

# **THE DROUGHT OF 1987**

# THE DROUGHT OF 1987

RESPONSE AND MANAGEMENT

Volume 1  
National Efforts



*Edited by*  
**D. C. MISRA**

**Additional Relief Commissioner and Joint Secretary (Scarcity Relief)**

Department of Agriculture and Co-operation, Ministry of Agriculture

Government of India, New Delhi

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(Scarcity Relief), Ministry of Agriculture, Department of Agriculture and  
Co-operation, Government of India, New Delhi-110001.**



मंत्रिमण्डल सचिव  
CABINET SECRETARY  
NEW DELHI

## FOREWORD

The Indian Experience in managing the drought of 1987, regarded as one of the worst the country faced in the century, evoked appreciation both in India and abroad. The management of Drought 1987 highlighted the resilience Indian agriculture had come to acquire over the last two decades: it also bore eloquent testimony to the responsiveness and capability of the Indian administrative set up in times of crisis.

2 Early in the *kharif* 1987 agricultural season, when following the failure of the South-West monsoon the dimensions of the impending disaster emerged, the Government of India took the initiative and set up a Cabinet Committee on Drought (CCD) under the chairmanship of the Prime Minister. Till normalcy was restored after the setting in of the monsoon in June-July 1988, the CCD met frequently to review the drought situation, the adequacy and effectiveness of the relief measures and the new policy initiatives needed to tackle the unprecedented drought.

3. The CCD, which was serviced by the Department of Agriculture and Cooperation, was assisted by a special Committee of Secretaries (COS) on Drought Relief. The COS met at regular intervals to work out the policy options for decisions by the CCD and to ensure that timely assistance was extended to the States, and that concern for the preservation of the quality of life was built into the relief measures.

4. These special administrative arrangements which facilitated the full and continued monitoring by the highest functionaries in the political, executive and administrative hierarchy of the relief operations were of special significance in ensuring that the management of drought 1987 was characterised by imagination, performance and effectiveness.

5. This effort to document the valuable experience gained in the management of drought 1987 is indeed commendable. The participant Ministries/Departments of the Government of India and the State Governments have shared their experience in the preparation of the document. I am sure this will prove as the starting point for systematic documentation of efforts in dealing with natural calamities in future.

6. I must compliment Shri C. Srinivasa Sastry, Agriculture Secretary and his colleagues for bringing out this detailed and comprehensive document on the Management of Drought 1987.

New Delhi,  
March 25, 1989

(B.G. DESHMUKH)  
Cabinet Secretary

कृषि और सहकारिता विभाग  
कृषि मंत्रालय  
कृषि भवन, नई दिल्ली-110001



Department of Agriculture & Cooperation  
Ministry of Agriculture  
Krishi Bhavan, New Delhi-110001

सचिव, भारत सरकार  
SECRETARY  
Government of India

## PREFACE

The relief efforts to tackle natural calamities in India are seldom well documented. This is largely attributable to the fact that relief administration in the Centre and the States has minimal regular and continuing staff. When a crisis or a calamity occurs, staff from the line departments get drafted for relief operations. As long as the crisis lasts, attention is understandably concentrated on the speedy implementation of rescue operations and relief measures. As soon as normalcy is restored and the feverish activity associated with the implementation of relief measures abates, the relief operations get wound up and the staff disbanded. The special staff drawn from the line departments revert to their regular duties in their respective departments.

2. While Relief Manuals/Handbooks lay down in detail the drill to be followed to anticipate and handle different natural calamities like droughts and floods, the experiences in implementation are not adequately documented, much less assessed and evaluated. The line departments have neither the inclination nor the staff and time to document the details of the relief measures taken up by them. Consequently, there is little institutional memory to recall in detail the nature of the relief measures taken up in any particular major natural calamity, the manner of their execution, the strengths and weaknesses and the local response. Every time a calamity occurs, by and large, it is a question of starting all over again.

3. The drought 1987 was qualitatively different from the earlier experiences. The efforts mounted to manage this disaster were not only comprehensive but also innovative. More importantly, the timeliness of the Central initiatives, the concern for the preservation of the quality of life in the drought hit areas instead of merely providing relief to those affected by the disaster, special measures devised for the severely drought affected areas and the coordination and reporting mechanisms worked out for monitoring drought relief measures were all too valuable to be lost sight of. Therefore, after the South West monsoon set in June 1988 and normalcy was restored, a systematic attempt has been made in the Department of Agriculture and Cooperation to capture the salient features of the various relief measures undertaken and the several administrative and policy initiatives evolved during 1987-88. This document is the result of such an effort.

4. It is our expectation that the consolidation of the experiences in the management of Drought 1987 embodied in this work would be of wider interest. Besides, this would be of help to the administration, should such calamities recur in the future.

5. The documentation is in two volumes — Volume I giving the over all perspective and the various initiatives which are common to the country as a whole. The sectoral chapters in this volume cover such vital aspects like contingency planning for crops, water and energy resources, food security, employment generation, provision of drinking water, health and nutritional care to the affected population and the elaborate measures taken for cattle conservation. The role of voluntary agencies in drought management and the importance of Science and Technology inputs also find a prominent place. The long term imperative of preserving the environment and planning for drought mitigation have also been dealt with. The sectoral chapters are largely based on the material furnished by the respective Ministries/Departments of the government of India. The subject matter being so vast, it has not been possible to cover in this volume all the issues relating to relief administration in all the sectors. It is hoped that the Ministries/Departments and other agencies associated with the management of Drought 1987 will bring out their experiences in greater detail through separate publications.

6. Volume-II puts together the experience of major States affected by the drought of 1987—Gujarat, Madhya Pradesh, Rajasthan, Tamil Nadu and Uttar Pradesh as documented by the officers of the States concerned. The other States are also in the process of documenting their experiences and these could be added as and when they become available.

