

Nagaland experienced an unprecedented drought in 1987 due to delayed monsoon. The situation became alarming as in preceding 1986 also there was drought resulting in the loss of *kharif* crop production at least to the extent of 40 per cent. This shortfall instead of being compensated by 1987 *kharif* production aggravated due to failure of monsoon particularly during June and July being the most important monsoon months for agriculture in the State. Upto July, 1987 rainfall fell short by 55.8 per cent as compared to the average of the previous years. On the other hand, immediately in the following month of August 1987, there occurred heavy rains causing damage resulting in landslides, damage to minor irrigation works and washing away of roads. Terraced fields with standing crops were also washed away. Thus the State faced shortage of foodgrains due to drought followed by damage inflicted by torrential rains. The loss of crop yield due to all these effects was more than 25 per cent of the normal crop. The total area affected was 25,215 hectare and the total tribal population effected was 67,000 resulting in a crop loss of 30,000 tonne valued at Rs. 6 crore.

Organisational Response

2.1 Loss in case of Nagaland was only for foodgrains and there was no loss of fodder and animals. There was no shortage of drinking water due to drought. Hence relief measures were undertaken for assisting the population which suffered due to damaged crops.

2.2 Immediately on the outbreak of drought, a Cabinet Committee on Drought was formed with the Chief Minister as the Chairman. Another Committee of Secretaries was also formed with the Chief Secretary as the Chairman.

Relief Measures

3.1 The approach to tide over the adverse effect of the calamity was to distribute rice to the affected villages through Public Distribution System (PDS). A part of the shortfall was met by increasing the monthly allocation of rice from 5,000 tonne in February 1987 to 9,000 tonne in August 1987. However, to tide over the shortfall until the *kharif* crop was harvested, an additional of 10,000 tonne of foodgrains was demanded. Most of the additional foodgrains were distributed to the affected people in the form of wages under Food-For-Work Programme to implement labour intensive schemes aimed at creating agricultural infrastructures.

3.2 Besides distribution of additional foodgrains to the affected people, an amount of Rs. 25 lakh was spent by the Agriculture Department out of the margin money available with the State Government. In the meantime additional assistance was sought from the GOI on the basis of survey and detail assessment of loss.

Contingency Crop Planning

4. To off set the loss of crops a contingency plan for raising *rabi* crops was drawn up and implemented at a cost of Rs. 50. lakh as Central assistance. No cash relief was given to the people affected except distribution of inputs free of cost for raising the special *rabi* crops. This special *rabi* Crop Campaign aimed at covering an additional area of 200 hectare under wheat, 2,200 hectare under mustard and linseed, 270 hectare under autumn and summer potato, 200 hectare under pea and 820 hectare under vegetables. In foothill area, 19 diesel pumps were installed. Inputs of high grade seeds, fertilisers and pesticides were provided for successful implementation of the special *rabi* campaign. These measures aimed at producing additional 200 tonne of foodgrains, 1,000 tonne of oilseeds, 1,350 tonne of potato, 400 tonne of pea and 6,000 tonne of vegetables.

Lessons Learnt

5.1 It is the experience in Nagaland that the State's agriculture crop season being mainly *kharif*, any variation in good and timely monsoon causes substantial loss to crop yield. Unlike other State, there exists no alternative sources of irrigation in Nagaland to protect the crops in times of such exigencies. The State has also been experiencing that delayed monsoon has equally an adverse impact on the normal crop production as much as does the heavy and torrential rains in hill agriculture adding to the difficulties of resource poor farmers, farming being their only occupation. The terrain of the State and absence of quicker transport and communication systems also contribute to the problem. As a result, except a preliminary report, assessment of exact extent of loss damage by comprehensive field survey takes a little longer period for projection to the GOI for assistance. In spite of these factors, the State Government geared up all its manpower and resources to tackle the problem arising out of such natural calamity as a drought.

5.2 The State experienced that the special *rabi* campaign which was implemented with the GOI to off set the loss in drought yielded positive result in achieving additional production and so also in alleviating the hardships of the farmers since the inputs under such campaign were distributed free of cost.

The state faced serious drought situation in 1987-88. During *Kharif* 1987 the state received less than normal rainfall during April to June, 1987 as shown in Table 29.

Table 29: Rainfall in Orissa, April to October, 1987

(mm.)

S.No.	Month	Normal	Actual	Percentage of Deviation from Normal
1.	April	35.3	26.6	(-) 24.6
2.	May	70.8	48.0	(-) 32.2
3.	June	213.2	105.4	(-) 50.6
4.	July	351.6	332.3	(-) 5.5
5.	August	335.6	187.3	(-) 44.2
6.	September	236.5	143.5	(-) 39.3
7.	October	131.6	77.1	(-) 41.4

Table 30: Number of Villages in Orissa with a Crop Loss of 50 Per cent and Above, 1987-88

