

AN EVALUATION OF DROUGHT PRONE AREA
PROGRAMME IN AHMEDNAGAR DISTRICT,
MAHARASHTRA STATE (1975-80)

DISSERTATION IN PART FULFILMENT
OF M.PHIL. DEGREE COURSE OF THE
UNIVERSITY OF POONA

SUBMITTED BY

S. S. CHANDE

GOKHALE INSTITUTE OF POLITICS & ECONOMICS
PUNE 411004

1980-81

P R E F A C E

The present study is an attempt to examine the salient features of Drought Prone Area Programme with a particular reference to Ahmednagar District. Since the literature available on the subject is very limited, we have attempted to review the developments that have taken place in this field mostly relying on sources such as circulars, records, correspondence, notes, pamphlets and reports published by the DPAP Executive Director, Ahmednagar District and Government of Maharashtra. While collecting the relevant data for this study I was greatly benefited by the discussions with the Implementing Officers and office staff of DPAP in Ahmednagar District. I express my sincere thanks for their help.

This work was undertaken under the guidance of Dr. G. R. Mulla. At the very outset I express my deep sense of gratitude to Dr. Mulla who was very sympathetic towards me in understanding my difficulties and gave me valuable suggestions in preparing this dissertation.

I am also very much grateful to Dr. A. K. Mitra for his helpful suggestions.

I record my gratitude to the authorities of the Gokhale Institute of Politics and Economics, Pune for giving

(ii)

me an opportunity to study the M.Phil. course under the University Grants Commission's Faculty Improvement Programme.

I also thank the staff of the Servants of India Society's Library for their assistance.

Last but not least I thank Shri S. K. Athale for his help in typing in a very short period.

Gokhale Institute of
Politics & Economics
Pune 411004

S. S. Chande

December, 1981

C O N T E N T S

	<u>Page</u>
PREFACE	(1)
LIST OF TABLES	(iv)
 <u>Chapter</u>	
I INTRODUCTION	1
II AGRO-ECONOMIC BACKGROUND OF AHMEDNAGAR DISTRICT AND DROUGHT PRONE AREAS IN AHMEDNAGAR DISTRICT	16
III ORGANISATION AND MANAGEMENT OF DROUGHT PRONE AREA PROGRAMME AND TARGETS OF DROUGHT PRONE AREA PROGRAMME IN AHMEDNAGAR DISTRICT (1975-80)	31
IV IMPLEMENTATION OF DROUGHT PRONE AREA PROGRAMME IN AHMEDNAGAR DISTRICT	44
V ACHIEVEMENTS OF TARGETS OF DPAP IN AHMEDNAGAR DISTRICT AND IMPACT OF DPAP ON EMPLOYMENT - AN ANALYTICAL APPROACH	69
VI CONCLUSION	102
BIBLIOGRAPHY	111

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
2.1	Sourcewise Area Irrigated in Ahmednagar District in 1972-73	24
2.2	Tahsilwise Percentage of Gross Irrigated Area to Net Irrigated Area in Ahmednagar District	25
2.3	Tahsilwise Percentage of Net Irrigated Area to Net Sown Area in Ahmednagar District	26
2.4	Cropwise Pattern, Percentage of Areas under Various Crops in Ahmednagar District	27
2.5	Bovine and Ovine Population - 1972	28
2.6	Statistics about Area, Population, Rural Population, Irrigated Area, etc. in Ahmednagar District	29
4.1	Project Outlay Recommended by World Bank and the Outlay Finalised by State Government	51
4.2	Detailed Account of Planned Project Outlay and Revised Outlay During the Project Period (1975-80)	53
4.3	DPAP Target Requirement and Available Institutional Finance Till 1979-80	58
4.4	An Overview of the Yearwise Budget Grants and Expenditure Actually Incurred in DPAP in Ahmednagar District (1974-75 to 1979-80)	60
4.5	List of Drought Prone Villages in Ahmednagar District	62

(v)

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
5.1	Table Showing the Project Target, Revised Target, Cumulative Physical Achievements since the Beginning of the Project, Budget Grants and Expenditure Incurred During Project Period and Number of Beneficiaries and Mandays Employment Created under Agriculture Sector During 1974-75 to 1979-80	72
5.2	Table Showing the Number of Beneficiaries under Ground Water Development Scheme During the Project Period	74
5.3	Table Showing the Number of Beneficiaries and Area Irrigated under Lift Irrigation Schemes During Project Period	75
5.4	Table Showing the Progress of the Works under DPAP Minor Irrigation Tanks Scheme During Project Period	76
5.5	Table Showing the Investment for Tank Construction and Number of Mandays Employment Created under Minor Irrigation Tank Scheme During Project Period	77
5.6	Table Showing the Comparison between Average Yield and Demonstration Plot Average Yield in Different Watersheds	80
5.7	Table Showing the Number of Farmers Adopting the Improved Practices and Area of Adoption During Project Period	81
5.8	Table Showing Physical Targets Achievements under Dry Land Farming Sector During Project Period	82
5.9	Physical Achievements under Forestry and Pasture Development During Project Period	83
5.10	Milk Collection by DPAP Societies in Ahmednagar District in Project Period 1974-75 to 1979-80	87

(vi)

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
5.11	Capacity and Average Handling of Milk Per Day by Different Chilling Plants During the Project Period	89
5.12	Number of A.I. Done and Calves Born under DPAP Dairy Development Scheme During the Project Period	90
5.13	Table Showing the Work Done by Mobile Veterinary Units in the DPAP, Ahmednagar	92
5.14	Fodder Development Programme in DPAP Ahmednagar During Project Period	93
5.15	Drought Prone Area Programme in Ahmednagar District - Achievements Regarding Beneficiaries and Employment and Expenditure Incurred from 1974-75 to 1979-80	101

CHAPTER I

INTRODUCTION

I. DROUGHT PRONE AREA PROGRAMME

Drought Prone Area Programme was formerly known as Rural Works Programme. This was initiated as early as 1961 "To utilise to the fullest extent possible the manpower resources of the country and to ensure a substantial expansion in employment opportunities." Thirty-two pilot projects were launched in 1960. On the basis of the experience gained from these projects a massive Rural Works Programme was extended in 1964-65 to 998 Community Development Blocks to provide additional opportunities of employment to agricultural workers during the slack seasons, especially in areas with high intensity of unemployment and underemployment in Third Five Year Plan, it was proposed that employment through Rural Works Programme should be provided on an average for 100 days in a year to 1 lakh persons in the first year, about 4 to 5 lakh persons in the second year and 25 lakh persons in the last year of the plan. It was reckoned that on this scale, the programmes as a whole might entail a total outlay of the order of Rs.150/- crores over the plan period.¹ Unfortunately this

¹ J.S.Nanda, Rural Manpower and Capital Formation in India, Academic Books Pvt.Ltd., New Delhi, 1969, p.34.

programme did not succeed. The reasons for failure of the R.W.P. were as follows:

1) Due to limitation of resources as a result of some unexpected development, the scale of effort was drastically curtailed and only a sum of Rs.19 crores was made available during the whole plan period. This naturally created uncertainties about the continuation and extension of the programme. Thus, the state government at times, could not plan and implement the project systematically.

2) Shortage of technical and experienced staff was also responsible.

3) Delays in release of funds and technical sanction of the scheme and lack of proper coordination and active participation by the concerned technical departments.

4) Inadequate mobilisation of available manpower resources due to lack of emphasis on publicity and training to enthuse people's participation.

Moreover, the programme was spread over to nearly 82 per cent of the total number of districts in the country. It was, therefore, not surprising that the impact of the programme was negligible in many areas. So, it was felt that the Rural Works Programme in future should be taken up in those areas where the problems of unemployment and underemployment is acute and especially in areas, which are susceptible to recurrent drought condition. This is of

utmost importance because the problem of agricultural labourers are particularly acute in the chronically drought affected areas and relief can be provided ^{to} them only by taking up a concentrated programme of rural works which has a high employment potential and can at the same ^{time} increase the productivity of land and labour. So, ^{the} programme was redesigned as "Drought Prone Area Programme" in chronically drought affected area at the time of midterm appraisal of the fourth plan.

II. SIGNIFICANCE OF DROUGHT PRONE AREA PROGRAMME

The need for devising a development strategy for chronically drought affected areas in the country arises from several conditions. The first is the geographical size and spread of such areas. Nearly 19 per cent of the total area of the country and 12 per cent of the total population is under the shadow of drought conditions. Secondly, these areas contribute to regional imbalance in the country. Their overall productivity had been and continuous to be low. Every third year, about 3 million inhabitants of the arid zone take to migration along with their livestock. These areas occupy a low position in regard to economic indicator and are responsible for introducing a major source of instability in the national economy. This instability ^{is} partly reflected in fluctuating levels of production of coarse grains which are widely cultivated in these areas. Thirdly large sums have been spent by the government for providing

relief after the occurrence of droughts. At the all India level during the period of 1969-70 to 1971-72 the expenditure on drought relief was nearly Rs.420 crores. Such expenditure ^{has} ~~have~~ not helped to solve the basic problems of increasing the productivity of these areas and thereby reducing the impact of the severity of droughts on the human and cattle population. Fourthly ecological deterioration, because of denudation of forests and excessive grazing, has led to soil erosion and decrease in the productivity of land. Because of increasing population, both human and cattle, even the marginal lands unsuitable for cultivation have been brought under the plough. The development of these areas is a challenging task and attempt in this direction has been made by the government through the central sector scheme of Drought Prone Area Programme.²

III. STRATEGY

During the fourth Five Year Plan, the main strategy for Drought Prone Area Programme was to develop agricultural and rural infrastructure which would also create better potential~~s~~ for employment generation. But during this Five Year Plan owing to the urgent need to provide relief employment, the first three years of the programme resulted in inadequate planning of works and construction of many

² Drought Prone Area Programme, Government of India, Ministry of Agriculture and Irrigation (Department of Rural Development), New Delhi, 1978, p.1.

productive assets. Therefore during the Fifth Five Year Plan (1974-79) the major thrust of development efforts in DPAP were aimed at creating an infrastructure of a permanent nature which would help in mitigating famine conditions in these areas. The approach to this programme during Fifth Five Year Plan was "Growth with social justice" i.e. fruits of this programme would be duly distributed to the weaker sections in the rural areas. For realising this objects a policy of 'Integrated Agricultural Development in Drought Prone Areas' was devised and suitably the programme was modified and adjusted in the light of local conditions. The main thrust of effort would be to restore proper ecological balance in these areas and thereby to reduce the severity of the impact of drought and also to stabilise the incomes of the people, particularly the weaker sections of the society.