7. It is hoped that this document would prove useful to the relief administrators, planners, policy makers and others interested in management of natural calamities. It is our expectation that the publication of this material will generate a debate on several policy and implementation issues relating to drought management and would provide a better data base to build the arguments than it has been possible hitherto.

8. During this crucial period, I had the privilege of working as the Secretary in the Department of Agriculture and Cooperation, the nodal department of Government of India for relief operations for natural calamities when, by general reckoning, India measured up to the challenge of managing Drought 1987. In addition to the usual responsibilities for the processing of the drought memoranda received from the States by deputing Central Teams and obtaining the recommendations of the High Level Committee on Relief and decisions of the Government of India on the nature of the relief measures and the quantum of Central assistance, during this crucial period, the DAC also serviced the Cabinet Committee on Drought (CCD) headed by the Prime Minister. The CCD frequently reviewed the drought relief operations and gave expeditious clearance to many new policies and innovative projects which characterised the management of Drought 1987. The DAC also serviced the special Committee of Secretaries (COS) on Drought which, under the chairmanship of the Cabinet Secretary, regularly reviewed the adequacy and effectiveness of the drought relief measures. The DAC also coordinated the implementation of the decisions taken by the CCD and the COS on Drought.

9. At the official level the COS under the guidance and supervision of Shri B.G. Deshmukh Cabinet Secretary was of great help in ensuring that the prompt decisions were taken and the various Government Departments involved in the relief operations functioned in a smooth and coordinated manner as a well oiled machine. His leadership and coordination skills transmitted the requisite urgency to the initiatives and imparted a high degree of meticulousness in the planning and implementation of the relief operations.

10. This documentation exercise, which required persistent and strenuous efforts to gather material from the operational and field level agencies and put them together, involved a lot of work by the officers and staff in DAC handling scarcity relief operations. Shri S.V. Giri, Relief Commissioner and Additional Secretary, DAC Since August 1987, who was in charge of this documentation exercise, has done a commendable job in directing this effort and in editing the material. Shri R.C.A. Jain, Addl. Relief Commissioner and Joint Secretary (Scarcity Relief), DAC since September 1988, put in special efforts to prepare much of the material and put it in shape and in place. Shri A.R. Subbiah, Under Secretary in the Scarcity Relief Division since 1986 was intimately associated with the preparation of

this document and had put in strenuous efforts in the compilation of the data and in editing. Shri B. Narasimhan who was Joint Secretary (Scarcity Relief) during 1987-88 made valuable contributions in this documentation effort, particularly in terms of the broader framework and perspectives. The nodal officers of the Ministries/Departments of the Government of India had also prepared individual segments outlining their perspective experiences.

11. Suggestions for improvement in the presentation are welcome.



**Krishi Bhavan, New Delhi**  
**March 25, 1989**

**(C. Srinivasa Sastry)**  
**Secretary to Govt. of India**  
**Department of Agriculture and Cooperation**  
**Ministry of Agriculture**

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The compilation of a document of this nature requires cooperation from all the concerned officers of not only various Ministries/Departments of the Government of India but also other Central Government Organisations and the State Governments. The cooperation extended by them in providing the requisite material for this documentation is gratefully acknowledged

2. The document on the Drought of 1987 was placed before the National Workshop on Drought Management held on 4-5 July 1989 in New Delhi. In the light of the comments received from the participants and additional information received from the State Governments the document was revised. Shri D.C. Misra, Addl. Relief Commissioner and Joint Secretary (SR) has revised and edited this document in its present form.

3. The services rendered by Shri Deen Dayal, Deputy Secretary and Sarvashri A R Subbiah, K.S. Jain, Under Secretaries; Sukumar, Section Officer and V.P. Pasricha, Research Investigator of the Scarcity Relief Division and Shri Subodh Kumar of Directorate of Extension in the preparation of the manuscript, proof-reading and coordinating the printing work deserve special mention.

4. Sarvashri V M.L. Saxena, C. Kapoor and S.R. Biswas of Directorate of Economics and Statistics and Shri A.K. Sharma of National Informatics Centre made substantial contribution to the graphics



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## ABBREVIATIONS

AIR	All India Radio
APA	Advance Plan Assistance
ARWSP	Accelerated Rural Water Supply Programme
CAPART	Council for Advancement of People's Action and Rural Technology
CCD	Cabinet Committee on Drought
CFTRI	Central Food Technological Research Institute
CGWB	Central Ground Water Board
COS	Committee of Secretaries on Drought
DAC	Department of Agriculture and Cooperation
DCC	District Consultative Committee
DCP	Department of Chemicals and Petroleum
DCS	Department of Civil Supplies
DD	Doordarshan
DPAP	Drought Prone Area Programme
DRAC	District Relief Advisory Committee
DST	Department of Science and Technology
FCI	Food Corporation of India
GOI	Government of India
HLCR	High Level Committee on Relief
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Scheme
ICMR	Indian Council of Medical Research
IMD	India Meteorological Department
IMG	Inter-Ministerial Group
MHFW	Ministry of Health and Family Welfare
MIB	Ministry of Information and Broadcasting
MNP	Minimum Needs Programme
MOF	Ministry of Finance
NABARD	National Bank for Agriculture and Rural Development
NDDB	National Dairy Development Board
NSC	National Seeds Corporation
NREP	National Rural Employment Programme
NWDB	National Wasteland Development Board
PDS	Public Distribution System
PMO	Prime Minister's Office
RBI	Reserve Bank of India
RLEGP	Rural Landless Employment Guarantee Programme
RRB	Regional Rural Bank
SCB	State Cooperative Bank
SDAAs	Severely Drought Affected Areas