S.No	District	Number of Blocks	Number of Blocks containing Affected Gram Panchayats	Number of Gram Panchayats	Number of Gram Panchayats containing Affected Villages	Number of Villages	Number of Villages Reported to have crop loss of 50 Per cent and above				Total
							50 to 74 per cent 75 Per cent and above				
							Non-Irrigated	Irrigated	Non-Irrigated	Irrigated	
1.	Balasore	19	19	339	208	4,347	979	110+NAC2	589	15+NAC1	1,696
2.	Bolangir	20	19	253	221	2,803	1,674	—	674	—	2,348
3.	Cuttack	41	36	689	385	6,682	2,247	*	358	*	2,605
4.	Dhenkanal	16	16	283	222	3,167	1,279+NAC1	—	469	—	1,749
5.	Ganjam	29	28	466	395	4,532	669+NAC5	423+8NAC	1,428+NAC19	976+39NAC	3,558
6.	Kalahandi	18	15	249	128	2,812	770+NAC2	53+NAC2	263	19	1,109
7.	Keonjhar	13	13	213	175	2,048	1,079+NAC25	*	176	*	1,280
8.	Koraput	42	31	515	191	5,766	1,247+NAC10	32	848+NAC4	14	2,155
9.	Mayurbhanj	26	21	279	152	3,972	1,021+NAC6	92+7NAC	274	40+2NAC	1,442
10.	Phulbani	15	15	182	173	4,649	1,528	131	1,310	148	3,117
11.	Puri	29	27	397	291	4,868	1,903+NAC14	*	511	*	2,428
12.	Sambalpur	29	23	368	215	3,598	791	*	691	*	1,482
13.	Sundargarh	17	17	158	108	1,604	1,124+NAC9	—	—	—	1,133
	Total	314	280	4,391	2,864	50,848	16,383	860	7,614	1,245	26,102

Notes: (-) indicates no damage

* not finalised

NAC: Notified Area Committee

1.2 Crop cutting experiments were conducted to determine the damage to principal crops due to drought. The results of the crop cutting experiments revealed that 16,383 villages in non-irrigated area suffered crop loss of 50-74 per cent and 7,614 villages suffered crop loss of 75 per cent and above.

In respect of irrigated area, 860 villages suffered crop loss of 50-74 per cent and 1,245 villages suffered crop loss of 75 per cent and above. The district-wise number of villages suffered crop loss of 50 per cent and above may be seen in Table 30.

Organisational Response

2.1 In pursuance of the letter of the Prime Minister of 14th August, 1987 addressed to the Chief Minister, the State Government took a number of measures to face the drought situation. The State Government constituted a Cabinet Sub-Committee under the chairmanship of the Chief Minister to review the drought situation at frequent intervals, plan appropriate drought management measures and monitor progress in implementation of various programmes.

2.2 A Task Force was set up under the chairmanship of the Chief Secretary to ensure administrative coordination and expeditious implementation of action plans. A Control Room is in operation at the Secretariat. At each district headquarters also a control Room functions.

2.3 The State Government constituted Block Level Committees in order to secure the active participation of the non-officials and representatives of the people. The Block Level Committee was charged with the task of assessing the situation arising out of drought and suggesting measures for improving quality of work and reorientation of the programmes. The Committee under the chairmanship of the local Member of Parliament consisted of (i) Member(s) of Lok Sabha other than Chairman, whose constituency comprises any area of the block, (ii) Member(s) of Rajya Sabha who ordinarily residing in the block, (iii) local Member(s) of Legislative Assembly (Vice-Chairman), (iv) Chairman, *Panchayat Samiti*, (v) Two members to be nominated by District Collector (DC) and (vi) the Block Development Officers (BDOs).