In the beginning the purpose of initiating DPAP (formerly RWP) was to mitigate the severity of scarcity conditions by organising productive and labour intensive works like medium and minor irrigation works, soil conservation, afforestation and roads. The initial purpose has now been greatly expanded. The central objective of the programme now is to find a permanent solution to the problems of drought affected areas and to strive for the drought proofing of the selected districts to the extent it is physically and technologically possible. So the funds

provided for the programme ^{will} ~~should~~ not be restricted to financing the above four specified activities, namely minor and medium irrigation afforestation and soil conservation, roads, but also be available for cattle development, sheep husbandry, dairy etc., which are highly relevant to the land and water resources situation in most of the drought prone area. The main elements in the strategy of drought prone area programme are as follows:³

- 1) Restorations of ecological balance
- 2) Development and management of irrigation resources
- 3) Soil and moisture conservation and afforestation
- 4) Restricting of cropping pattern
- 5) Changes in agronomic practices
- 6) Livestock development
- 7) Provision of drinking water supply
- 8) Development of rural communications
- 9) Development of small farmers

Main Elements in the Strategy of DPAP

1) Restoration of Ecological Balance

The lack of ecological balance appears to be significantly responsible for poor and erratic rainfall in many of the drought prone areas. Improvement of range lands in

3 Ibid., p.43.

arid zone areas on scientific basis, introduction of controlled grazing, afforestation, introduction of shelter belts and wind breaks, and stabilization of shifting sand dunes would, besides their direct benefits, also considerably reduce the dust. These measures, if taken up on a larger scale over the entire arid region, would automatically bring more condensation of dew and more rainfall over the region.

2) Development and Management of Irrigation Resources

The Irrigation Commission has computed that, at present about 13 per cent of the cropped area of the drought affected region is irrigated. This is likely to rise to about 19 per cent when the schemes under execution are completed. Even so, as much as 81 per cent of the cropped area will remain without irrigation. In the drought areas of Gujarath, M.P., Maharashtra and Mysore the position will remain much worse. In the light of these facts a proper programme for development and management of irrigation resources in D.P. areas is of obvious significance.

The most striking feature of the drought prone areas is the absence of the sizeable irrigation sources such as perennial rivers. So, small works such as tanks, bandharas and dug wells constitute the most important sources of irrigation. In these areas, where ground water level is low and irrigation from wells is precarious, attention may have to be given towards construction of percolation tanks

and check dams. Water being a limited source, it will be desirable to have it owned and operated as far as possible, on a cooperative or a community basis.

3) Soil and Moisture Conservation
and Afforestation

In dry areas, soil conservation is usually the basic need of the land. In some of the drought prone districts, it has been estimated that about 79 per cent of the land is accounted for by current and old fallows and culturable waste and unculturable barren lands. These lands essentially to be earmarked for conservation purposes. The routine soil conservation measures such as contour bunding, furrowing, terracing and levelling here naturally to be part of the programme in the light of the local conditions. In many areas, there is need for preventing losses of moisture in evaporation by surface as well as underground mulches. There is also urgent need for inclusion of grasses into the cropping pattern as an essential measure directed towards soil and moisture conservation. In those drought prone areas where there is a high degree of wind erosion, there is a need for taking up a programme of shelter belts to stabilise sand dunes.

It is necessary to stress the role of forests. Forests are capable of having a beneficial effect on reducing temperature excess and help in conservation of moisture.

Moreover, forests in these areas can be an important sources of local requirement of fire wood, small timber and grasses.

4) Restructuring of Cropping Pattern

To ensure optimum use of soil moisture, it is necessary to choose crops which have a deep root system and have the capacity for establishing quickly its roots in deeper layers of the soil. The use of suitable mulches particularly during the first few weeks of crop growth is also helpful. Another aspect of restructuring of the cropping pattern pertains to adoption of non-traditional crops like sunflower and castor. Attention should be given to inter cropping system. Such system can provide more fodder for animals and pulses for consumption without impairing the fertility of soil.

5) Changes in Agronomic Practices

Along with choice of appropriate crops and varieties, other elements in an effective dry land farming technology includes a judicious fertiliser use for stabilising and enhancing agricultural production. Besides the fodder and foliage crops, other dry land crops such as cereals, pulses and oilseeds have a good response to fertilisers application. The mixture of nitrogen, phosphorus and potash is generally required to be placed at least 10 cms. deep in furrow at the time of sowing these crops. Plant protection is also most important. Any negligence in

the application of BHC at the time of sowing results in poor plants and low yields. Another practice for dry land farming recommended is weed control. Another agronomic practice release to the new ~~far~~^{is} a flexible date for the sowing of the crop. Farmer should sow ~~at time~~ when certain amount of minimum rain water has ~~further~~^{fallen} in order to build up the crucial sub soil reservoir that can be tapped by the longer roots of the fertilised crop.

6) Livestock Development

Animal husbandry in conjunction with dairying may serve to offer a more stable base for sustained income for the rural households in these areas. In these areas yield from cattle is very low. Most of the areas are characterised by poor marketing arrangements and most disquieting feature is the dwindling resources of grasses and fodder. For this purpose pasture lands should be developed. The land areas which are owned by ~~the~~^{the} government or by the village community, ~~these~~ should be converted into pasture lands.

Along with provision for arrangements for food and fodder, the strategy of development of drought prone districts must aim at vigorous programme for augmenting production of milk in these areas through related programmes such as cross-breeding and animal health cover. Along with cattle and dairy development, many of the DP areas offer considerable scope for development of sheep husbandry. Vigorous

programme of sheep and wool development, both on production and marketing fronts should be taken in these areas.

7) Provision of Drinking Water Supply

Most chronic problem of these areas relates to non-availability of drinking water supply, unless arrangements to this effect are made, no programme for livestock development or its stabilisation is possible. It is necessary to carry out intensive exploratory drilling with geophysical studies to locate batches of low salinity of pockets of fresh water which may be fit for drinking. It is also necessary to stress that wherever groundwater is located, the tubewells that may be constructed should be looked upon as a source of drinking water in the first instance.

8) Development of Rural Communication

Infrastructure such as rural roads are important for rural communication. It is cleared that a lot of expenditure has already been incurred on road construction. Under the DPAP it was stipulated that not more than 25 per cent should be spent on rural roads. However, it is found that in many of the districts, nearly 50 per cent or more have been spent on rural communications.

9) Development of Small Farmers

In any concept of integrated area development, one of the crucial objectives is that the benefit of

development may be broad based and should be shared by the large mass of rural population, particularly, small farmers, marginal farmers and marginal farmers in the DP districts are around 5.9 million, with regard to agricultural labour it is somewhere around 3.6 million. It is seen that, in about half of the districts there is a preponderance of small farmers and marginal farmers, their percentage being 15 per cent and above. Most of the DPAs have poor resource endowment and they suffer from a stagnant rural economy. The institutional structure of cooperative or commercial banks is weak. There has been no major break through in the technology suited to these areas. So efforts should be made for improving the economy of small farmers, marginal farmers and agricultural labour. (SFDA & NFAL must be set to improve the economy.)

IV. COVERAGE AND OUTLAY

The Drought Prone Area Programme has been in operation since 1970. Under this programme 74 districts were identified (54 territorial units and other contiguous districts) on the basis of certain objective criteria such as frequency and occurrence of droughts in the past, incidence and pattern of rainfall and the percentage of irrigated area. Recently the contiguous areas have been made separate units taking the total of programme districts ^{to} 74. The budget outlay envisaged for the DPA Programme was Rs. 100 crores in the fourth plan

out of which about Rs.2 crores were deemed to be allocated from the central government for each drought prone district. This was apparently on an ad hoc basis and was irrespective of the fact whether the district concerned was only marginally or substantially characterised by drought prone condition. No earmarked allocation for drought prone district was made by the states. In the fifth plan with the assumption of matching contribution of state government to central government fund for DPAP the outlay would be around Rs.388 crores.

V. COVERAGE AND OUTLAY OF DPAP IN AHMEDNAGAR DISTRICT IN MAHARASHTRA STATE

In Maharashtra there are 6 units of DPAP. Ahmednagar district unit is one of them. The programme has been implemented in Ahmednagar district with the assistance of the Government of India and World Bank. In the present form, the programme commenced on 24.1.1975 and continued till 30.6.1980. Initially the programme implementation started in 9 water sheds covering 115 villages from 10 talukas which formed 9.8 per cent of the area and 7.4 per cent of the population of the district. Recently 13 additional water sheds covering 161 villages have been included in the programme and this will mean that the project will now cover 16 per cent area and 22 per cent population of the district. During the project period, the project outlay would be nearly Rs. 1096 lakhs out of this outlay government outlay

Total Drought prone Area in the District - 8.62 thous. sq. kms

Total Drought prone Population in District - 7.84 Lacks

will be Rs.698 lakhs. The total institutional credit assumed available for the implementation of programme was estimated at Rs.398 lakhs.

VI. OBJECTIVES OF THE PRESENT STUDY

The objectives of present study are as follows:

- 1) To examine the nature and priority of works undertaken under DPA Programme during project period (1974-75 to 1979-80)
- 2) To review the quantitative and qualitative achievements of the programme in the district
- 3) To assess the impact of the programme on employment in the district under different sectors.

VII. METHOD OF DATA COLLECTION

From the concerned DPAP officials information about targets and achievements (Financial and Physical) is collected. Besides information pertaining to administrative set up, coordination at various levels as well as difficulties faced in implementing the scheme was also sought from officials. The relevant data is also collected from discussing with different implementing officers and DPAP staff.

VIII. PLAN OF THE STUDY

We present the chapterwise scheme and plan of the study in the following.

