The small cultivators suffered a loss of 19.70 per cent in the production of their cattle fodder as compared to a loss of 19.50 per cent and 10.17 per cent respectively in the case of medium and large sized cultivators.

7.4.5 The 32 out of 40 respondents (80.00 per cent) fed their cattles exclusively from their home grown field fodder, while 8 cultivators (20 per cent) maintained their cattle on both field fodder plus grazing. As the pastures had dried up due to drought in 1987-88 the fodder supply of all the sample cultivators was affected by drought irrespective of their size of holdings.

7.4.6 The 40 out of the 50 sample households (80.00 per cent) complained about lack of employment, 6 households (12.00 per cent) reported to be completely unemployed while the remaining 34 (68.00 per cent) seemed to suffer from under-employment. The 4 of the 20 households reporting complete absence of work belonged to the category of small cultivators while that 2 out of 10 households to the category of medium-sized cultivators. Similarly, out of 34 households who complained of under-employment, 10 belonged to the category of landless labourers, 12 to the category of small farmers and 6 each to the categories of medium-sized and large cultivators. The incidence of un-employment due to drought has a definite tendency to decline with the increase in the size of holding.

7.4.7 All the 40 sample cultivators suffered a total shortage of 191.66 quintals in their foodgrain requirement. This comes to a shortage of 4.79 quintals per household. The average quantity of shortage suffered by a small farmer was 7.10 quintals, that of medium-sized farmer was 2.75 quintals and that of a large cultivators was 2.22 quintals.

7.4.8 The landless labourers being without any land were completely dependent on current purchases of cereals (99.35 quintals). Purchased cereals accounted 141.48 quintals and 39.35 quintals by the small and medium-sized sample cultivators. But the large cultivators group did not purchased cereals either from the open market or fair price shop. As regards pulses the kharif production of pulses meant for consumption was much poorer than the cereals hence all the sample households had purchased the pulses for their consumption from the open market shops. Since sugar and edible oil have a sizeable difference between the prices of fair price shops and the uncontrolled open market price, all the four groups of sample households were supplied sugar and edible oil of subsidised prices by the fair price shops on the basis of family ration entitlement. On the whole the working of fair price shops appeared to be fairly satisfactorily for consumption maintance and relief in the sample villages.

7.4.9 The normal sources of drinking water supply of the sample households were wells and handpumps. All the 50 sample households reported that none of the wells of their village had completely dried up. The only thing was that their water level had gone down quite significantly and this has been responsible for facing the fearsome prospects of acute water scarcity in their villages.

Thirty (60 per cent) out of 50 sample households were in favour of immediate boring of existing wells while 15 households (30 per cent) wanted immediate digging of additional wells and the remaining 5 households (10 per cent) suggested for repairing the hand pumps for improving the supply of drinking water.

7.5 Rabi Crops: Agricultural Production

7.5.1 Gross area sown under rabi crops in reference year (1987-88) was 13.96 hectares (93 per cent) as against 14.96 hectares during previous year (1986-87).

7.5.2 The production of rabi foodgrains (wheat, gram, linseed and rape & mustard) during 1987-88 was less by 25.50 per cent as compared to the production of these crops in previous year (1986-87). The small cultivators had suffered a loss of 45.54 per cent in the production of their rabi foodgrains as compared to a loss of 10.53 per cent and 18.10 per cent by the medium and large-sized cultivators respectively. The production of non-foodgrains (linseed and rape & mustard) during 1987-88 was less by 28.92 per cent as compared to the production of these crops in previous year (1986-87). Here again only small cultivators had suffered a loss of 29 per cent in the production of their rabi non-foodgrains.

7.5.3 The maximum reduction in per hectare yield was in the case of gram when its yield in 1987-88 was declined from 655kg. to 394kg. per hectare or by 261kg. This was closely followed by urad where the yield in 1987-88 was only 250kg. or 50 per cent less than that of previous year (1986-87). In the case of wheat, yield per hectare came down from 867kg.to 671 kg. Thus registered a decline of 196kg. The minimum reduction in per hectare yield was in the case of linseed as its yield declined by 73 kg.from 252kg. in 1986-87

to 179 kg.in 1987-88. The small cultivators had the maximum reduction in per hectare yield of various rabi crops (except gram). They were followed by larger-sized cultivators in that order in their wheat crop. The reduction in yield of various rabi crops was, thus likely to be negatively correlated with the size of holdings. The small cultivators were the worst sufferers so far as the reduction in per hectare yield of their crops during 1987-88 (rabi season) was concerned. They feared reduction in per hectare yield of all their crops. The reduction in per hectare yield, for instance, was 357 kg.in case of wheat, in case of gram, 208 kg.in case of urad 83 kg.and 73 kg.in case of linseed. The per hectare yield of wheat and gram was remained unchanged during 1987-88 as compared to previous year (1986-87) in the case of medium-sized cultivators and they did not fear any loss in the yield of their two crops. Large cultivators, however, again suffered by considerable reduction in their crop yield, but the reduction in crop yield of these cultivators was lower than that of the small farmers in case of wheat so far as per hectare yield of gram is concerned. Large sized cultivators suffered the highest loss of 630 kg. per hectare as against 208 kg.reduction feared by small-sized cultivators.