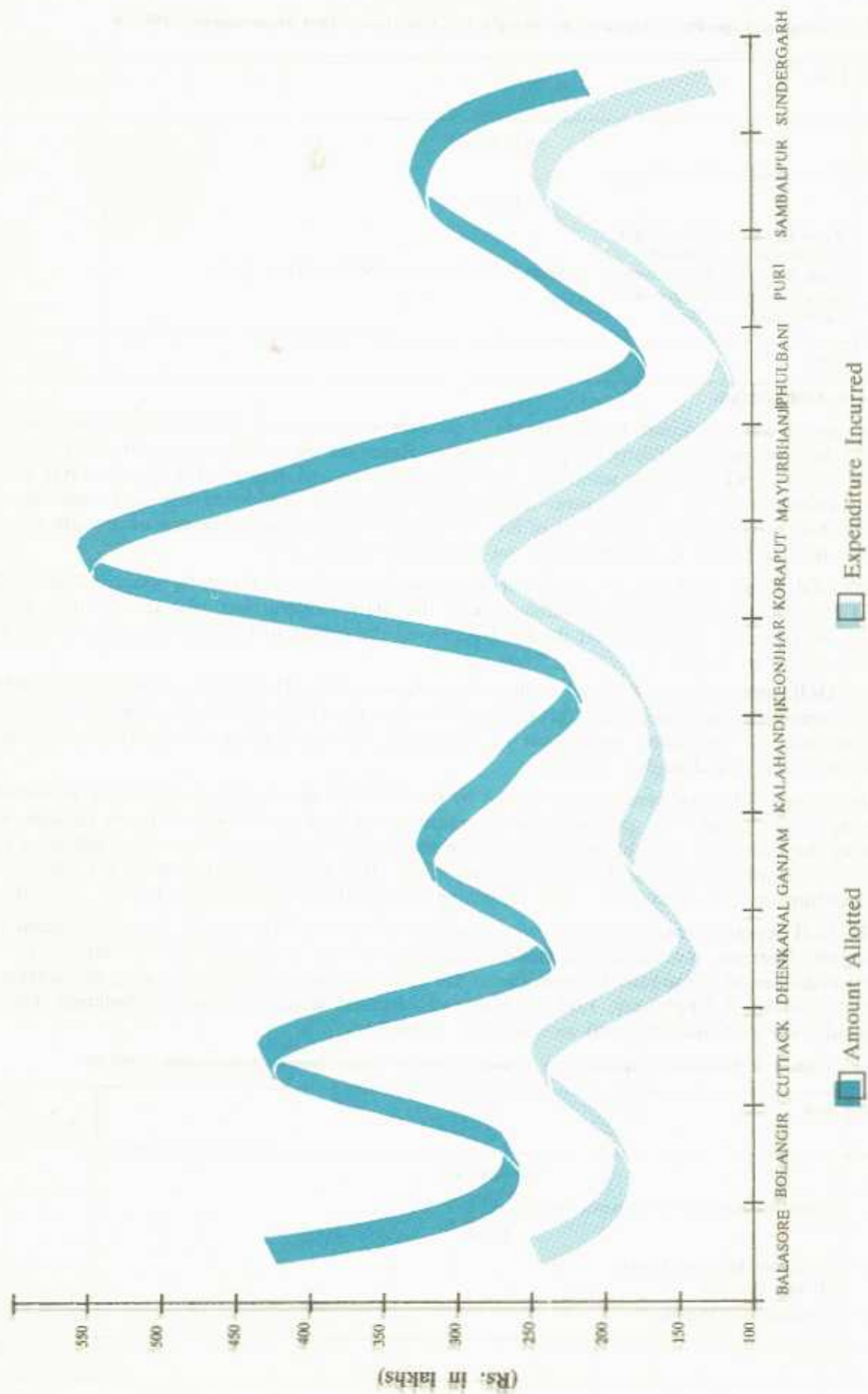


Figure 12: Districtwise Allotment of Funds under RLEGP in Orissa 1987-88.

Table 31: Ceilings of Expenditure Approved for Drought Relief in Orissa (First Memorandum), 1987-88

S.No	Item	Amount (Rs. in crore)
	NON-PLAN	
1	Urban Drinking Water-Supply	0.85
	PLAN	
2.	Rural Drinking Water-Supply	3.43
3.	Agricultural Input Subsidy	6.22
4.	Loan Assistance for Conversion of Short Term Loans into Medium Term Loans	2.25
5.	Special Nutrition Programme	2.00
6	Labour Intensive Work	25.00
	Total	39.75

Resource Mobilisation

3.1 As soon as warning signals for occurrence of drought were received, preliminary assessments were made by field officers and District Collectors (DCs). Based on the initial assessment and preliminary reports, the State Government submitted a memorandum on 3rd August, 1987 to the GOI seeking Central assistance of Rs. 60.53 crore. The State Government submitted the first supplementary memorandum projecting a requirement of Rs. 155.46 crore on the basis of review of drought situation made in the Collectors Conference held on 11th-12th August, 1987.

3.2 The GOI deputed a Central Team which toured different area of the state between 22nd to 26th August, 1987 and held extensive discussions with the State Government officials and non-officials. After considering the Team's report the GOI approved the ceiling of Central assistance at Rs. 39.75 crore as shown in Table 31.

3.3 The GOI approved an additional ceiling of assistance of Rs. 11 crore for completing/expediting certain irrigation projects in drought prone area. Besides, the GOI sanctioned a special assistance of Rs. 0.06 lakh for increasing production of vegetables, by distribution of vegetable minikits for contingency Plan for drought, 1987-88.

3.4 The ceiling of Central assistance approved by the GOI fell short of the requirement projected by the State Government. The gap between the requirement and availability of funds became wider following the indication that the margin money available with the State Government will have to be set off against the assistance. The State Government, therefore, submitted second supplementary memorandum on 31st December, 1987 projecting an additional requirement of Rs. 13.5 crore.

3.5 The GOI deputed another Central Team which visited some of the severely drought affected areas of Ganjam, Koraput, Kalahandi and Bolangir from 7th to 9th January, 1988. On the basis of the recommendations of the second Central Team, the GOI sanctioned additional ceiling of assistance of Rs. 8.61 crore on 3rd February, 1988 for 5 severely drought affected districts of Bolangir, Ganjam, Kalahandi, Koraput and Phulbani as shown in Table 32.