In our introductory chapter we briefly trace the

evolution of Drought Prone Area Programme and stress the significance. The main elements of DPAP are also listed. In the Chapter II, the agro-economic background of the Ahmednagar District is given in the context of implementation of Drought Prone Area Programme in the district. In Chapter III we briefly analyse the organisation and management of DPAP in the district. We also list the targets fixed for implementing the programme. In Chapter IV, we examine how, the programme was actually implemented. In Chapter V, we have a critical look at the achievements of targets in different sectors. More particularly we assess the impact of the programme on employment in Ahmednagar district. In the concluding chapter we give a brief summary and suggest some measures for the effective implementation of DPAP in Ahmednagar district.

After having reviewed the salient features of the Drought Prone Area Programme in the introductory chapter we shall now proceed to define the term drought and then describe the agro-economic background and other related factors in Ahmednagar district.

CHAPTER II

AGRO-ECONOMIC BACKGROUND OF AHMEDNAGAR DISTRICT AND DROUGHT PRONE AREAS IN AHMEDNAGAR DISTRICT

Definition of the Term Drought

The term drought is used differently by different persons, depending upon the context and the purpose. To the agronomist, it is a shortage of moisture for the crops. The hydrologist defines it as when surface and underground water levels are depressed and there is diminution of stream flows. To the economist drought means a situation where water shortage ultimately affects the established economy of the region. To the meteorologist, drought represents the absence of rainfall. Thus drought is not understood as any absolute condition but as a relative term. Its representation depends upon the context in which the term is used.

Drought is a period of abnormally dry weather prolonged for lack of water to cause serious hydrologic imbalances (i.e. crop damage, water supply shortage, etc.) in the affected areas. Drought occurs during an interval when rainfall is less than minimum water needs. The minimum water needs varies from crop to crop and its stages of growth. Agricultural drought is a condition in which there is insufficient soil moisture available for the crops. Drought

results when there is adverse balance between available soil moisture and evapo-transpiration needs of an area. The basic characteristics of it is a steady rise in temperature with absence of severe deficiency of rainfall over a long period. Even though drought is a function of interaction of several variables such as precipitation, temperature, wind velocity, sunshine, soil texture, soil moisture and antecedent rainfall, the dominant factor is rainfall, total precipitation, its distribution and variability and its capacity to meet evapotranspiration needs.¹ In short, agricultural drought is a situation arising out of adverse balance between available soil moisture and evapotranspiration needs of an area, impeding normal agricultural operations and ultimately resulting in total or almost failure of crop.

Agro-Economic Background of Ahmednagar District

1. Location

Ahmednagar district is located in the central part of Maharashtra between 18.2° to 19.9° north latitude and between 73.9° to 75.5° east latitude. The district is surrounded by Aurangabad and Nasik districts on the north, by Bhir and Osmanabad districts on the east, Pune and Thane

¹ Report of the Fact Finding Committee for Survey of Scarcity Areas, Maharashtra State, 1973, Chap.IV, p.36.

districts on the south-west and by Sholapur district on south. A.N. with an area of 17.035^{thousand}/sq.kms. ranks second in Maharashtra State. This district is the biggest in the Pune Division and second in the State of Maharashtra next to Chandrapur district having population of 22.79 lakhs according to 1971 Census.²

Agriculture is the backbone of our national economy. This is also true in respect of Maharashtra in general and Ahmednagar district in particular. Between 70 and 75 per cent of the working force in the district is engaged in agriculture.

2. Soil

The district is situated on the Deccan plateau. Soil of the district is generally found responsive and fertile, except the hilly area of Akola tahsil and some portion of the plains which suffers from heavy soil erosion. The soil of the district can be classified into 5 broad categories.

(1) Black, (2) Red, (3) Laterite, (4) Heavy soil erosion, (5) White known as Pandhari. Deep black soil of Kopergaon, Shrirampur and Rahuri tahsils, with rich perennial irrigation system. In the hilly area of west Akola tahsil red laterite soil is deeper on the slopes than on the levels.

² Socio-Economic Review and District Statistical Abstract of Ahmednagar District (1971-72), Bureau of Economics and Statistics, Government of Maharashtra, p.1.

In the plain lands of Akola and Sangamner along the banks of Pravara river, the soil is extremely rich and gradually grows poor as one approaches the hills. The southern portion covering tahsils of Ahmednagar, Parner, Shrigonda and Karjat is mostly composed of Pathars and the plain lands with poor and shallow soil. In the south-west, the soil of Jamkhed is generally light and poor in fertility.

3. Rivers

The Godavari and Bhima constitute the major rivers of the District. The Godavari flows along north-eastern boundary of the district, that is along the border of the Shrirampur, Newasa, Shevgaon tahsils. The Pravara is a tributary of the Godavari. It passes through Akola, Sangamner, Shrirampur, Kopargaon and Newasa tahsils. The Pravara originates in the Akola tahsil and then joins the Godavari in the Newasa tahsil. A dam known as Bhandardara is built in 1926 in the Akola Tahsil from where the Pravara originates. The Pravara canals proved bounteous to the habitual famine stricken people of this area. The Mula, the Adhala and the Mahalungi are the important tributaries of the Pravara.

The southern half covering Parner, Ahmednagar, Pathardi, Shrigonda and Karjat tahsils in the Bhima basin ~~and~~ is drained by the Sina, the Kukadi and the Ghod, the tributaries of Bhima.

4. Climate

The climate of the district is characterised by a hot summer and general dryness during major part of the year except during south-west monsoon season. The cold season in the district commences from December and ends in the month of February. The period from March to the first week of June is the hot season. It is followed by the south-west monsoon season which last till the end of September. October and November constitute the post-monsoon on the retreating south-west monsoon season.

5. Rainfall

Ahmednagar district gets rain mainly from south-west monsoon but the distribution of rainfall is almost uneven, the major part of the precipitation is experienced in western part of Akola tahsil, whereas rains in southern part of the district are most erratic. The normal rainfall at tahsil headquarters varies between 500 mm and 700 mm approximately. The district can be divided into following natural zones according to rainfall.³

1) Zone I - Akola tahsil is entirely different from all other tahsils of the district. Its western part is hilly and full of forest. It receives heavy rain. Kharif crops are sown in this area.

3 Ibid., p. 14.

ii) Zone II - This zone consists of Ahmednagar, Sangamner, Parner, Shrigonda and Karjat tahsils, constitutes 47.92 per cent area of the district, and receives very low and scanty rainfall. It is almost a scarcity zone.

iii) Zone III - This constitutes Kopergaon, Shrirampur and Rahuri tahsils and receives low rainfall but due to development of canal irrigation system sugarcane factories are located in this area. The soil of this zone is very fertile and rich.

iv) Zone IV - Jamkhed, Shevgaon, Pathardi and Newasa constitute the fourth zone. It receives regular rain and the soil of Newasa and Shevgaon is very fertile.

6. Occurrence of Famines and Scarcities in the Past in Ahmednagar District

A highly erratic rainfall with poor soil and lack of facilities for irrigation in the district result in frequent scarcity conditions. During the 22 years period from 1950-51 to 1972-73, 10 years were declared scarcity years, out of which 5 years could be considered as severe scarcity years in the district. The famines in the years of 1952-53, 1971-72, 1972-73 were most worse.

The rainfall in this district is most erratic. In 1952-53 drought affected roughly a fifth of the total population of the then State of Bombay. The Ahmednagar district was chronically affected. The absence of rains in

the months of August and September 1952 considerably affected the kharif crop, and because of the insufficient moisture in the soil and lack of rains in November and December 1952 the rabi crops also withered away.

In recent connection in year 1970-71, 666 villages and 8,64,970 population ^{was} affected by famines and scarcity in district. In year 1971-72, 990 villages and 11,14,269 population and in year 1972-73, 1,253 villages and 15,15,153 population ^{was} affected by famines in district. (Total villages in district 1,317.⁴)

7. The Availability of Irrigation Facilities

According to the report of the Fact Finding Committee for Survey of Scarcity Area, Maharashtra State, 1973, total sown area in ^{the} district was 12,68,007 hectares, out of that only 1,47,112 hectares are irrigated. It means percentage of net irrigated area to net sown area was only 11.61 per cent which was ^{the} an average for the district.

The foregoing analysis pertaining to rainfall condition, irrigation facilities, frequency of droughts and famines and the general agricultural situation in the district, clearly indicates that the substantial region in the district suffers from all the characteristics of the drought prone area.

⁴ V. Subramanian. Parched Earth (The Maharashtra Drought 1970-73). Orient Longman Ltd., p. 42.

Drought Prone Area in District

Ahmednagar district has been considered as typical scarcity area since long.

The Fact Finding Committee (1960) considered Sangamner, Pathardi, Parner, Ahmednagar, Shrigonda, Karjat and Jamkhed tahsils as chronically scarcity affected areas in various grades.

Kopergaon, Shrirampur, Newasa and Rahuri tahsils have extensive canal irrigation serving major parts of these tahsils from the Pravara canals, Godavari canals, and Mula canals and some villages in Shrigonda, Karjat and Sangamner talukas have irrigated tracts ^{and} are considered as free from the adverse effects of drought and we recognise only the remaining parts of the talukas as drought prone. Part of Akola taluka, particularly the western portion, lies in the high rainfall zone. Excluding this portion all the remaining area of district is drought prone. Detailed statistics regarding sourcewise area irrigated, tahsilwise percentage of gross irrigated area and tahsilwise percentage of net irrigated area to net sown area in Ahmednagar district are given in Tables 2.1, 2.2 and 2.3 respectively. In Table 2.4 total geographic area, total population, rural population, etc., is given.

According to the Report namely the Task Force on Integrated Rural Development, Ahmednagar District, out of total population of 22.69 lakhs of persons only 7.84 lakhs of persons reside in the drought prone area and out of total area 17.1 thousand sq.kms. 9.1 ^{thousand sq. kms} per cent area is under drought prone. It means 35 per cent of population and 53 per cent of area of district are under drought prone.⁵

Table 2.1: Sourcewise Area Irrigated in Ahmednagar District in 1969-70

Sr. No.	Source	Net area irrigated in hectares
1.	Government canals	41,584
2.	Private canals	34
3.	Wells	93,702
4.	Tanks	-
5.	Other sources	-
Total		135,320

Source: District Statistical Abstract of Ahmednagar District (1972-73), Bureau of Economics and Statistics, Bombay, p.26.

⁵ Integrated Agricultural Development in Drought Prone Areas : Report by the Task Force on Integrated Rural Development, Planning Commission, Government of India, June 1973, p.80.