## GLOSSARY

<i>albedo</i>	fraction of incident radiation reflected by a surface (from <i>L. albus</i> , white)
<i>anganwadi</i>	literally a courtyard area, a place where pre-school children and nursing and expectant mothers are gathered for nutrition, pre-school education and health services under Integrated Child Development Services (ICDS) Scheme.
<i>arhar</i>	pigeon-pea or red gram, <i>cajanus cajan</i> (L.) Millsp
<i>bagasse</i>	residue after extraction of juice from sugar-cane
<i>bajra</i>	pearl millet, <i>Pennisetum typhoideum</i> L.
<i>balwadi</i>	literally an area for children, an <i>anganwadi</i> (q.v.) with limited services and not related to Integrated Child Development Services (ICDS) Scheme.
<i>ber</i>	jujube, <i>Zizyphus jujuba</i> L; <i>Zizyphus mauritania</i> Lam
<i>bhusa</i>	wheat straw used as fodder.
<i>crore</i>	unit of counting equivalent to ten million or one hundred <i>lakh</i> (q.v.)
<i>dandupat</i>	a principle of indigenous banking in which interest should not exceed the principal amount of loan.
<i>diggis</i>	ditches for drinking water, notably in Rajasthan.
<i>Doordarshan</i>	literally distant view, the name of Indian television.
<i>gaushala</i>	literally a house for cows, a place where destitute cattle are tended.
<i>gowar</i>	a fodder crop, <i>cyamopsis tetragonoloba</i>
<i>gruel kitchen</i>	a kitchen where gruel, a liquid food of rice and pulses, etc., known as <i>khichri</i> , is prepared.
<i>jowar</i>	great millet or sorghum, <i>Andropogon Sorghum</i> Brot., <i>Sorghum Vulgare</i> Pers.
<i>Karkoon</i>	A clerk in Gujarat administration.
<i>kendra(s)</i>	centre(s)
<i>khadin</i>	water impounding structure, notably in Rajasthan.
<i>kharif</i>	the south-westerly monsoon cropping season, notably in northern India, from July to October. The <i>kharif</i> crops include rice, sorghum ( <i>kharif</i> ), <i>bajra</i> , maize, <i>ragi</i> , groundnut and cotton.
<i>khejri</i>	a fodder tree, <i>Prosopis cineraria</i>
<i>khul(s)</i>	minor irrigation structure(s), notably in Rajasthan.
<i>kisan(s)</i>	farmer(s)
<i>Krishi Darshan</i>	literally view of agriculture, the television programme on <i>Doordarshan</i> (q.v.), devoted to agriculture.
<i>kurwai</i>	cropping season in Tamil Nadu from May to October.
<i>kutis</i>	small pieces of fodder
<i>lakh</i>	unit of counting equivalent to a hundred thousand; one hundred <i>lakh</i> make one <i>crore</i> (q.v.)
<i>maldhari</i>	cowherd in Gujarat
<i>mistri</i>	artisan or mechanic
<i>mung</i>	green gram, <i>Phascolus aureus</i> Roxb.
<i>nala(s)</i>	drain(s)
<i>nirman</i>	construction
<i>panchayat</i>	literally an assembly of five persons, the elected village council.
<i>patta</i>	deed
<i>pinjarapole</i>	a shed for destitute cattle
<i>pradhan</i>	(village) chief
<i>pucca</i>	permanent or solidly built.
<i>rabi</i>	the post-monsoon cropping season, notably in northern India, from October to March. The <i>rabi</i> crops include wheat, sorghum ( <i>rabi</i> ) and gram.
<i>ragi</i>	finger millet, <i>Eleusine coracana</i> (L.) Gaertn.
<i>Rathi</i>	an indigenous breed of cattle in Rajasthan.
<i>samba</i>	cropping season in Tamil Nadu from August to December.
<i>samiti(s)</i>	committee(s)
<i>sarpanch</i>	chief of the <i>panchayat</i> (q.v.)
<i>sirki</i>	dry reeds used for temporary roofing and partition.
<i>sukha</i>	drought
<i>sukhadi</i>	ready-to-eat dry food, notably in Gujarat and Maharashtra, consisting of wheat flour, jaggery and some oil.
<i>tahsildar</i>	a revenue official in-charge of <i>tehsil</i> , a revenue circle.
<i>taluk</i>	a revenue circle.
<i>terai</i>	literally moist, the belt of marshy land between Himalayan foothills and plains.
<i>tree patta</i>	an usufruct lease deed for raising tree crops on community land.
<i>urd</i>	black gram, <i>Phaseolus mungo</i> Roxb.

The drought of 1987, caused by the failure of the south-west monsoon over large parts of India, was one of the worst in this century. The Prime Minister, in his address to the Chief Ministers of drought affected States on the 3rd September, 1987 described the drought of 1987 as a national challenge. He called upon all sections of the society, irrespective of their economic, political and social hues, to work in unison in extending relief to the suffering millions in the drought affected parts of the country.

1.2 The drought situation, as it unfolded, caused serious concern in India and abroad. The Government of India (GOI) launched a series of innovative measures to provide relief to the drought affected areas. These initiatives added a new dimension to drought management in the country. The States, some of whom were facing drought for the third or fourth year in succession, also broke new grounds in meeting the complex needs of the situation. Several voluntary agencies also stepped in to lend a helping hand in the drought relief measures undertaken by Central and State Governments, particularly in the field of cattle conservation and provision of drinking water.

1.3. While no external financial aid was solicited by the the GOI, the concern of the international community was adequately reflected in the assistance received from a few countries and international organisations like the World Bank and the European Economic Community.

2.1 During the south-West monsoon of 1987, only 14 out of the 35 meteorological sub-divisions in the country received normal or excess rainfall; 18 sub-divisions received deficient rainfall and 3 sub-divisions scanty rainfall. Only about 43 per cent of the meteorological districts of the country, accounting for 37 per cent of the geographical area, received normal or excess rainfall.