Table 32: Ceilings of Expenditure Approved for Drought Relief in Orissa (Second Memorandum), 1987-88

S.No.	Item	Amount (Rs. in crore)
	NON-PLAN	
1.	Gratuitous Relief for Emergency Feeding	0.95
	PLAN	
2.	(i) Labour Intensive Works	3.50
	(ii) Lift Irrigation	3.50
3	Supplementary Nutrition	0.66
	Total	8.61

Table 33: District-wise Allocation of Funds for Labour Intensive Works in Orissa, 1987-88

S.No.	District	Amount (Rs. in crore)
1.	Balasore	0.92
2.	Bolangir	2.16
3.	Cuttack	1.06
4.	Dhenkanal	0.83
5.	Ganjam	2.37
6.	Kalahandi	2.64
7.	Keonjhar	0.86
8.	Koraput	1.98
9.	Mayurbhanj	0.77
10.	Phulbani	1.07
11.	Puri	0.99
12.	Sambalpur	1.01
13.	Sundargarh	0.84
	Total	17.50

Employment Generation

4.1 The State Government sanctioned Rs. 17.50 crore and Rs. 14.50 crore for undertaking labour intensive works to District Collectors (DCs) and Irrigation & Power Department respectively. Instructions were issued to DCs to observe the following priorities in execution of relief works:—

- i) Block Minor Irrigation Projects;
- ii) Gram Panchayat Tanks; and
- iii) Water Harvesting structure.

Roads were to be taken up only in cases where there was no possibility of taking up irrigation related schemes. District-wise allocation of funds to DCs for labour intensive works may be seen in Table 33.

4.2 Apart from funds sanctioned for taking up labour intensive works, funds available under National Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP) and Plan and Non-Plan Funds were also utilised for employment generation.

District-wise break up of funds available and expenditure incurred under NREP and RLEGP, in 1987-88 (upto January 1988) may be seen in Table 34. A graphical report of district-wise allotment and expenditure of funds under Rural Landless Employment Guarantee Programme (RLEGP) in Orissa, 1987-88 (upto January 1988) and district-wise allotment and expenditure of funds under National Rural Employment Programme (NREP) in Orissa, 1987-88 (up to January 1988) may be seen in Figure 12 and Figure 13 respectively.

Water Supply

5.1 The GOI sanctioned an amount of Rs. 4.28 crore for drinking water supply in drought affected area. For augmenting urban water supply, the State Government sanctioned Rs. 85 lakh. A programme was drawn up to instal 325 hand pumps, 4 cistern type large diameter tube-wells with pumping arrangements. The district-wise details of distribution of tube-wells and allocation of funds for drought affected urban local bodies may be seen in Table 35.

5.2 Special attention was paid to rural area. Allocation for sinking of 2 tube-wells in rural area was Rs. 2 crore. A programme for installation of 1,460 tube-wells in unidentified water scarcity area was taken up. The district-wise allotment of tube-wells for rural area may be seen in Table 36.

Contingency Crop Planning

6.1 The State Government drew up a contingency action plan for growing short duration/alternative crops. For the lands where seedlings were damaged at the initial stage, 2,000 quintal of paddy, 2,500 quintal of *mung*, 1,000 quintal of *urad* and 1,000 quintal of *arhar* were supplied at subsidised rates.

Table 34: District-wise Allotment and Expenditure of Funds under RLEGP and NREP in Orissa, 1987-88 (upto January 1988)
(Rs. in lakh)

S No.	District	RLEGP		NREP	
		Amount Allotted	Expenditure Incurred	Amount Allotted	Expenditure Incurred
1.	Balasore	417.67	238.12	238.58	162.58
2.	Bolangir	255.21	180.39	224.38	178.68
3.	Cuttack	422.38	236.32	339.47	275.56
4.	Dhenkanal	232.44	136.15	208.55	151.56
5.	Ganjam	313.98	177.43	298.59	219.14
6.	Kalahandi	256.58	155.63	227.93	178.25
7.	Keonjhar	229.83	181.83	191.31	145.57
8.	Koraput	540.56	269.81	568.15	376.90
9.	Mayurbhanj	386.34	184.09	319.05	196.99
10.	Phulbani	174.35	110.99	155.99	120.90
11.	Puri	234.95	160.85	247.03	175.15
12.	Sambalpur	318.82	236.50	298.65	212.66
13.	Sundargarh	207.33	120.70	238.42	185.76
	Other Agencies Block Administration	—	—	92.56	—
		—	—	44.52	30.27
	Total	3990.44	2388.95	3693.18	2609.97

6.2 In order to enable small and marginal farmers to take up short duration crop in the land lying fallow due to inadequate rainfall, the State Government distributed 2.2 lakh mini-kits. These mini-kits consisted of (i) green gram (4 kilogram with 10 kilogram DAP) - 1 lakh kits, (ii) black gram (4 kilogram with 10 kilogram DAP) - 1 lakh kits, (iii) sesamum (5 kilogram) - 10,000 kits, and (iv) niger (5 kilogram) - 10,000 kits.