Table 2.2: Tahsilwise Percentage of Gross Irrigated Area to Net Irrigated Area in Ahmednagar District

Sr. No.	Name of tahsil	1969-70
1.	Kopargaon	109.23
2.	Akola	134.03
3.	Sangamner	129.59
4.	Shrirampur	104.68
5.	Rahuri	112.57
6.	Newasa	126.14
7.	Shevgaon	134.11
8.	Parner	139.92
9.	Ahmednagar	125.54
10.	Pathardi	124.33
11.	Shrigonda	116.65
12.	Karjat	112.73
13.	Jamkhed	132.91
	District	117.81
	Division	116.71

Source: District Statistical Abstract of Ahmednagar District (1971-72), Bureau of Economics and Statistics, p.24.

Table 2.3: Tahsilwise Percentage of Net Irrigated Area to Net Sown Area in Ahmednagar District

Sr. No.	Name of tahsil	1969-70
1.	Kopargaon	40.89
2.	Akola	1.60
3.	Sangamner	8.49
4.	Shrirampur	42.54
5.	Rahuri	16.26
6.	Newasa	5.25
7.	Shevgaon	5.63
8.	Parner	5.56
9.	Ahmednagar	7.91
10.	Pathardi	5.38
11.	Shrigonda	11.08
12.	Karjat	9.76
13.	Jamkhed	8.74
	District	11.61

Source: District Statistical Abstract of Ahmednagar District (1971-72), Bureau of Economics and Statistics, Bombay, p.25.

Table 2.4: Cropping Pattern, Percentage of Areas under Various Crops in Ahmednagar District

Sr. No.	Crops	1969-70
1.	Total cereals	71.37 (6.12)
2.	Total pulses	9.56 (3.70)
3.	Total foodgrains	80.93 (7.09)
4.	Sugarcane	3.94 (3.94)
5.	Cotton	1.89 (0.40)
6.	Groundnut	1.88 (0.17)
7.	Total non-food crops	14.22 (1.22)

Note: Figures in the brackets indicates percentage of area irrigated.

Source: District Statistical Abstract of Ahmednagar District (1970-71), Bureau of Economics and Statistics, Bombay, p.31.

Table 2.5: Bovine and Ovine Population - 1972

Sr. No.	Tahsil	Number
1.	Ahmednagar	1,47,921
2.	Rahuri	1,05,951
3.	Shrirampur	99,223
4.	Newasa	1,04,722
5.	Shevgaon	1,00,025
6.	Pathardi	1,08,529
7.	Jamkhed	77,550
8.	Karjat	1,42,002
9.	Shrigonda	1,38,093
10.	Parner	2,50,356
11.	Akola	1,32,809
12.	Sangamner	2,09,143
13.	Kopergaon	1,33,695
District total		17,50,019

Source: District Livestock Population Census Year 1972,
p.28.

Table 2.6: Statistics about Area, Population, Rural Population, Irrigated Area, etc., in Ahmednagar District

Sr. No.	Name of taluka	Total geographical area (hect.)	Total population	Total rural population	Net irrigated area (hect.)	Net sown area (hect.)	Percentage of net irrigated area to net sown area	No. of years in which number of deficient weeks exceeds	Total no. of years for which data is considered
1.	Akola	1,50,400	1,47,702	1,47,702	1,445	90,153	1.60	11	14
2.	Sangawner	1,68,327	2,18,797	1,90,203	9,449	1,11,243	8.49	11	14
3.	Kopergaon	1,07,252	2,62,619	2,27,610	35,085	85,788	40.89	12	14
4.	Shrirampur	82,181	2,47,551	2,08,059	27,881	65,537	42.54	10	14
5.	Newasa	1,29,204	1,50,393	1,50,393	5,994	1,14,012	5.25	10	14
6.	Rahuri	1,01,685	1,59,343	1,59,343	10,825	66,554	16.26	13	14
7.	Shevgaon	1,08,713	1,28,841	1,28,841	5,329	94,582	5.63	8	14
8.	Pathardi	1,19,947	1,38,590	1,38,590	5,219	93,217	5.38	7	14
9.	Parner	1,89,797	1,54,890	1,54,890	7,421	1,34,048	5.56	11	14
10.	Ahmednagar	1,50,272	1,55,201	1,55,201	8,737	1,16,435	7.91	10	14
11.	Shrigonda	1,60,481	1,46,581	1,46,581	13,085	1,18,289	11.08	8	14
12.	Karjat	1,49,157	1,23,612	1,23,612	10,180	1,04,234	9.76	9	14
13.	Jamkhed	87,623	86,592	86,592	6,462	73,915	8.74	9	14
Total		17,05,039	22,79,117	20,37,617	1,47,112	12,68,007	169.09		
Average to district							11.61		

Source: Report of the Fact Finding Committee for Survey of Scarcity Area, Maharashtra State, 1973.

After having discussed the agro-economic background of the Ahmednagar district and various indicators of drought in the preceding chapter, in this chapter a brief analysis of the organisation and management and targets of DPAP with reference to Ahmednagar district will be presented.

CHAPTER III

ORGANISATION AND MANAGEMENT OF DROUGHT PRONE AREA PROGRAMME AND TARGETS OF DROUGHT PRONE AREA PROGRAMME IN AHMEDNAGAR DISTRICT (1975-80)

Organisation and Management of DPAP in Ahmednagar District

Ahmednagar district being one of the World Bank assisted districts a special administrative set up as recommended by the Bank is provided for the project.

At the state level there is the state level consultative committee. This committee approves the project programmes prepared by the officers of the executive directors as scrutinised by the project preparation and formulation of the Directorate of Economics and Statistics which is a part of the Planning Department.

Monitoring is also done by the project preparation and formulation cell which is headed by an additional director of the Directorate of Economics and assisted by an executive engineer and officers subject specialists. Besides this there is a special cell under a deputy secretary of the planning department for secretarial work.

At the district level the responsibility of designing, coordinating, implementing, monitoring and evaluating the drought prone area programme has been vested with the

executive committee of the DPAP of which the chairman of the district planning and development council is the chairman, and executive director of DPAP is the member-secretary. Besides them there are eight other additional members at the level of executive director and below. The executive director is responsible for formulating policies and programmes in accordance with the directives of the executive committee and the government. He also coordinates the programme activities and maintains liaison with the financial institutions for arranging the credit requirements of the programme. For facilitating the executive director in carrying out his duties he has two categories of staff. In the first category one of the staff to help him mainly in office administration, in the other various field officers known as the implementing officers.

In the office, the executive director is assisted by one economist, an agronomist and an accounts officer together with their supporting staff. The economist is assigned with the work of formulation of annual plan and ~~released work~~ monitoring and evaluation of the project etc. While the agronomist is assisting the office mainly in implementing various schemes of groundwater development and dry land farming. The accounts officer ^{heads} needs the account branch of the office and is responsible for preparation of annual budget and distribution grants to the subordinate officers.

Among the implementing officers are (1) soil survey officer, (2) divisional soil survey officer, (3) divisional forest officer, (4) deputy director of animal husbandry, (5) animal breeder, (6) assistant project officer (fisheries), (7) executive engineer of minor irrigation divisions, (8) executive engineer, environmental engineering division.

Targets of DPAP in Ahmednagar District
in Project Period 1974-75 to 1980

The district of Ahmednagar is one of the six drought prone districts of the country, selected by the Government of India for World Bank assistance to the drought prone area programme in them during the Fifth Plan. In September 1973, the Government of Maharashtra prepared a project report on the Drought Prone Area Programme in Ahmednagar District and submitted it to the World Bank. The Appraisal Mission of the World Bank visited the district, first in November 1973 and then in March 1974, and held discussions with the concerned state level and field officers. The Drought Prone Area Programme in Ahmednagar District envisaged the following targets to be fulfilled during the project period.

1) Soil and Water Conservation

1) Survey of Land Resources
and Land Use Capability

In the drought prone area, appraisal and mapping of the soils are necessary as they provide a basis for the

planning and application of a package of agronomic, cultural and soil and water conservation practices that is appropriate for each land use class. The World Bank therefore recommended a reconnaissance, soil survey of the entire district. But the Government of Maharashtra decided to undertake a detailed soil survey and preparation of land use capability maps for an area of about 4.5 lakh hectares in Ahmednagar district.

ii) Soil and Moisture Conservation

Successful dry land farming is dependent upon efficient moisture conservation and its utilisation, as moisture is the limiting factor for crop growth in the drought prone area. Therefore, soil and moisture conservation programme is virtually important in a project for drought prone areas. The project therefore provides to undertake contour bunding works in areas with shallow and medium soils and receiving less than 600 mm of annual rainfall. The project will undertake bunding work in all the remaining bundable project area i.e. about 30,000 hectares. The project also provides for repairs to old bunds on an area of 60,000 hectares.

iii) Water Harvesting

The Appraisal Team recommended the small nalla bunds for impounding water passing through water courses for supplemental irrigation. The project will include 200 such schemes.

iv) Farm Ponds

It would store on an average sufficient water for one irrigation to the hectares of rabi crop in its critical period of moisture demand. The project provides for construction of 350 farm ponds.

2) Forestry and Pasture Development

The woody vegetation and pasture originally present on the hills and uplands of drought prone areas have been severely depleted as a result of continued exploitation, excessive grazing and burning. Improvement of the vegetative cover on the highlands to reduce run-off is therefore an essential step in the process of watershed development and the programme attaches much importance to the development of forestry and pasture and the following targets were fixed.

Targets for Forestry and Pasture Development

Item	Unit	Quantity
(A) Forestry		
1. Tree planting in conjunction with pasture development in upper reaches including soil conservation treatment	Hect	2,000
2. Small plantation on government land	Hect	2,000
3. Establishment of wood lots	Hect	500
4. Planting of wind breaks along roads, railway line, canals, etc.	KM	300
5. Additional nursery	Hect	5

Item	Unit	Quantity
(B) <u>Pasture Development</u>		
1. Pastures on public lands	Hect	15,000
2. Pastures on private lands	Hect	500
3. Pastures on village common lands	Hect	4,500
4. Grass seed multiplication farm (200 ha. size)	No.	1

The programme will be executed by one Forest Division.