2.2 The overall deficiency in rainfall during this monsoon period in the country was (-)19 per cent. This order of deficiency in rainfall was recorded only in two earlier years of this century, namely, 1918 [(-)26 per cent] and 1972 [(-)25 per cent]. The drought of 1987 is the third in this century in severity in terms of rainfall.

2.3 The rainfall during the north-east monsoon after the 1st October, 1987 was quite favourable. For the country as a whole, for the period from 1st October 1987 to 31st December 1987, 16 out of 35 meteorological subdivisions received excess rainfall and 8 meteorological subdivisions normal rainfall. The effect of this rainfall on *rabi* production, fodder and drinking water availability in most parts of the country was quite beneficial.

3.1 Nearly 70 per cent of the 141 million hectare of cropped area in the country is dependent on monsoon rainfall. The south-west monsoon from June to September contributes nearly 80 per cent to the total precipitation in the country. The delayed onset of the monsoon in certain parts and the prolonged dry spells in most parts of the country severely affected agricultural operations in 43 percent (58.6 million hectare) of cropped area in 263 districts in 15 States and 6 Union Territories. About half of the area was not sown at all. The two worst affected States were Rajasthan and Gujarat where the year's precipitation was less than 50 per cent of the normal. In these and a few other States, the drought of 1987 was the third or fourth in succession accentuating the distress to unprecedented level. Even States like Punjab and Haryana having substantial areas under irrigation were adversely affected.

3.2 Successive droughts in Rajasthan, Gujarat and some other parts of the country led to severe drinking water shortages also both in urban and rural areas. Nearly 54,000 villages faced acute drinking water problem. Another serious dimension of the drought of 1987 was the severe fodder shortage experienced in large parts of the country particularly in Rajasthan and Gujarat.

3.3 The macro level deficiency of (-)19 per cent in the country in the precipitation during the south-west monsoon, however, does not fully reflect the magnitude of the drought situation that prevailed in the affected area, especially in the western and northern States. The all-India deficiency percentage was considerably offset by the excess rainfall of the order of 124 per cent of the normal received during the south-west monsoon in the eastern sub-Himalayan region which, however, led to unprecedented floods in the States of Assam, Arunachal Pradesh, Bihar, Sikkim, and West Bengal.

3.4 Prospects for *rabi* 1988 were, once again, threatened by the deficient winter rains in the north-western India. During this season (1st January to 29th February, 1988) as many as 83 per cent of the districts in this region received deficient, scanty or no rainfall. This necessitated launching of emergency measures for minimising crop losses during the *rabi* season.

#### **National Approach to Drought Management**

4.1 As early as in mid-July, 1987 when it was observed that the developing drought situation was likely to have a serious impact on the Indian agriculture, the GOI responded to the emerging situation by assuming a positive role, giving up its traditional approach of responding on receipt of the States' requests for assistance. The Prime Minister, appreciating the calamitous dimensions of the creeping disaster, set up a Cabinet Committee on Drought (CCD) under his leadership, with the objective of ensuring timely and prompt measures for mitigating the impact of drought. The CCD was serviced by the Department of Agriculture and Co-operation (DAC).

4.2 The Prime Minister designated Central Ministers for a sustained inter-action with the States with a view to helping them in undertaking effective relief measures. A Committee of Secretaries on Drought (COS) was set up under the chairmanship of the Cabinet Secretary to coordinate and monitor the activities of the Central Ministries/Departments and the State Governments in regard to drought relief. The COS was serviced by the DAC.

4.3 The CCD formulated an Action Plan and set about the task of closely monitoring its implementation. The Action Plan encompassed definite measures to be initiated by various departments in different sectors. It, *inter alia*, included:

- (i) Preparation of water budgets to optimise the use of water available in the reservoirs and utilisation of groundwater resources;

- (ii) Undertaking appropriate contingency measures and supply of adequate power in the agricultural sector so as to minimise crop losses;
- (iii) Effective steps to provide drinking water to the drought affected population;
- (iv) Strengthening of the Public Distribution System (PDS);
- (v) Public health measures and providing supplementary nutrition for the young and needy children in the drought affected area, and
- (vi) Measures to provide adequate fodder and nutrients for the health and preservation of cattle.

4.4 Even though drought conditions severely affected the kharif crops, the loss in production could be minimised by preparing an effective agricultural contingency plan incorporating optimum use of water resources. On the basis of detailed discussions with the State Governments and formulation of specific measures at the field level a plan for production of 76 million tonne of foodgrains and 7.7 million tonne of oilseeds during rabi was evolved. The strategy for rabi production was based on: (i) ensuring timely inputs for rabi cultivation, (ii) arranging 4 lakh quintals of wheat seed for Bihar, and Jammu and Kashmir for rabi 1987-88, (iii) improving flow of credit in drought affected area by relaxation of credit norms by National Bank for Agriculture and Rural Development (NABARD), (iv) arranging uninterrupted supply of power for a minimum of 8-10 hours on priority to agricultural sector, (v) improving the generation of power from the existing power plants, (vi) facilitating adequate supply of petroleum products to drought affected area, and (vii) distributing 1.37 lakh minikits in drought affected area at an outlay of Rs. 2.06 crore for enhancing the availability of vegetables. The reduction in foodgrain production due to drought during the crop year 1987-88 as compared to the previous year could by these measure be pegged down to only 3.5 per cent.

4.5 The GOI identified the following major thrust areas for priority attention in providing relief to drought affected area:- (i) Employment generation, (ii) Provision of drinking water, (iii) Fodder availability, (iv) Supply of essential commodities, and (v) Drought proofing. Besides, a series of measures were also undertaken to improve the infrastructure for power generation and distribution, irrigation, public distribution system and the status of health and nutrition of the population in the drought affected area.