6.3 The State Government launched a massive programme to maximise *rabi* production with a view to partially compensating *kharif* losses. The coverage under *rabi* increased from 28.04 lakh to 29.83

Table 35: Districtwise Distribution of Tube-Wells and Allocation of Funds for Drought Affected Urban Local Bodies in Orissa, 1987-88

S.No.	District	Number of Hand Pump Tube-wells	Number of Cisterns with large Diameter Tube-wells with Pumping Arrangements (in Sets)	Large Diameter Tube-wells with Pumping Arrangement connected to Existing Distribution System (in sets)	Estimated Cost (Rs. in Lakh)
1.	Balasore	14			2.80
2.	Bolangir	30			6.00
3.	Cuttack	37			7.40
4.	Dhenkanal	14			2.80
5.	Ganjam	72	1	3	20.00
6.	Kalahandi	29	2	3	13.40
7.	Keonjhar	9			1.80
8.	Koraput	26		2	7.60
9.	Mayurbhanj	11		1	3.40
10.	Phulbani	11	1		4.20
11.	Puri	32			6.40
12.	Sambalpur	29		1	7.00
13.	Sundargarh	11			2.20
	Total	325	4	10	85.00

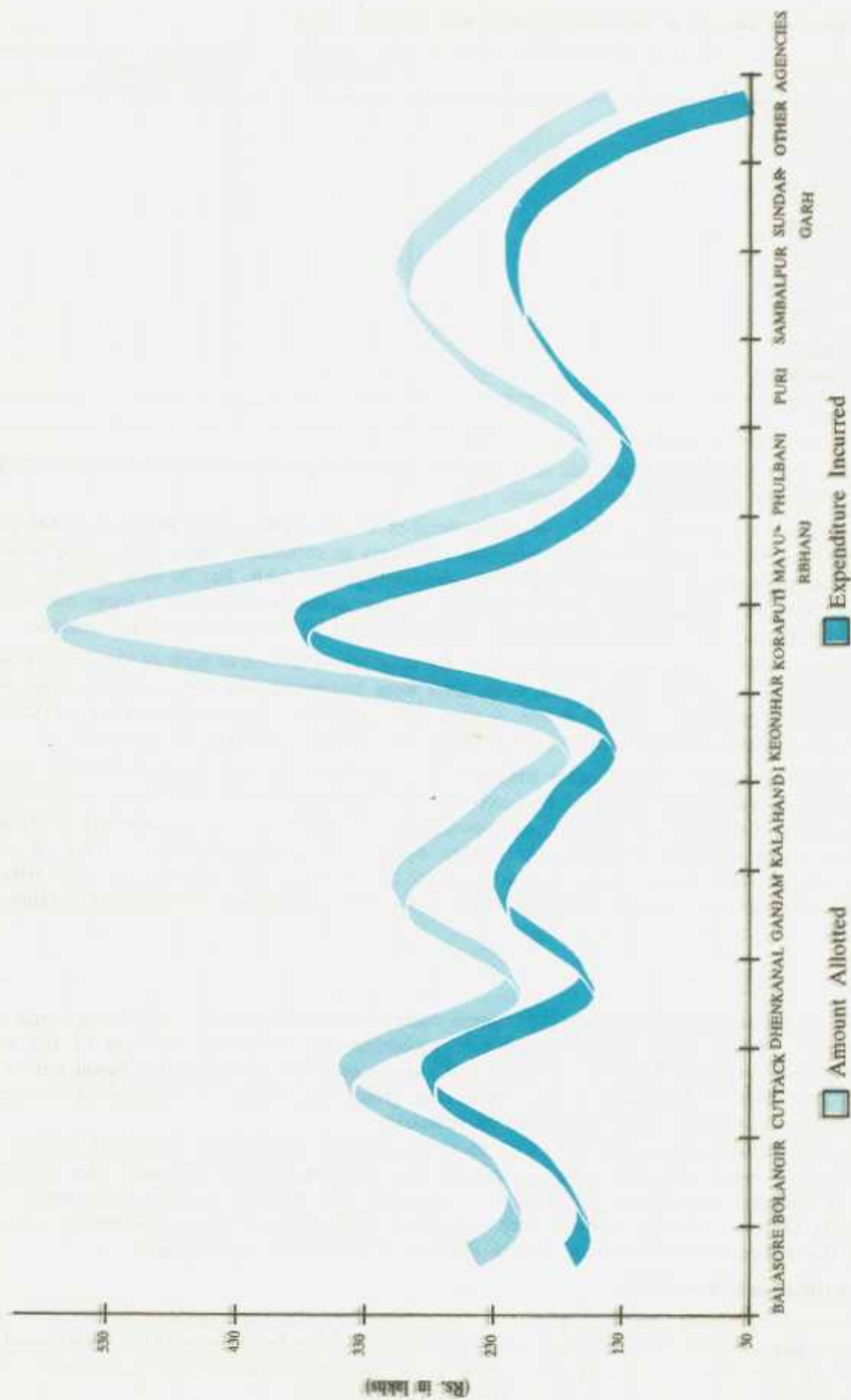


Figure 13: Districtwise Allotment of Funds under NREP in Orissa 1987-88.