3) Targets for Minor Irrigation Programme

(A) Groundwater Development

S.No.	Item	Number
1.	Dug-cum-blast wells	263
2.	Electrical pump installations	133
3.	Diesel pump installations	132
4.	New dug wells with electrical pump sets	115

The groundwater development proposed in the project will be limited only to small and marginal farmers. Subsidy

at the rate of 25 per cent to small farmers and at 33 1/3 per cent to marginal farmers will be granted for the above programme.

(B) Surface Irrigation Development

List of Proposed Minor Irrigation Projects (Tanks)

Name of the watershed	Tahsil	Name of the project	Irrigation potential (hect.)
1. Ghatshiras	Pathardi	Ghatshiras	120
2. Dhond Pargaon	Jamkhed	Dhondi	455
3. Mula-basin, Palshi	Parner	Pargaon	180
4. Mula-basin, Sakur	Sanganner	Sakur	140
Total			895

4) Dry Land Farming Programme Target

1) Demonstration

Demonstrations would be an important feature in the programme. There would be two types of demonstration plots, a comprehensive demonstration plot will be laid out on one hectare rented land at an accessible location near each village in all the watersheds chosen for this programme. This plot would be visible demonstration at all times and will be useful for demonstrating all aspects of technology. The number of

these demonstrations would be 50. Simpler and smaller demonstrations would be run on the holdings of private farmers, which will be useful in the training of the 40 farmers in the group. The size of the small demonstration plot will be 0.5 hectare and for every one of them, inputs valued at Rs.140 will be given to the private farmer every year.

ii) Credit Channels and Input Supplies

An agricultural development programme cannot be effective without a smooth flow of credit and input supplies. Involvement of co-operatives is absolutely necessary in the development programme which is aimed at improving the conditions of the large number of small farmers. The extension organisation would identify the farmers participating in this programme well in advance of each season and get the credit statements prepared through the concerned cooperative societies of commercial banks. Financial incentives have been provided in this programme by way of subsidy of 25 per cent on the cost of inputs for a period of 3 years. The farmers participating in this programme will be eligible for subsidy at above scale and period for the area cultivated by them with recommended package of practices. The number of participating farmers at the end of 5th year would be 7,830 and they would cover 45 per cent of the total number of farmers in the five watersheds of the pilot programme. The amount of subsidy estimated for the project period is Rs.19.40 lakh.

5) Livestock Production

In order to provide more stable cash incomes to the farmers from mixed farming, the programme of (a) dairy development and (b) sheep development will be taken up in the project.

a) Dairy Development

The AMUL pattern of dairy development is adopted. In this pattern the milk producers form cooperative societies which collect and transport milk, supply feed on commission basis to their members and come together to form a cooperative union. The dairy development programme would include the following elements.

1) At Village Level

Promotion of milk producers' cooperative societies through the work of spearhead teams appointed at the district level. The members of societies will be assisted to buy one additional cow (each) to improve their income.

ii) At District Level

(1) Establishment of two spearhead teams - The first spearhead team will be established in the first project year and the second in the second year. Each team will work for a period of five years. (2) Establishment of two mobile veterinary units - in the same phased manner as above to control animal diseases and give veterinary aid and health cover. (3) Strengthening of the district artificial

insemination centre and establishment of one artificial insemination sub-centre in eight watersheds. (4) Establishing two calf rearing centres in the same year. (5) Establishment of one chilling plant. (6) Erection of one treatment unit for converting bagasse into cattle feed.

Village Societies/Spearhead Teams

The organisation of village societies of milk producers - a society on an average covering 400 mature cows, will be done by spearhead teams. Each team will be in charge of 40 such societies. The societies will be established in first two years of project.

The participation of farmers in the societies would be built up as follows: 50 per cent from the first year onwards of the formation of societies, 67 per cent from the second year onwards and 75 per cent from the third year onwards. In order to help the farmer to improve their income and also increase the volume of collection of milk in the initial years, the farmers will be encouraged to buy an additional indigenous cow at traditional village markets. The number of cows purchased will be 8,050 in the first project year, 10,730 in the second year, 4,030 in the third year and 1,340 in the fourth year. Total 24,150. The cost to the project will consist of subsidies to the farmers and cooperative societies. The purchase of the additional cow and the construction of shelters would be subsidised at the rate of 25

per cent, in the case of 60 per cent of the farmers belonging to the poorest class.

District Level Scheme

i) Mobile Veterinary Unit

Animal disease control measures would be improved by establishing two veterinary mobile units, one for 40 societies. The veterinary services will be at no cost to the farmers.

ii) Artificial Insemination

The district artificial insemination centre would be strengthened by an addition of 10 exotic dairy bulls by purchase. In order to intensify the cross-breeding activity in the project area, 50 per cent of the semen doses produced from the 10 exotic bulls added to the district A.I. centre will be used in the project area. It will be possible to cover 4,500 cows per year in the whole district and half of them, will be from project area.

iii) Sugarcane Bagasse Treatment

One treatment unit will be established in the district to convert bagasse into fodder.

iv) Chilling Plant

All milk surplus over local market demand would be directed to the Poona City. In order to facilitate

transport by road tankers to this dairy one chilling plant would be established in the district.

b) Sheep Development

It comprises the following elements.

1) Pasture Development

a) On village commons (100 hectares)

b) On private farms (10 hectares)

2) Village Producers' Cooperative Societies

It is proposed to organise one producers' co-operative society per 100 ha. unit on the 4,500 ha. of the pastures developed on village common lands. Thus 45 societies will be established in project period.

3) One service centre will be established in the district for the sheep development. It would publicise the project activity, assist the farmers in formation of co-operative societies, help in management of the societies and provide them with inputs and technical service.

After having listed the various targets envisaged in the Drought Prone Area Programme, we can point out that, the realisation of these targets will confer some distinct benefits on the weaker sections of the community in the district by minimising the natural hazards and stabilising the income level of the people and ensuring the supply of

basic necessities of human and cattle life such as drinking water and fodder.

In the next chapter we will see how this programme was actually implemented and to what extent the targets were achieved.

CHAPTER IV

IMPLEMENTATION OF DROUGHT PRONE AREA PROGRAMME IN AHMEDNAGAR DISTRICT

In this chapter, we examine how various schemes under DPAP were drawn and implemented in Ahmednagar district. We also present a detailed account of the planned project outlay and the revised outlay during the project period (1975-80), and also the extent of the institutional finance made available for the projects. We conclude this chapter by giving an overview of the yearwise budget grants and expenditure actually incurred under the programme in the district.

The Drought Prone Area Programme has been implemented in Ahmednagar district with the assistance of the Government of India and International Development Association. In its present form the programme commenced on 24.1.1975 and continued till 30.6.1980. Initially the programme implementation started in 9 watersheds covering 115 villages from 10 talukas which formed 9.8 per cent of the area and 7.4 per cent of the population of the district. Thereafter 13 additional watersheds covering 161 villages were included in the programme and thus the project covered 16 per cent of the area and 22 per cent of the population of the district. During the project period, a total of Rs.1095.55 lakh have been spent

under the programme. The list of the 22 watersheds of the villages contained in them and newly adopted villages is shown in Table 4.5. The total area covered under the watersheds comes to about 3.73 lakh hectares. The average size of the watershed in this district is about 17,000 hectares.

Though the Fifth Five Year Plan has started with the financial year 1974-75, the World Bank assisted DPAP only towards the end of that year (January 1975). The project period consisted of 5 years duration.

Before the launching of the DPAP, the approach towards development was mainly sectoral. Under the DPAP, the strategy is one of integrated development where the sectoral linkages of the various programme are ensured. In view of this, a separate strategy of development through the watershed approach was adopted. A watershed signifies a natural hydrological unit. Watershed has been adopted as the unit of development and planning as it generally represents similar soil characteristics, facilitates treatment of soil according to its need and utilisation thereof according to its capacity.

Various schemes in the sectors are being implemented by the relevant departments through their regular staff, wherever necessary additional staff has also been provided. The schemes which are implemented in the programme are briefly summarised below.

Land Resources and Land Use Capability Survey

In order to have detailed classification of land suitable for agricultural cultivation, afforestation and pasture development, so that it can be put to proper utilisation and to get maximum returns thereby, the Project Report envisaged the carrying out of semi-detailed land resources and land use capability survey in watershed areas and reconnaissance survey in entire district. For this purpose, a soil survey sub-division consisting of 3 charges were provided in August 1975. The project aims at benefiting small and marginal farmers, whose land holdings do not exceed 3 hectares, through different schemes undertaken in DPAP.

In soil and water conservation sector schemes like contour bunding, repairs to contour bunds, their rectification, construction of farm ponds and construction of nalla check bunds, etc. are taken up within the watershed areas. For this purpose soil conservation staff consisting of 4 soil conservation subdivisions and one division was sanctioned in the later half of 1975-76. However, till December 1977 a separate soil conservation division could not be made available and the regular soil conservation division worked both for DPAP and non-DPAP areas and out of the total 8 subdivisions under it, 3 are allotted work in DPAP watersheds.

In minor irrigation sector schemes of groundwater development, the schemes of renovation/repairs of existing

wells, installation of diesel and electric pumpsets have been taken up. These schemes are to be financed from institutional credit and only subsidy is to be paid to the small and marginal cultivators from programme funds. No staff is provided for this purpose. In the scheme of surface water development, the project report provides for construction of 4 minor irrigation tanks. The existing staff under the 2 minor irrigation divisions is executing the works. Subsequently 9 more tanks, 5 diversion weirs and one lift irrigation scheme have been added in the programme and the work of executing these is in progress.

In command area development scheme, the project report envisages command area development of the minor irrigation projects taken up in DPAP. The command area development is to be financed from institutional credit and subsidy to the marginal and small farmers is only to be paid from project funds. No separate staff for command area development has been provided and the existing staff of Divisional Soil Conservation Officer for Land Development is also implementing the command area development scheme.

The dry land farming programme covers the schemes of having large and small crop demonstrations, training visits of the farmers and provision of subsidy to the farmers adopting dry land farming technology. This programme was taken up only in 5 watersheds. However, in view of the success of the

programme in these 5 watersheds, it was extended to the 22 watersheds in the district from the year 1978-79. The staff of 12 Agricultural Extension Officers and 95 Village Extension Workers was appointed at taluka level and village level respectively for the execution of the programme.