4.6 Nearly 93 million out of the 285 million people affected by the drought of 1987 in different States and Union Territories, belonged to vulnerable sections of the society consisting of small and marginal famers, agricultural labourers, etc. The immediate impact of drought was on the rural incomes, especially the means of livelihood of the vulnerable sections of society. As a measures of relief, it was necessary to provide employment opportunities to these affected people on a priority basis. Appreciating this imperative 57 per cent of the total ceilings of expenditure approved by the GOI in 1987-88 for drought relief for the various States, was for execution of employment generation work.

4.7 In order to ensure that employment generation work results in drought proofing and creating durable and productive assets, the GOI laid down the following order of priority for selection of works: (i) tubewells; (ii) ponds; (iii) field channels; (iv) soil conservation and water harvesting works; and (v) laying of roads where road links did not exist. Considerable emphasis was laid on proper use of the available water resources for insulating agriculture from the vagaries of monsoon. For increasing the irrigation potential, the GOI identified 94 major and medium irrigation projects and 19 minor irrigation projects in 14 drought affected States and sanctioned an additional outlay of Rs. 236 crore for accelerating their pace of execution and to complete them in two years creating an additional irrigation potential of 1.64 lakh hectare.

4.8 The Rural Electrification Corporation (REC) launched a special drive during August—November 1987 for energisation of 1.50 lakh new pumpsets and restoration of 1.30 lakh pumpsets rendered inoperative due to burnt out transformers. Under an Action Plan implemented by the REC, 2.27 lakh pumpsets were energised in 12 drought affected States in this short period of 4 months, exceeding the target of 1.50 lakh pumpsets by 51 per cent. Simultaneously 2.8 lakh inoperative pumpsets were made operational by replacement of burnt out transformers, exceeding the target of

1.30 lakh pumpsets by 115 per cent. With 2.27 lakh pumpsets having been energised/extended connections and 2.80 lakh inactive pumpsets having been made operational irrigation facilities of the order of 5.07 lakh pumpsets were made available in these States in just 4 months which were more than the irrigation facilities ever added in any single year through energisation of pumpsets.

4.9 In order to ensure that the nutritional requirements of the labourers on relief works were suitably met, the GOI announced a policy of allocation of foodgrains as payment for a part of the wages in kind at the rate of (i) 3 kgs. per manday in the severely drought affected areas (SDAAS), and (ii) 2 kgs. per manday in all other drought affected area.

4.10 The GOI took early steps to intensify the efforts under Accelerated Rural Water Supply Programme (ARWSP), and Technology Mission on Drinking Water. Significant among the measures taken was the release of assistance to States for augmenting the fleet of rigs available for drilling tubewells for providing drinking water. Steps were taken to closely monitor the deployment and utilisation of 825 rigs available with State Governments in the drought affected area. The Central Ground Water Board (CGWB) was provided with additional funds for procurement of 17 high powered rigs for deployment in difficult terrains. A medium term programme to cater to 48 towns with a population of 20,000 to 10 lakh, having chronic shortage of drinking water, was also drawn up. Major towns like Rajkot, Jamnagar and Ajmer in drought affected area were provided with additional funds for completing reliable water supply schemes. States were advised to adopt strict water budgets for reservoirs so as to cater to the drinking water needs on priority.

4.11 The multi-pronged strategy of the GOI to tackle the problem of drinking water included (i) use of scientific methods for identifying water sources, (ii) construction of a large number of water harvesting structures, (iii) steps to prevent overdrawal of groundwater around urban agglomerations, and (iv) conservation of surface water by the use of cetyl alcohol.

4.12 With a view to maintain the status of health and quality of life, the following measures were initiated (i) stepping up public health measures for preventing outbreak of diseases, and (ii) improving the nutrition level by extension of the benefits of supplementary nutrition to all drought affected area on the scale of the integrated Child Development Scheme (ICDS).

4.13 The GOI took steps to improve the availability of foodgrains in the Public Distribution system (PDS). During the drought period ending July 1988, over 10 lakh tonne each of rice and wheat was allocated to the States. Special allocation of foodgrains to the extent of 4.44 lakh tonne was made for the drought affected area for relief measures. The GOI took steps for the import of 2 lakh tonne of pulses, 30,000 tonne of butter oil and 30,000 tonne of skimmed milk powder under various programmes. The PDS was strengthened and nearly 7,740 additional fair price shops were opened in the drought affected area since August, 1987. Additional mobile vans for supplying essential commodities in remote and inaccessible drought affected area were also commissioned.

4.14 Fodder was a source of serious concern since the beginning of drought conditions in July 1987 throughout the country. Rains in late August-September slightly eased the problem in some States but Gujarat and Rajasthan continued to experience severe fodder shortage. They formulated a scheme for increasing fodder production in the drought affected area by extending subsidy to small and marginal farmers. An area of about 2.30 lakh hectare was covered under the scheme with an outlay of Rs. 8.02 crore. The State Governments were advised to provide free irrigation facilities for increasing the area under fodder cultivation. Steps were initiated for identification of forest areas, where grass production could be augmented, for meeting the fodder requirements within and outside the States. The activities of State Forest Departments and Animal Husbandry Departments were closely coordinated to achieve this objective. Gujarat had set district-wise targets for growing fodder in 4 lakh hectare to the extent of 80 lakh tonne by June, 1988. Rajasthan took steps to grow fodder in 1.5 lakh hectare by providing free inputs and irrigation.