Table 36: Districtwise Allotment of Tube-Wells for Rural Area in Orissa, 1987-88

S.No.	District	Number of Tube-Wells Sanctioned
1.	Balasore	59
2.	Bolangir	113
3.	Cuttack	273
4.	Dhenkanal	20
5.	Ganjam	147
6.	Kalahandi	190
7.	Keonjhar	5
8.	Koraput	298
9.	Mayurbhanj	90
10.	Phulbani	79
11.	Puri	118
12.	Sambalpur	59
13.	Sundargarh	9
	Total	1,460

lakh hectare. It was decided to provide subsidised seeds, fertilisers and insecticides to small, marginal and other farmers during the *rabi* season.

6.4 As much as 6,000 quintal of paddy, 10,000 quintal of wheat, 1,000 quintal of *mung*, 1,000 quintal of *biri* were supplied to small, marginal and other farmers at subsidised rates. For supply of seeds, fertilisers and pesticides at subsidised rates expenditure of Rs. 50 lakh, Rs. 70 lakh and Rs. 50 lakh respectively was incurred. Besides, 17,000 quintal of other seeds were procured from the National Seeds Corporation, other Seeds Corporations and registered growers and sold to farmers.

6.5 Instructions were issued to District Collectors for suspension of cess in such of the villages as had suffered crop loss of 50-74 per cent. Similarly, DCs were instructed to remit cess for villages which suffered crop loss of 75 per cent and above. A sum of Rs. 2.25 crore was sanctioned for conversion of short term loans into medium term loans where the crop loss was over 50 per cent.

6.6 A crash programme of augmenting irrigation for agriculture through water harvesting structure and recommissioning of lift irrigation projects was launched. By March 1987 there were 9,767 lift irrigation points in the state with an irrigation potential of 2,20,270 hectare out of which 1,772 points were defunct and the balance 8,045 points were operational. As on 1st March, 1988, 8,645 lift irrigation points were operational. A sum of Rs. 10.57 crore was allotted to Lift Irrigation Corporation for taking up work relating to distribution system, relocation of points and installation of new points.

Nutrition

7.1 The need for accelerating feeding programme during the drought can hardly be over emphasised. High priority was accorded to the nutritional requirement of vulnerable sections of the society comprising children below 6 years, expectant and nursing mothers and old and indigent persons. Of the 51.5 lakh persons belonging to the vulnerable group, the on going schemes of Community Development Department cover 29.5 lakh beneficiaries

7.2 The GOI allotted a sum of Rs. 3.61 crore for feeding programme. This enabled the State Government to cover 4.80 lakh beneficiaries under its drought relief programme. The district-wise details of feeding programme for children, expectant and nursing mothers and others under Community Development Department may be seen in Table 37. The State Government practically covered the entire vulnerable group in the districts of Kalahandi and Koraput.

Public Distribution System (PDS)

8.1 The State Government spared no efforts to ensure larger flow of foodgrains through the Public Distribution System (PDS). At the end of January, 1988, 20,278 Fair Price Shops (FPSs) functioned in the state. Essential commodities like rice, wheat, sugar, palmolen oil and kerosene oil were supplied through retail outlets to cater to the needs of the consumers.

Table 37: Districtwise Feeding Programme for Children, Expectant and Nursing Mothers, and Others in Orissa, 1987-88

S. No.	District	Population Vulnerable Group	Persons Covered Under Normal Feeding Programme (Community Development Department)			Persons Covered under Emergency Feeding Programme (Revenue Department) Emergency Feeding Under Drought	Total Vulnerable Groups Covered
			Pre-School Children (0-6 years) and Expectant and Nursing Mothers	Mid-Day Meal School Feeding (6-11 years)	Total under Community Development Department		
1.	Balasore	4,78,031	61,760	55,000	1,16,760	20,000	1,36,760
2.	Bolangir	3,06,709	1,43,610	46,700	1,90,310	45,000	2,35,310
3.	Cuttack	9,66,213	2,13,500	72,900	2,86,400	20,000	3,06,400
4.	Dhenkanal	1,29,882	1,03,700	53,800	1,57,500	20,000	1,77,500
5.	Ganjam	5,27,100	1,61,300	71,000	2,32,300	50,000	2,82,300
6.	Kalahandi	2,89,774	1,56,700	56,100	2,12,800	1,20,000	3,32,800
7.	Keonjhar	2,27,348	1,30,730	50,000	1,80,730	25,000	2,05,730
8.	Koraput	5,09,329	4,40,000	80,100	5,20,100	55,000	5,75,100
9.	Mayurbhanj	3,38,032	2,03,300	75,000	2,78,300	20,000	2,98,300
10.	Phulbani	1,55,541	1,13,000	35,100	1,48,100	40,000	1,88,100
11.	Puri	5,70,159	94,750	51,200	1,45,950	20,000	1,65,950
12.	Sambalpur	4,36,045	1,97,840	46,100	2,43,940	25,000	2,68,940
13.	Sundargarh	2,15,020	1,96,000	44,000	2,40,000	20,000	2,60,000
	Total	51,49,183	22,16,190	7,37,000	29,53,190	4,80,000	34,33,190