For implementation of the forestry and pasture development programme one division with a sub-divisional officer was sanctioned in 1974-75. However, separate Divisional Forest Officer for DPAP was not posted till the end of 1976-77 and the regular Divisional Forest Officer held the charge of DPAP Division also. In view of the pasture development being an important component of the programme, a cell of agrostologist was added to the staff of D.F.O. DPAP in 1976-77. Forestry and pasture development sector covers the following schemes:

- (1) Tree plantation in conjunction with pasture development,
- (2) Small plantation on government land, (3) Establishments of village woodlots, (4) Planting of windbreaks, (5) Forest nurseries, (6) Pasture development on public and private land, (7) Grass seed multiplication farm.

Cattle and Dairy Development

The dairy development activities under DPAP are based on the AMUL pattern and the programme envisages the establishment of milk producers' cooperative societies at the village level. The milk production is based on indigenous animals which are to be gradually upgraded by crossing with selected

Indian breeds as well as cross breeding with exotics. Further, by establishing milk collection services at the village level and by providing facilities for processing the milk, it has become possible to market the milk produced. At the same time, inputs are provided by setting up technical services such as extension, veterinary cover and insemination, promoting fodder development, ensuring the distribution of concentrate, establishing a bagasse treatment plant for conversion into fodder in order to increase the production of milk. The main agencies involved in this are the spearhead teams which provide the necessary extension services, give technical guidance, organise the activities and see that the proper management is provided to the mobile veterinary units which ensure veterinary cover. The spearheads teams are according to the new pattern composed of project officers from the Animal Husbandry, Co-operation and Dairy Development Departments besides having extension officers from these departments. At present, two spearhead teams and four mobile veterinary units are working in the district. The existing district A.I. Centre has been strengthened under the DPAP. The Bhartiya Agro Industries Foundation is also associated with the implementation of cross breeding scheme and 3 artificial insemination centres run by the BAIP, are financed by DPAP funds.

In sheep development programme, one service centre consisting of a centre manager, a veterinary officer and other

staff to provide publicity to the project activities, assist the farmers in forming the sheep co-operative societies, help in management and provide inputs and technical services was set up as per the project report, further two sheep development units with 2 unit managers were also set up.

In the project with a view to utilising the saving available in the other sectors of the project, inland fishing development programme and scheme of rural drinking water supply have been included from the year 1978-79.

In fishing development programme a fish farm has been extended at Mulanagar Dam site and long seasonal tanks from DPAP areas are being stocked with fish. The scheme also provides for assistance to fishery cooperative societies and its members.

Thus, the major thrust of the programme is first to conserve water by preventing moisture loss and run-off water. The other part of the programme is to develop and utilise both the groundwater and surface water resources obtaining in the area covered by the programme. Thus soil and water conservation scheme and schemes relating to water harvesting and afforestation programme are of prime importance. From the point of view of increasing the income levels of residents of this area subsidiary occupations assume importance. In this district milch cattle and sheep rearing are important. So in order to support the programme of dairy farming development

of pasture blocks and promoting cultivation of fodder species was also taken.

Project Outlay

Table 4.1: Project Outlay Recommended by World Bank and the Outlay Finalised by State Government

Programme	(Rs. in lakhs)			
	Outlay recommended by World Bank		Outlay finalised by State Govt.	
	Total	Govt.	Total	Govt.
1. Soil survey and soil conservation and water harvesting	195.26	195.26	210.99	210.99
2. Minor irrigation	84.38	45.76	120.09	71.99
3. Forestry and pasture development	125.22	125.22	203.58	203.58
4. Dry land farming	29.43	22.30	102.34	44.16
5. Livestock development	428.26	151.95	448.15	156.45
6. District executive director's office	4.81	4.81	10.40	10.40
Total	867.36	545.30	1095.55	697.57

Table 4.1 sets out the outlay recommended by the World Bank for the different programmes of work under the project and these finalised by the state government. The total project outlay recommended by the World Bank is Rs.867.36 lakhs of which the government outlay is estimated to be about Rs.545.30 lakhs. The outlays finalised by the state governments are on higher side, the project outlay would be nearly Rs. 1096 lakhs and the government outlay nearly Rs. 698 lakhs.

The financial outlay of the project period (1974-75 to 1979-80) was subsequently revised to Rs. 910.36 lakhs of which the government outlay is Rs. 853.42 lakhs and remaining Rs. 56.94 lakhs will be financed by institutional credit. Detailed planned project outlay and revised outlay is shown in Table 4.2.

In DPAP institutional finance requirement for the programme is Rs. 397.98 lakhs.

As it will be seen from Table 4.3 that the institutional finance is required for the schemes implemented under abovementioned four sectors only.

Under minor irrigation, the institutional finance is required for schemes underground water development viz. (i) Renovation/repairs of old wells, (ii) Installation of electric/diesel pump sets, (iii) Construction of new wells. As shown in Table 4.3 the target under this sector had to be

Table 4.2: Detailed Account of Planned Project Outlay and Revised Outlay During the Project Period (1975-80)

(Rs. in lakhs)		
Item	Financial pro- ject outlay	Revised outlay
Agriculture or land resources and land use capability survey and soil and water conservation		
<u>I. Soil Conservation</u>		
1) Soil survey		
a) Reconnaissance)	11.64	11.34
b) Semi detailed)		
2) Conservation works	60.00	46.54
3) Repairs of bunds	30.00	6.49
4) Ponds construction	17.50	2.17
5) Nalla bunds	20.00	99.79
6) Establishment	71.85	86.19
<u>Sub-Total I</u>	<u>210.99</u>	<u>252.52</u>
<u>II. Minor Irrigation</u>		
1) D.C.B.T. wells	5.72	1.86
2) Installation of pump sets	4.14	1.68
3) Construction of new wells	3.60	6.51
4) L.I. and community wells	-	-
5) Tanks	55.94	165.91
6) Command area development	2.59	2.48
<u>Sub-Total II</u>	<u>71.99</u>	<u>178.44</u>

Table 4.2: (Continued)

Item	Financial pro- ject outlay	Revised outlay
III. <u>Dry Land Farming</u>		
1) Large crop demonstration	6.75	2.64
2) Small crop demonstration	2.80	3.95
3) Farmers' training visit	0.75	1.91
4) Subsidy on agricultural inputs	19.40	0.47
5) Establishment	14.46	22.45
<u>Sub-Total III</u>	<u>44.16</u>	<u>31.42</u>
IV. <u>Forestry</u>		
1) Tree plantation in conjunc- tion with pasture develop- ment	23.00	18.08
2) Small timber plantation	19.00	15.48
3) Social forestry		
a) Wood lots on village common lands	4.75	6.82
b) Wind breaks	7.80	6.94
c) Private wood lots	-	-
4) Nursery	4.75	9.70
5) Establishment	22.35	36.57
<u>Sub-Total IV</u>	<u>81.65</u>	<u>93.59</u>

Table 4.2: (Continued)

Item	Financial pro- ject outlay	Revised outlay
<u>V. Pasture Development</u>		
1) Dry land pasture on public land	111.15	39.47
2) Pasture development on private land	0.56	0.56
3) Seed multiplication	10.22	8.20
<u>Sub-Total V.</u>	<u>121.93</u>	<u>48.23</u>
<u>VI. Cattle and Dairy Development</u>		
1) Spearhead team	14.92	17.20
2) Primary societies		
a) Capital grants	2.00	8.35
b) Managerial subsidy to dairy cooperative societies	-	-
c) Grant for power driven chaff cutter	-	-
d) Transport subsidy	30.00	10.06
3) Mobile veterinary units	7.47	11.65
4) Artificial insemination centre	8.72	12.90
5) A.I. Sub-centre	9.28	-
6) Distribution of cows	36.22	9.07
7) Calf rearing centre I & II	4.07	-
8) Chilling plant	15.65	94.47

Table 4.2: (Continued)

Item	Financial pro- ject outlay	Revised outlay
9) Milk road tanker	-	25.70
10) Bagasse treatment plant	1.30	5.40
11) Cattle shelter and tools	7.24	0.04
12) Calf rearing	3.39	0.63
13) Fodder development		
a) Demonstration plot	-	0.04
b) Subsidy to farmers	-	0.63
c) Distribution of seeds planting materials and fertilisers for green fodder	-	4.00
d) Planting of kubabul	-	-
14) Training to societies of dairy co-operative socie- ties and campaign	-	1.73
15) Cross breeding through BAIF	-	3.60
16) A.I. equipments to dairy cooperative societies	-	-
<u>Sub-Total VI</u>	<u>140.26</u>	<u>204.80</u>
VII. <u>Sheep Development</u>		
1) Sheep societies	13.08	3.92
2) Sheep service centre	3.11	2.76
<u>Sub-Total VII</u>	<u>16.19</u>	<u>6.68</u>

Table 4.2: (Continued)

Item	Financial pro- ject outlay	Revised outlay
VIII. <u>Poultry Development</u>		
1) Distribution of pure cockereel	-	0.30
<u>Sub-Total VIII</u>	-	<u>0.30</u>
IX. <u>Inland Fisheries Development</u>		
1) Stocking of tanks by fish	-	6.37
<u>Sub-Total IX</u>	-	<u>6.37</u>
X. <u>Rural Drinking Water Supply</u>		
1) Piped water supply in programme villages	-	13.03
2) Construction of drinking water wells in villages	-	7.20
<u>Sub-Total X</u>	-	<u>20.23</u>
XI. <u>Project Administration</u>	<u>10.40</u>	<u>10.84</u>
<u>Grand Total I to XI</u>	<u>697.57</u>	<u>853.42</u>

Table 4.3: DPAP Target Requirement and Available Institutional Finance Till 1979-80

S. No.	Name of the sector	Initial project target (1974-80)	Revised target (1974-80)	Utilisation of institutional finance till 1979-80 (1974-80)
1.	Minor irrigation	48.10	23.45	19.10
2.	Dry land farming	58.18	1.74	0.84
3.	Cattle and dairy development	290.57	31.38	33.21
4.	Sheep development	1.13	0.37	-
Total		397.98	56.94	53.15

revised from Rs.48.10 lakhs to Rs. 23.45 lakhs. Since only small and marginal farmers are eligible for subsidy under different schemes and a large number amongst the small and marginal farmers are found as defaulters, banks do not come forward to sanction loan to small and marginal farmers. However, the percentage of utilisation upto the end of 1980 to revised target for 1974-80 is 83 per cent.