4.15 Under the scheme of central assistance, the GOI provided subsidy to the extent of 75 per cent of the transport cost in the case of inter-State transport of fodder and 50 per cent in the case of intra-State transport. Paddy straw was moved from Punjab to Gujarat and Rajasthan in substantial quantities under this scheme. The GOI earmarked 10 per cent of the molasses production for the manufacture of cattlefeed. In all 1.5 lakh tonne of molasses was provided for this purpose. Arrangements were made for the use of about 31,000 tonne of damaged wheat available with the

Food Corporation of India (FCI) for manufacture of cattle feed. Voluntary organisations rendered yeomen service in procurement and distribution of fodder, and maintenance of cattle camp especially in Gujarat and Rajasthan. Assistance was provided for the maintenance of cattle camps run by voluntary agencies. At the peak of the drought, nearly 2,500 cattle camps, *pinjrapoles* and *gaushalas* were run by the Government and voluntary agencies, maintaining nearly 18 lakh cattle in the States of Gujarat and Rajasthan.

4.16 A massive information campaign was mounted by the All India Radio (AIR), *Doordarshan*, (DD), Press Information Bureau (PIB), Directorate of Audio-Visual Publicity (DAVP), and Directorate of Field Publicity (DFP), of the Ministry of Information and Broadcasting (MIB) in different parts of the country to create public awareness about the drought and the various relief measures undertaken by the GOI, State Governments and voluntary agencies. Apart from their programmes directed at general audience aimed at creating awareness and building morale, special audience programmes concerning agriculture, supply of essential commodities, employment generation, drinking water, public health schemes, etc. were also launched to focus on popular participation and support to the Government policies and programmes directed at tackling the drought situation.

### Central Assistance

5.1 The GOI was very keen that the relief assistance should be extended to the States in time, and to this end, the memoranda of the States must be processed with utmost expedition. For taking a final decision on the States' memoranda, the GOI set for itself a time limit of 30 days from the confirmation of the date for the visit of the Central team by the State Government.

5.2 Appreciating the special needs of certain parts of the country, which have repeatedly faced drought in the last 3 to 4 years, the GOI, in relaxation of the current norms for central assistance, approved liberal measures for relief in SDAAs. The package of special relief measures for the SDAAs provided for: (i) a higher quantum of foodgrains to labourers on relief works, (ii) enhanced subsidy for maintenance of cattle, (iii) provision of shelter for cattle camps, (iv) additional coverage under the programme of gratuitous relief, and (v) provision for supplementary nutrition through extension of ICDS coverage.

5.3 During the 1987 drought period, 15 States and 4 UTs submitted memoranda seeking Central assistance of Rs. 10,298 crore for drought relief. All these memoranda were promptly considered and ceilings of expenditure approved for an aggregate amount of Rs. 1,472.10 crore upto July, 1988. In addition, as indicated earlier, the GOI sanctioned an assistance of Rs. 236 crore for completion of specified irrigation projects in different States by 1989-90 as part of its drought proofing efforts. An assistance of Rs. 8.02 crore for fodder cultivation and Rs. 2.06 crore for cultivation of vegetables was also sanctioned for the drought affected States.

6. The efficiency of relief operations depends as much on the formulation of sound policies and programmes as on their proper and timely implementation. The GOI therefore continuously emphasised regular monitoring of the relief operations. The State Governments were advised to streamline their relief machinery for providing effective and timely relief to the drought affected population through efficient implementation of the relief measures and monitoring their activities on regular basis.

7.1 The effectiveness of the drought management strategies and measures adopted by the GOI and the State Governments has been summed up by a dispassionate observer from an international organisation having wide experience in the management of natural disasters in different countries who, after visiting the drought affected area of Gujarat and Rajasthan during the drought of 1987, made the following comments:

"What I believe may well be one of the most effective drought responsesystems in existence. It is the most forceful example I have ever seen of the fact that drought need not result in food scarcity at the village level, increased malnutrition and death among victims, lack of income generating opportunities for self-sufficiency, large scale migrations of people in search of food and employment, death or sale of cattle, bankruptcy and significant depletion of farmers' assets. The disaster response seen by the States of Gujarat and Rajasthan, supported and lead by the

Central Government, confirms the universal truth that whether or not such negative consequences exist is almost entirely dependent upon the effectiveness of the disaster response system. What I saw in India was a system that successfully ensured that food was available at the village level; that those in need had opportunity to maintain (perhaps even increase) their monthly earnings thereby ensuring the family well being; that the mass works projects were developmental in nature in that community assets were being built and that vulnerability to the devastations of future water shortages was being reduced by the emphasis on "drought-proofing"; and that the cattle and other assets of the farmers were protected making recovery at the family level much easier. Of course, there were many other critical efforts initiated as well; those mentioned are only a sample of the more obvious.

My praise of the drought response efforts are unqualified, and this is said in recognition of the fact that in a programme effort that attempts to reach tens of thousands of villages and millions of people. There may have been the occasional time of community in which problems was encountered. However, what I came to appreciate through my visit was the concerted effort and determination of people at every administrative level, from seniormost civil servants at Central Government level to local community leaders, to overcome any such problems and ensure that effective and benevolent services were available to all.

Another important conclusion I drew from the visit was that while the formidable emergency response could only have been implemented through the personal commitment and long hours of work month after month by the excellent quality staff involved, still that alone would not have produced the results evident in every village had it not been for the establishment and continued refinement of the disaster system that is in place. I believe strongly that India can be proud of this system and that people in other countries searching for better ways to meet the needs of people affected by drought could benefit by understanding the fundamentals of this system."

7.2 The management of the drought of 1987 underlines the fact that by appropriate institutional support and proper co-ordination of efforts crises could be met confidently and the policies could be translated into practice most expeditiously. This experience also embodied the reorientation in the approach to drought management and marked a major departure in terms of caring for the quality of life and not merely confining to providing sustenance to mitigate hardship. That the drought of 1987 was one of the severest in terms of inadequacy in precipitation and its uneven spread, and extensive damage to productive agricultural area is well documented. The ensuing chapters spell out the way the administration responded to face this challenge and measure up to it.