8.2 The State Government launched a scheme of sale of essential commodities in the *hats* in Intensive Tribal Development Project (ITDP) Blocks through 31 mobile vans. Distribution of essential commodities in *hats* through mobile vans was very popular. Rice at the subsidised rate of Rs. 1.85 per kilogram and wheat at the rate of Rs. 1.55 per kilogram were supplied in 118 ITDP Blocks. The scale of rationed supply of rice per family per month was increased from 10 kilogram to 13 kilogram. Besides, sale of 20 kilogram of wheat per family per month were organised. The District Collectors (DCs) were advised to ensure that essential commodities supplied through PDS reached the consumers and were not diverted. The enforcement machinery was geared up to check profiteering, hoarding and black-marketing. From January 1987 to February 1988, 76 145 checks and raids were conducted, 112 prosecutions were filed and 6 persons were arrested. Similarly, during this period 268 licences were suspended and 242 licences were cancelled. The GOI was requested to enhance the rice quota to 40,000 tonne per month for smooth running of PDS.

Punjab had hardly recovered from the serious natural calamity brought about by severe storms and rains at the end of April and first half of May, 1987 which resulted in severe damage in 9 out of the 12 districts in the State when it had to face the onslaught of unprecedented drought during the *kharif* season of 1987.

1.2 The State consists of three distinct areas from an agronomic and topographical point of view. Firstly, there is the sub-montane *kandi* belt, running along the Shivalik ranges, which covers three districts of Ropar, Hoshiarpur and Gurdaspur. Then, there is the south-Western zone, which is a water scarcity zone, having brackish ground water, comprising the districts of Sangrur, Bhatinda, Faridkot and Ferozepur. These areas depend for their irrigation almost entirely on the canal system and have little access to sweet ground water for irrigation. The remaining five districts fall broadly into the third category where canal and tubewell irrigation are feasible.

1.3 Punjab is, on the whole, less vulnerable to drought than some other States and successfully coped with the droughts which affected the State in 1978, 1979 and 1985 without serious damage to the standing crops. In the drought of 1987, the intensity of the drought made its presence felt on the farmers of Punjab in a much more acute manner. In the absence of rainfall, farmers had to draw much more heavily on the ground water:

Employment Generation

2.1 Punjab has normally been experiencing a shortage of unskilled labour and there has been an inward movement of such labour from other States for both agricultural and industrial operations in the past. However, due to fall in the level of agricultural and industrial activity on account of drought, a situation developed in which a good number of unemployed persons in the rural area of the State were willing to take up employment in infrastructure development projects.

2.2 The State Government proposed to undertake the extension of the canal distributory system and the excavation of village level link drains, the latter in the flood-prone south-western zone of the State, by way of employment generation activities. Subject to the availability of the requisite central assistance of Rs. 9.45 crore, 47.25 lakh manday of gainful employment were offered to the unemployed rural labour in the seriously affected area. The utility of both these schemes, with particular reference to the construction of link drains and other associated carrier drains was accepted by the Central Water Commission (CWC).

Water Supply

3.1 Water table went down by 3 to 6 metre at various places. The output from the existing tubewells fell sharply and a large number of farmers carried out reborings to a further depth of 5 metre from the existing levels to be able to continue to draw water from their tubewell. They incurred an additional cost of Rs. 1500 per tubewell for doing so and according to an estimate, 2.5 lakh small and marginal farmers incurred the additional expenditure to save their standing crops.

3.2 For improving the status of water supply schemes in the sub-montane area, 200 village *abadis* were earmarked for being brought under piped water supply.

Cattle care

4.1 The acreage under fodder crops declined from 4.20 lakh hectare to 3.50 lakh hectare in *kharif* 1987, which resulted in fall in the output of fodder from 163 lakh tonne to 110 lakh tonne. The severe damage to the wheat crop during April-May, 1987 already brought about a substantial drop in production of wheat straw which constitutes the principal fodder in Punjab for milch and draught animals to the extent of as much as 25 lakh tonne valued at Rs. 75 crore.

4.2 The price of wheat straw which normally ranges from Rs. 30 to Rs. 40 per quintal was ranging from Rs. 60 to Rs. 80 per quintal in various parts of the State. Against the State's cattle population of 84 lakh, 16 lakh cattle distributed over the submontaneous and arid areas in the south-western districts of Punjab were adversely affected by the fodder shortage. In order to provide requisite fodder and prophylactic medical cover for the affected cattle, the State Animal Husbandry Department projected a requirement of Rs. 36.50 crore, which, *inter alia*, covered the feeding requirements of cattle.

Contingency Crop Planning

5.1 There was shortfall of 4 lakh hectare in the transplantation of paddy due to inadequate moisture and the value of shortfall in the State's paddy crop on this account was worked out at Rs. 320 crore. Of the remaining 14 lakh hectare of area under paddy, the yield fell by about 25 per cent from 50 quintal per hectare to 38 quintal per hectare. The overall shortfall in paddy output was at 30.33 lakh tonne valued at Rs. 467 crore. For similar reasons, of both the decline in sown area, as well as, in the per hectare yield, there was a shortfall in the production of maize by 3 lakh tonne valued at Rs. 45 crore. The shortfall in yield of sugarcane in the form of *gur* equivalent was 12.50 lakh tonne valued at Rs. 31 crore. Adding to the above, the shortfall on account of *bajra* and groundnut production, the overall loss of edible *kharif* crops in the State on account of the drought exceeded Rs. 600 crore.