Under dry land farming, the institutional finance is required for supply of inputs and fertilisers etc. Due to non-availability of nitrogenous fertilisers, the target has to be revised from Rs. 58.18 lakhs to Rs. 1.74 lakhs for the

project period 1974-80. The utilisation percentage works out to 48 per cent.

The target under cattle and dairy development sector had to be revised to Rs. 31.38 lakhs from Rs. 290.57 lakhs since the target of distribution of milch cattle was fixed as 24,000 cows, but due to non-availability of cows in such a large number even from all over the country, the target was reduced to 2,222 cows and hence target under institutional finance had to be revised. The utilisation percentage upto the end of 1980 to revised target is 103 per cent of the targetted amount.

Under sheep development sector, the target of institutional finance has been revised as Rs. 0.37 lakh instead of Rs. 1.13 lakhs. Since it was observed that sheep growers cooperative society could not become economically viable at any stage, hence the target of establishing 45 sheep growers cooperative societies was reduced to 15 and only 7 cooperative sheep societies were stocked with sheep. Therefore no institutional finance was utilised.

From Table 4.4 it would be apparent that during the entire project period, the soil and water conservation projects received a top priority (31.70 per cent of the actual total expenditure was incurred on them). This was followed by cattle and dairy development (23.36 per cent) and minor irrigation projects (20.41 per cent). The share of forestry

Table 4.4: An Overview of the Yearwise Budget Grants and Expenditure Actually Incurred in DPAP in Ahmednagar District (1974-75 to 1979-80)

		(Rs. in lakhs)													
Sr. No.	Sector	1974-75		1975-76		1976-77		1977-78		1978-79		1979-80		Total	
		Budget grant	Expenditure	Budget grant	Expenditure	Budget grant	Expenditure	Budget grant	Expenditure	Budget grant	Expenditure	Budget grant	Expenditure	Budget grant	Expenditure
1.	Land resources and land use capability survey	-	-	1.32	1.28	2.30	2.30	2.24	1.94	3.15	3.13	2.97	2.93	11.98	11.58 (1.35)
2.	Soil and water conservation	12.04	12.04	35.00	32.94	37.32	37.17	43.18	33.65	71.80	71.64	57.94	56.09	257.28	243.53 (30.35)
3.	Dry land farming	0.40	0.29	4.14	3.06	6.02	3.35	6.30	2.97	3.95	3.90	12.14	9.12	32.95	22.69 (2.64)
4.	Minor irrigation	31.30	31.46	13.77	13.39	20.80	20.74	31.76	18.57	33.74	33.39	49.14	46.57	180.51	164.12 (20.41)
5.	Forestry and pasture development	10.56	9.61	23.28	22.00	26.73	22.80	24.49	18.90	27.46	27.43	36.39	35.17	148.01	135.91 (16.99)
6.	Cattle and dairy development	-	-	34.41	24.29	48.34	27.74	54.63	44.91	46.78	46.26	41.02	44.51	225.18	187.71 (23.36)
7.	Sheep development	-	-	2.64	-	2.64	0.51	5.15	1.50	1.69	1.58	2.37	2.36	14.49	5.95 (0.74)
8.	Poultry development	-	-	-	-	-	-	0.24	0.28	0.02	0.02	-	-	0.30	0.30 (0.36)
9.	Fisheries development	-	-	-	-	-	-	-	-	2.40	2.37	4.24	3.05	6.64	5.42 (0.64)
10.	Rural drinking water supply	-	-	-	-	-	-	-	-	8.75	8.71	6.53	6.25	15.28	14.96 (1.81)
11.	Project administration	-	-	2.24	1.58	1.80	1.46	2.33	2.28	2.50	2.45	2.95	2.79	11.82	10.56 (1.35)
Total		54.30	53.40	116.80	98.54	145.95	116.07	170.32	125.00	202.24	202.88	215.69	208.94	905.34	802.73 (100.00)

Note: Figures in parenthesis indicate sectorwise percentage of expenditure to total expenditure.

and pasture development was 16.99 per cent of the total expenditure incurred. The remaining projects received only scanty attention.

In the next chapter we will evaluate the programme with respect to physical targets achieved and the number of beneficiaries under the schemes. More particularly we try to assess the impact of the programme on the level of employment in the district.

Table 4.5: List of Drought Prone Villages in Ahmednagar District

Taluka 1	Name of Watershed 2	Name of villages 3
Akola	Akola	1. Rumbhodi 2. Induri 3. Unchkhadak Bk. 4. Dhamangaon Awari 5. Ambad 6. Thugaon Bk. 7. Aurangapur 8. Parkhetpur 9. Akola 10. Vashere 11. Kalas Bk. 12. Manoharpur
Sangamner	Sakur	1. Sakur 2. Hiwargaon Pawasa 3. Nandur Khandarnal 4. Jambut Bk. 5. Dolasane
Rahuri	Katrad	1. Wambori 2. Katrad 3. Gunjale
Newasa	Katrad	1. Lohgaon 2. Wanjoli 3. Morya Chinchore
Nagar	Kaudgaon	1. Bhatodi 2. Pargaon 3. Pipalgaon Landga 4. Mehakari 5. Ratadgaon 6. Daogaon 7. Agadgaon 8. Ranjani 9. Mathani 10. Khandke 11. Kaudgaon 12. Jamb 13. Balewadi 14. Chichondi Patil 15. Athawad

Table 4.5: (Continued)

1	2	3
Pathardi	Tasgaon	<ol style="list-style-type: none"> 1. Mohoj Bk. 2. Mohoj Kd. 3. Raghohivare 4. Joharwadi 5. Lohasar 6. Khandgaon 7. Vaiju Babhulgaon 8. Jawakhede Dumala 9. Jawakhede Khalsa 10. Somthane Kd. 11. Kandgaon 12. Parewadi 13. Bhose 14. Tribhuvanwadi 15. Karanji 16. Tisgaon 17. Shirapur 18. Devarai 19. Mandve 20. Nimbodi 21. Satwad 22. Ghatshiras
Shrigonda	Pishorekhand	<ol style="list-style-type: none"> 1. Pishorekhand 2. Takali Lonar 3. Kosegavan 4. Tandali Dumala 5. Ghugalwadgaon 6. Deulgaon 7. Dhangaon 8. Dhorje 9. Vadali 10. Surodi 11. Belwandi Kothar 12. Adhalgaon
Karjat	Mirajgaon	<ol style="list-style-type: none"> 1. Takali Khandeshwari 2. Khandale 3. Chincholi Kaldat 4. Supa 5. M. Jalgaon 6. Bhabulgaon Khalsa 7. Diksal

Table 4.5: (Continued)

1	2	3
		8. Chande Kd. 9. Gondardi 10. Guraopimpri 11. Chande Bk. 12. Ravalgaon 13. Kumbhali 14. Thergaon 15. Khandavi 16. Mandali 17. Chincholi Ramjan 18. Patewadi 19. Ningaon Daku 20. Pachpimpal 21. Dighi 22. Ghapadgaon
Jankhed	Nannaj	1. Jawale 2. Borle 3. Nannaj 4. Dhondpargaon 5. Zikari 6. Kurdhaitan 7. Padali 8. Sarola 9. Rajewadi
Parner	Parner	1. Hataalkhindi 2. Parner 3. Lonihaveli 4. Hange 5. Supe 6. Waghunde Kd. 7. Rayatale 8. Apadhup 9. Walwane 10. Rui 11. Pimpalgavali 12. Ranjangaon

Table 4.5: (Continued)

1	2	3
Ahmednagar	Nepti	<ol style="list-style-type: none"> 1. Khatgaon Takali 2. Takali Khatgaon 3. Hivre Bazar 4. Isalak 5. Jakhangaon 6. Nagapur 7. Bolhegaon (part) 8. Nalegaon 9. Nepti 10. Niwbalk 11. Hingangaon (Part) 12. Hamidpur 13. Niwgaon Wagha
Rahuri	Warwandi	<ol style="list-style-type: none"> 1. Khadamba Kd. 2. Babhulgaon 3. Warwandi 4. Khadamba Bk. 5. Dhamori Bk. 6. Dhamori Kd.
Newasa	Wanjoli	<ol style="list-style-type: none"> 1. Moregaon 2. Shingave Tukai 3. Lokharwadi 4. Phatepur
Karjat	Walwad	<ol style="list-style-type: none"> 1. Walwad 2. Koregaon 3. Khatgaon 4. Kumbhefal 5. Ambi Jalgaon 6. Loni 7. Niwbe 8. Alsunde 9. Malangi
Shrigonda	Kamathi	<ol style="list-style-type: none"> 1. Kamathi 2. Khandgaon 3. Badghul 4. Bangarde 5. Ruikhel 6. Chavarsangavi 7. Banpimpri 8. Taradgavan 9. Thitesangavi 10. Mandavgan 11. Ghogargaon

Table 4.5: (Continued)

1	2	3
Shevgaon	Rakshi	<ol style="list-style-type: none"> 1. Dahiphal 2. Ghotan 3. T. Ningaon 4. Malegaon 5. Rakshi 6. Kudgaon 7. Raitale 8. Khanapur 9. Brandgaon 10. Karjettakali 11. Antarwali Kd. 12. Gadewadi 13. Gogalgaon
Pathardi	Koregaon	<ol style="list-style-type: none"> 1. Jambheli 2. Bhilwade 3. Pimpalgavhan 4. Karodi 5. Mohote 6. Shekate 7. Akola 8. Koregaon 9. Bhutetakali 10. Kelsangavi 11. Yeli 12. Mooj Deode
Jamkhed	Rajur	<ol style="list-style-type: none"> 1. Deodai than 2. Dhamangaon 3. Nahuli 4. Rajuri 5. Naigaon 6. Telangahi 7. Bankkhadak 8. Mohori 9. Balgavan 10. Pimpalgaon V. 11. Chodegaon 12. Waki 13. Kharda 14. Satela 15. Pimpalgaon U.