7.6 Drought Relief Measures

7.6.1 Moneylenders were the sole non-institution agency who were giving loans to the sample households. During the last two years i.e. 1986-87 and 1987-88, as many as 5 out of the 50 sample households reported to have taken loan from the moneylenders. All the five indebted households had jointly borrowed a sum of Rs.15,600 from the moneylenders, which comes to Rs.3,120 per indicated household. The loan taken from the moneylenders by the

category of households reveals that the three borrowers belonged to the category of landless agricultural labourers, small cultivators did not take any loan from the moneylenders. In contrast, one each from medium and large-sized cultivators had taken loans from moneylenders. During 1986-87, 12 of the 50 sample households (24 per cent) had borrowed jointly sum of Rs.34,900/- or Rs.2908/- per household and during the reference year (1987-88) however, the position was slightly different. The number of borrowers had come down to 7 (14 per cent) and their total borrowings was of the order of Rs.38,100 which works out to an average figure of Rs.5,443 per borrower household.

7.6.2 During the year 1986-87 and 1987-88 there were as many as 12 cultivators- 7 small, 4 medium-sized and 1 large-sized who were found to have taken some loan from the cooperative society. All the 12 cultivators togethe. borrowed a total figure of Rs.47,400 which comes to Rs.3950 per borrower cultivator. The average size of cooperative loan in the case of small cultivators was Rs.2371 as compared to Rs.6,700 in the case of medium-sized cultivator. Only one large-sized cultivator was found to have taken loan of Rs.4,000 from the cooperative society. Two landless agricultural labourer were reported to have taken on loan of Rs.10,000 from the nationalised bank.

II

Suggestions

The following are the broad suggestions emerging from the study :-

(i) In the district, the cropping pattern is found to be still of traditional type with dominance of cereal crops. Efforts need to be made to bring more area under cash-crops and oilseeds.

(ii) The programme of water harvesting, soil conservation and afforestation should be taken up quite effectively to generate new ecology.

(iii) The dairying was the important subsidiary occupation next to crop production activity. However, proper attention needs to be paid to develop this on modern lines, by keeping crossbred animals and better management.

(iv) The small farmers are facing several problems in connection with proper management of crop cultivation. Special attention needs to be given to this weaker section of the farming community.

(v) The Scientists are required to transfer proven technology to the weaker sections of the farming community, and also to develop close contact with the farming families so as to identify the constraints, because of drought, in raising production.

(vi) The programmes for the development of the economy of the drought prone areas as a whole will have to be launched

vigorously to end their backwardness. These would include not only the agricultural sector but other sectors as well. A proper education of farmers in dry farming technology and in the need for community action to reduce risks in agriculture would also be helpful. Planning for the economic development of drought prone regions would not only need a better knowledge of yield uncertainty in different crops and regions but also of the structural aspects of the economy of the regions.

(vii) The state government of course took immediate relief measures like release of Rs.one crore for drought relief measures, postpone collections of revenue and other loan arrears in respect of small and marginal farmers. It has issued some guidlines to tackle the situations, which are normal to any drought year. But there is need of serious thinking on fresh lines like supply of drought-resistant seeds, short duration variety seeds, changing cropping seasons, increased area under irrigation and so on.

(viii) The lack of an alternative plan for drought prone areas exposes a major weakness in agricultural development. Several experimental farm projects for drought prone areas have shown encouraging results. Somehow, the fruits of these researches have not been transferred to the area where drought is endemic. While liberal loans and tax remissions will benefit the big and medium farmers, the

small farmer may require a different relief package to get him started for rabi season. Even worse is the fate of agricultural labourers who have to be provided with work and who have already lost employment in the last two months because of drought. Food for work programmes under the various rural development plans should be activated and special care should be taken by the state government agencies to see that the programmes are not misused by middlemen.

(ix) The other concessions to the drought-hit farmers must include subsidy for agricultural inputs including nitrogenous fertilisers to small and marginal farmers in all drought hit areas where the demage to crops has been more than 50 per cent, waiving of liability on kharif loans in these areas for small and marginal farmers and ban on export of cattle feed.

(x) Greater attention may be paid to the maintenance and repairs of the drinking water points (bored/tube/drilled wells and pipes) particularly in case of bored/tube/ drilled wells with hand pumps, and extension education may be provided in the rural areas regarding the fact that water through the open dug wells without parapets and individual collection (ponds, tanks etc.) is basically 'unsafe' since it is subject to contamination. The existing mass media may prove useful in this regard. On the other hand, efforts should be made to convert the open dug wells into sanitary wells by providing parapets and making other provisions for eliminating contamination.