## EVOLUTION OF DROUGHT MANAGEMENT POLICY

The present policy of the Government on drought relief has evolved over a period from the various measures adopted for amelioration of the distress caused by famines and scarcities from time to time. For an appreciation of the policy it is worthwhile to recount some of the important stages in its evolution.

1.2 The famine policy of the earlier rulers in India evolved through a process conditioned by the resources of the State, the philanthropy and munificence of the rich and the political and economic philosophies of the times. The relief policy of these times was, broadly speaking *ad hoc* and not based on any definite principles. This was due to the stage of political development, lack of resources and communications and the inadequate appreciation of the vulnerability and the needs of the affected population.

1.3 In the era preceding the British rule, the village communities were mostly self-sufficient and the means of communications were virtually non-existent. Consequently trade and movement of foodgrains even in times of plenty were limited. The emperors are said to have maintained stores of foodgrains in their capitals as war chests and richer landlords also kept surplus from the years of bounties as insurance against years of scarcities. Depending upon the benevolence of the rulers and the severity of the famines the grains were either sold or distributed free.

1.4 The Gujarat relief manual recounts at length the history of Indian famines as noted by A. Loveday in his *History and Economics of Indian Famines* (1914) and has on record that Mohammed-Bin-Tughlaq was the first ruler to take vigorous measures to alleviate the effect of the drought that occurred in AD 1343 during his regime. In addition to the distribution of 6 months' supply of foodgrains to the inhabitants of Delhi, advances were made from the treasury not only for the cultivation of land but also for digging of wells. In AD 1630, Shah Jehan is said to have distributed Rs. 5,000 every Monday to the deserving poor, and Rs. 50,000 in Ahmedabad during the famine. The same principle of doles of food was also adopted and land revenue was subsequently remitted to the extent of Rs. 30 lakh. A departure was, however, made in that the relief was not confined to the

capital of Delhi but it was extended to Burhanpur, Ahmedabad and the country around Surat, where some kitchens and alms-houses were established. In AD 1596, some relief works were established and the strength of the army was increased to support the poor.

1.5 During the famine of AD 1577 in Kutch and that of AD 1746 in the district around Bombay, relief was afforded by direct distribution of cooked food. But generally, nothing substantial was done outside the limits of the capital. The poor left the countryside for the towns and pestilence followed. Shah Jehan and Aurangzeb demonstrated perhaps the greatest powers of organisation.

1.6 The subsequent history shows that the first impulse of the people when food was scarce was to migrate to the neighbouring area. The migratory habits of the people in famines, the stores of grains which emperors of the past maintained, and the principle of mutual assistance and family support for the aged and the weak, were the bulwarks against the perils of destitution and the ravages of starvation. In terms of public works, irrigation works like tanks, canals and wells were usually taken up for providing employment in times of distress.

1.7 According to Loveday, the important famines between AD 297 and AD 1907 tended to recur in cycles of 5 years and the greater ones in cycles of 50 years. Roughly speaking, it was towards the middle and the end of each century that the most disastrous calamities occurred in India. The famines of AD 1343-45, AD 1540, AD 1630, AD 1747 and AD 1837 were all intense in certain districts though comparatively limited in area and short in duration. Those of AD 1396, AD 1596, AD 1660-61, AD 1803-04, AD 1896 and 1900 were the most disastrous and the most extensive famines.

1.8 During the time of the East India Company from AD 1765 to AD 1858, the country experienced 12 famines and four severe scarcities as against only 14 recorded during the seven centuries from Eleventh to the Seventeenth. The horrors of the post-1858 period have been described by Romesh Dutt as follows: "The poverty of the Indian population at the present day is unparalleled in any civilised country, the famines which have desolated India within the last quarter of the nineteenth century are unexampled in their extent and intensity in the history of ancient or modern times. By a moderate calculation, the famines of 1877 and 1878, of 1889 and 1892, of 1897 and 1900, have carried off 15 million people."

1.9 In spite of the fact that such a large number of famines occurred in India during the 19th century, the relief policy of Government was torn between the conflicting goals of saving life and of securing the maximum possible economy in relief expenditure. Even during the terrible famine of AD 1877 the British government warned the special officer, Sir Richard Temple that "the task of saving life irrespective of the cost is one which is beyond their power to undertake."

#### **Famine Commissions**

2.1 Three successive Famine Commissions were appointed during the period from 1878 to 1900 to investigate the nature and causes of recurring famines, to assess the relief measures adopted and to suggest guidelines for the future. The first of these Commissions, presided over by Sir John Strachey, submitted its report in 1880. The commission recommended that the employment of the affected persons on large works of permanent utility should be the principal form of famine relief, but those who were unable to work should be given cooked food in poor houses. The Commission expressed the view that the improvement of internal communications and the removal of all obstructions to the free course of trade accompanied by the extension of irrigation in suitable localities and improved agriculture, offered permanent solution for recurrent famines. The Commission also suggested the establishment of a separate fund, later known as famine insurance fund, to meet the expenditure on famine relief. The Commission circulated a famine code to provincial Governments embodying the principles and procedures of administrative relief. In the light of this model code, several provincial Governments framed their own codes which helped the local administration to undertake systematic measures for tackling famines.

2.2 The Second Famine Commission (1898) under the Chairmanship of Sir James Lyall, recommended that district small as well as large works should be kept ready. Works might be taken up at a distance from the villages if they were more useful than the nearer works but not merely for effecting economy in expenditure. The Commission favoured the payment of wages by results, subject

to a minimum and a maximum daily wage. The Commission also recommended a more positive policy regarding suspension and remission of land revenue.