5.2 In order to cope with the drought situation, one of the major steps taken by the State Government was the diversion of nearly 60 per cent of the total electrical energy from the urban-industrial sector to the farm-sector, against the normal supply of 50 to 55 per cent during part of the year. This was achieved by imposing heavy load and energy restrictions on the industrial sector with the result that large number of small-scale industries were badly hit. The State Government requested the GOI to ensure regular supply of its share of power from central projects, namely, Barasuit and Singrauli. There was a persistent shortfall in the delivery of electricity to the State from the Barasuit

and Singrauli projects and this made the task of the State Electricity Board to meet the increased requirement of the farm sector, even more difficult. One of the effects of reduced supply of electricity to the industrial sector was redundancy of large number of industrial workers which resulted in economic hardship to them.

5.3 The State's additional requirement of diesel oil which was used for running agricultural pump sets was being met by the GOI. During the month of July, 1987 the State Government received 1.12 lakh kilolitre of diesel oil compared to 80,000 kilolitre during July, 1986. During August, 1987 the off take of diesel for pump sets was 75 per cent higher.

5.4 The State Government tried to obtain additional releases of canal water through the Bhakra Beas Management Board, particularly to cater to the cultivators in the water scarcity areas, who rely almost exclusively on canal irrigation. Despite the best efforts of Bhakra Beas Management Board to accommodate the demand of Punjab and the other partner states of Rajasthan and Haryana, the needs of the cultivators were not met adequately and the standing crops suffered considerably. This resulted in a fall, in output by nearly 25 per cent as compared to the normal yield.

5.5 For the area which could not be transplanted under paddy in the wake of drought, the Punjab Agricultural University at Ludhiana recommended plantation of alternative *kharif* crops, namely, maize, *bajra*, fodder, oilseeds and pulses of short duration which would not interfere with the normal *rabi* sowing in November. The Extension Services of the State Agriculture Department were utilised to provide information regarding the Punjab Agricultural University re-recommendations to the affected farmers, but on account of persistent drought conditions, recropping of the affected area could not make much headway.

Essential Commodities

6. So far as the supply of essential commodities was concerned, no scarcity was experienced in any part of the State, as the State received its quota of rationed sugar and increased allotment of edible palm oil. But, the supply and prices of pulses and edible oils had to be carefully watched, as these items were showing upward trend in prices due to lower production owing to drought.

Nutrition

7. The Social Welfare and Health Departments of the State Government also drew up programmes for providing supplementary nutrition for weaker sections including children and expecting and lactating mothers covering some of the affected sub-montane and water scarcity areas.

Other Relief Measures

8.1 The GOI came to the rescue of over 7.50 lakh families of farmers and 2.50 lakh families of farm-labourers in districts which were badly affected by the severe damage to wheat crops during April-May, 1987 in the State. On account of an unprecedented drought, the cost of production per unit of output of *kharif* crops was substantially higher compared to normal times. According to the estimates prepared by the State Department of Agriculture the minimum additional cost of production per quintal of paddy in 1987 was Rs. 30 per quintal. The GOI was requested to have an exercise conducted immediately regarding the unforeseen increase in the cost of production of paddy and other *kharif* crops covered by the price-support policy and announce suitable bonus over and above the normal support prices to enable the farmers to recoup atleast a portion of their additional expenses.

8.2 There were precedents, when, bonus was allowed to the farmers in a State like Punjab which contributed handsomely to the central pool and the farmers had a legitimate expectation, that they would be given something significantly higher that year, to help them tide over the difficult times. Accordingly, a bonus at the rate of Rs. 17 per quintal on paddy, sold in the notified months, by farmers was sanctioned by the State government.

8.3 For the farmers who had sown non-paddy crops and for the small and marginal farmers who had not been able to sow in some areas during *kharif*, 1987, compared to *kharif* 1986, the State Government decided to provide the following relief:—

- (i) Input subsidy in kind for small and marginal farmers for areas which remained unsown during *kharif* 1987 at the rate of Rs. 350 per acre in the shape of fertilizers, pesticides etc. through State Marketing Federation (MARKFED)

- (ii) Relief, for damage to non-paddy crops, in the cases where damage exceeded 25 per cent at the scales of (a) Rs. 700 per acre, where the loss exceeded 75 per cent (b) Rs. 400 where the loss exceeded 50 per cent but did not exceed 75 per cent (c) Rs. 200 per acre where the loss exceeded 25 per cent but did not exceed 50 per cent.
- (iii) Fodder Relief for landless cattle owners and marginal farmers and cattle owners at the rate of Rs. 30 per adult animal and Rs. 15 per calf, subject to an overall ceiling of 8 animals per family.

9. The formidable challenge posed by the drought of 1987 was boldly and bravely faced with the sweat and toil of the Punjab farmers and labourers, primarily with their own initiatives and with help and succour provided both by the GOI and State Government.