2.3 The report of the Third Famine Commission (1901) headed by Lord MacDonnell was remarkable in that it warned the Government against the dangers of being caught napping. It emphasised that a complete and authoritative plan for relief should be laid out from the beginning. This plan should include a properly thought out programme of public and village works, the provision of a reserve of adequate tools and implements and the grant of liberal advances to agriculturists in the earliest stages of distress. The Commission recommended that test relief works should be commenced as soon as indications of famine were visible and these test works should later on be converted into regular works as soon as it appeared that they were necessary for the people who sought work. Another special feature in the report of this Commission was that it advocated a system of payment strictly by results, with a maximum limit on daily earning but without any minimum limit. While it recommended the grant of gratuitous relief to those who were not in a position to work, it suggested that the number of persons receiving gratuitous relief should not be more than a third of the affected population during the dry months and not more than 42 per cent throughout the entire period. Deserted children should be looked after by the State for a reasonable period after the closure of the famine works. For the preservation of cattle, the Commission recommended cultivation of fodder crops, grant of loans for purchase of fodder and opening of cattle camps. Finally, the Commission advocated a 'moral strategy' to tackle famines by getting non-official support for administering relief.

2.4 The famine codes framed from time to time in the light of recommendations of the successive Famine Commissions provided for taking measures when danger of large scale human mortality was apprehended and aimed at preventing deaths on accounts of calamities.

#### **Famine To Drought**

3.1 In the evolution there was a noticeable change in approaches of the drought management policy to the famines of the pre-independence days and to droughts which were experienced since then. Famine is a forbidding spectre; it conjures up harrowing memories of men and women dying in thousands, of cattle and animals facing privation of the worst sort, of misery abounding, and of a general unsettlement in the political and social fabric.

3.2 These are mercifully now things of the past. Nature's course however continues to be tortuous and her tortures are still sometimes manifest. Man has not been able to succeed in either taming or training Nature and he is still subject to the caprice of errant elements. Indian agriculture continues to be subject to the vagaries of monsoon, particularly in large parts of the country where only a limited cultivated area is under irrigation. The redeeming feature is the change in the approach of the administration to drought. The Government no longer remains either a passive witness or an unmoved spectator to the miseries of its citizens. When the monsoon flounders and the drought manifests, the entire administrative machinery is geared to meet the challenge and several measures are taken with a view to provide prompt relief to the affected population.

3.3 It was not a play of words that induced the Government of the erstwhile Bombay State to replace the word 'famine' by the word 'scarcity' in all its rules, manuals, and enactments. It was the expression of what Government considered as an article of faith and a sincere and genuine attempt to instil confidence in the minds of the rural population with a long memory of hardship and suffering. It was also a reminder to the administration that it must move swiftly and effectively to relieve the situation at the very onset of the distress.

3.4 The Famine Relief Codes of the erstwhile provinces were replaced in the fifties by the Scarcity Relief Manuals of various States which describe 'scarcity' as a marked deterioration of the agricultural season due to the failure of rains or floods or damage to crops from insects resulting in severe unemployment and consequent distress among agricultural labour and small cultivators. In assessing the state of a season for the purpose of determining whether scarcity is to be declared or not, factors such as the *annewari* of crops in the current and in the previous two years, the availability and prices of foodgrains and fodder, the state of employment and trends in wages, unusual movements of labour from rural areas, the state of crime and other factors indicating signs of distress such as malnutrition among children, are taken into consideration.



3.5 Scarcity manuals lay down measures to provide reasonable purchasing power to the affected people as well as ensure availability of goods and services. The more recent drought manuals also lay down measures not only towards alleviating distress of the affected population but also to bring out alternative arrangements in maintaining crop production through contingency planning and better water management and developmental efforts by creating assets through employment generation works to the extent necessary.

#### **New Drought Codes**

4.1 Every major drought contributed in bringing about qualitative improvements in drought management policy. Drought of 1965-66 contributed to building up of a reliable PDS to take care of the food emergencies. The privations suffered during this drought also spurred the country into embarking on certain fundamental changes in the agricultural strategy which ultimately ushered in a Green Revolution making the country self-sufficient in foodgrains production. The drought 1972 focussed on the need for evolving massive employment generation programmes for enhancing the purchasing power of the people rather than running free kitchens, while the drought of 1979 underlined the need for creating durable and productive assets for enabling the people of the affected area to withstand future droughts with greater resilience.

4.2 The GOI issued guidelines in 1989 for preparing relief manuals in the light of changes in approaches for incorporating them in drought management. The State Government of Andhra Pradesh brought out a Drought Handbook and the Governments of Gujarat and Maharashtra prepared Draft Relief Manuals. The other State Governments are in the process of drafting their relief manuals in the light of guidelines issued by the GOI.

4.3 The drought of 1987 focussed not only on the need for providing access to food to the affected people but also on maintaining their quality of life. It is no more a question of saving life from the threat of widespread starvation during such a natural calamity. The central theme of relief today is to meet the food and nutritional needs of all sections of the people keeping in view their normal energy requirements, supply of drinking water, providing adequate health care and fodder for the cattle.

4.4 The drought management policy presently under implementation seeks to provide for the social and economic goals of the welfare state and the egalitarian objectives of the Government as embodied in the Constitution of India. The objective is not only that no one should die of starvation but more importantly to prevent physical deterioration and destitution of the people and to enable them to resume normal pursuit of life at the earliest. It also aims to encouraging community effort by sharing a common concern and to fashion or shape events and social infrastructure so that the recurrence of scarcities and other calamities are minimised. The approach of the present drought management policy, therefore, is more towards drought mitigation and is preventive in nature rather than merely curative. The relief measures are therefore, not to be conceived in isolation but integrated with the development ethos and programmes under implementation under various Five Year Plans in India.