Table 4.5: (Continued)

1	2	3
		16. Apti 17. Taradgaon 18. Sonegaon 19. Dhanegaon 20. Jawalke 21. Waglhaz 22. Loni
Parner	Parner	1. Wadner Haveli 2. Mungashi 3. Mhasne 4. Waghunde Bk. 5. Ghahegaon 6. Palve Bk. 7. Palve Kd. 8. Baburdi 9. Bhoyare Bangarde 10. Sultanpur
Parner	Kanhur	1. Kanandi 2. Kanhi 3. Kanhur 4. Pimpalgaon Turj 5. Dhotre 6. Tas 7. Dhotre B. 8. Takali-Dhokeshwar 9. Bhondre 10. Garundi 11. Dhoke
Akola	Ghoti	1. Shilwandi 2. Ghoti 3. Paithan 4. Ambhol 5. Kotul 6. Gholwadi 7. Nachanthav 8. Karandi 9. Pisewadi 10. Kolamb 11. Manyale 12. Pimpaldari

Table 4.5: (Continued)

1	2	3
		13. Chas 14. Chandsuraj 15. Lahit Kh. 16. Lingdeo 17. Pangri 18. Magras 19. Padalne 20. Sakirwadi 21. Chinchawane 22. Lahit Bk. 23. Dhawangaon Peth 24. Waghapur 25. Shelad 26. Pimpalgaon khand 27. Gondoshi
Sangamner	Zole	1. Khandgaon 2. Rayate 3. Veghapur 4. Khardi 5. Deogaon 6. Johari 7. Nivgaon Tambi 8. Hivargaonpawasa 9. Shirapur 10. Chandanapur 11. Sawargaontal 12. Pokhari-baleswar 13. Zole
Kopergaon	Ves and Walaki	1. Bahadurbad 2. Bahadurpur 3. Jawalke 4. Ves 5. Anjanpur 6. Manegaon 7. Kakodi 8. Dorhale 9. Walki

CHAPTER V

ACHIEVEMENTS OF TARGETS OF DPAP IN AHMEDNAGAR DISTRICT AND IMPACT OF DPAP ON EMPLOYMENT - AN ANALYTICAL APPROACH

As noted in the introductory chapters, the DPA Programme was designed to create a particular infrastructure which will help revive the agricultural and the allied activities and thus generate more employment. One of the best criterions for assessing the impact of the programme is to see to what extent the new physical assets (pump sets, milch cows, etc.) were added and also list the number of beneficiaries under various schemes.

Agriculture

Soil conservation works are not only helpful in preventing the erosion of soil and conserving the moisture but among all the schemes they have the larger potentiality to generate employment.

The soil survey scheme provides the potential for the proper land use as per different land use classes and also forms the basis for the planning and application of package of agronomic cultural, soil and water conservation practices. However, the impact of the scheme is seen on the utilisation of the data in planning the schemes of dry land farming, soil conservation, pasture development and forestry etc.

Soil and water conservation programme gave direct benefits to the farmers as below. The work of construction and repairs of bunds has been carried out over about an area of 77,732 hectares as such increasing the production by about 450 tonnes. The nalla check bunds enabled the cultivators from benefited zone to dig new wells and bring more area under irrigation which help in increasing the production and gave assured income to the farmers. It is observed that there had been substantial increase in the seasonal irrigation by about 66 per cent as well as perennial irrigation by about 50 per cent over the actual area irrigated before the construction of check bunds. This increase has been achieved through 942 nala check bunds. Moreover, 60 farm ponds constructed at the cost of Rs. 1.45 lakh provided additional potential of irrigation in the area of DPAP. In all 30,469 beneficiaries have been covered under this programme.

Observations and Comments

As regards the construction of farm ponds, only 60 farm ponds have been completed. As regards the construction of farm ponds, it was felt that there were certain technological problems such as evaporation and seepage losses. Further the beneficiaries were also not forthcoming and were not prepared to utilise water for irrigation unless they were provided with lifting appliances. Therefore the

original targets of farm ponds had to be scaled down from 350 to 78 numbers.

The cost of the different schemes under this sector was revised from Rs. 210.99 lakhs to Rs. 252.52 lakhs because of revision of pay scales of state government employees in 1976, increase in D.A. from time to time and increase in wage rates.

Budget grant for this sector till 1979-80 were Rs. 269.26 lakhs, as against this Rs. 255.11 lakhs was spent under this sector during project period and employed^{ment} created is 64.23 lakh man days as shown in Table 5.1. Contour bunding scheme in DPAP is very popular because there is 100 per cent subsidy grant to small and marginal farmers. But here government must do follow-up of the programme, otherwise in the long run it will be not useful.

Thus physical targets and financial targets have been achieved in this sector and achievement in employment is also great.

Minor Irrigation Development

Irrigation development is most productive, most labour intensive and most urgently needed aspect of Indian agriculture.

1) Ground Water Development

In the programme of ground water development, the schemes of renovations/repairs of existing wells,

Table 5.1: Table Showing the Project Target, Revised Target, Cumulative Physical Achievements since the Beginning of the Project, Budget Grants and Expenditure Incurred During Project Period and Number of Beneficiaries and Mandays Employment Created under Agriculture Sector During 1974-75 to 1979-80

Name of the item	Unit	Project target	Revised target	Cumulative physical achievement since the beginning of the project	Budget grant for project period (1974-80) (Rs. in lakhs)	Expenditure incurred for project period (1974-80) (Rs. in lakhs)	No. of beneficiaries in Ahmednagar district under this sector		Employment generated under the sector ('000)
							Project target	Achievement in project period	
1. Soil survey	Lakhs Ha.								
a) Reconnaissance		15.23	14.95	14.95)					
b) Semi-detailed		1.78	2.72	2.11)	22.34	20.49)			
2. Conservation works	Ha.	30,000	23,000	20,484	52.28	51.56			
3. Repairs of bunds	Ha.	60,000	84,000	77,732	6.49	6.13	34,505	30,469	64.23
4. Pond construction	No.	350	78	60	2.17	1.45			
5. Nalla bunds	No.	200	973	942	99.79	98.72			
6. Establishments	Dn. Staff	1	1	1	86.19	76.76			
	Sub.Dn.	4	4	4					
Total					269.26	255.11	34,505	30,469	64.23

installation of diesel and electric pump sets have been taken up. These schemes are to be financed from institutional credit and only subsidy is to be paid to the small and marginal farmers from programme funds.

The ground water development scheme gave the direct benefits to the individual by way of subsidy to be adjusted in loan. The other direct and indirect benefit is of supply of irrigation water to the farm which increases the yields of the crops and ensures production of crops during break of rainfall. Digging of new well supplies water to the extent of 2 hectares. While the renovation/repairs of well also supply water to the same. Installation of electric/diesel pump sets increases the efficiency of irrigation which has previously existed. The diesel/electric pumps eliminates use of bullock powers resulting in saving of feeding cost of bullocks and maintaining a labourer.

A new irrigation well or a repaired/renovated well has the capacity to generate employment on the farm due to intensive and double cropping.

It is observed that in different DPAP villages on an average, an additional area of one hectare has been brought under irrigation of individual beneficiary farmer and farmers have started growing cash crops. This has helped in improving the economic conditions of the small and marginal farmers to a considerable extent. Till the year 1979-80, 359 cultivator families have been benefited under ground water development programme as shown in Table 5.2 and an employment

Table 5.2: Table Showing the Number of Beneficiaries under Ground Water Development Scheme During the Project Period

Sr. No.	Name of the item	Project target	Achievement till 1979-80	No. of beneficiaries
1.	Renovation of wells	263	77	359
2.	Installation of diesel/ electric pump sets	265	183	
3.	Construction of new wells	115	99	
Total		643	359	

potential of 9,13,000 man days has been created till the end of 1979-80. Besides wells programme, some cooperative lift irrigation schemes having more than 50 per cent small and marginal farmers have been taken up. The number of beneficiaries and area irrigated under lift irrigation schemes during project period is shown in Table 5.3.

2) Surface Water Development

Due to construction of 4 minor irrigation tanks, (i) Ghatsiras, (ii) Dhondpargaon, (iii) Sakur, (iv) Hanga, an additional area of 1,076 hectares has been brought under irrigation. The additional 15 minor irrigation tank works are expected to create additional potential of irrigation for an area of about 4,900 hectares, benefiting the farmers in

Table 5.3: Table Showing the Number of Beneficiaries and Area Irrigated under Lift Irrigation Schemes During Project Period

Sr. No.	Name of lift irrigation scheme/ taluka	No. of beneficiaries		Irrigation (acres)
		Small	Marginal	
1.	Raitwadi Co-operative Lift Irrigation, Tal.Sangamner on Pravara river	21	36	200
2.	Kalas Co-operative Lift Irrigation Scheme, Tal.Akola on Pravara river	7	7	70
Total		28	43	270

increasing the production and income. The progress of the construction of the tanks under DPAP is shown in Table 5.4 and investment for tank construction and man days employment created under minor irrigation tank scheme is shown in Table 5.5.

Observations and Comments

The main constraint in pushing through the programme of ground water exploitation is non-availability of institutional finance due to the large number of defaulters among the small and marginal cultivators. Therefore banks are not coming forward to sanction loan to small and marginal farmers. The programme of installation of electric pump sets has

Table 5.4: Table Showing the Progress of the Works under DPAP Minor Irrigation Tanks Scheme During Project Period

Component	Unit	Target original	Revised	Achievement	Remarks
Tank plans covered by DPAP progress in those started	No.	4	19	2	Out of the 4 tanks originally planned. 2 tanks are complete and remaining 2 are expected to be completed by 1981. Other achievements 13 works are in various steps for development. Due to land acquisition disputes work not started for 2 tanks - (i) Jamkhed tank and (ii) Shirala tank.
				Initial stage	3
				16 to 18	2
				50 to 60	5
				60 to 90	5
				Not started	2

Table 5.5: Table Showing the Investment for Tank Construction and Number of Mandays Employment Created under Minor Irrigation Tank Scheme During Project Period

Sr. Item No.	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	Total
1. Investment for tank construction (Rs. in lakhs)	31.46	13.39	18.94	16.08	28.85	43.17	151.89
2. No. of mandays hired labour assuming 40% labour cost and Rs.4/- day labour rate (labour cost in lakhs)	12.58	4.77	7.58	6.83	11.54	17.27	60.57
3. Employment created (mandays in lakhs)	3.146	1.193	1.895	1.707	2.885	4.317	15.243

Note: Thus for construction of M.I. tanks Rs.151.89 have been spent, and it created employment 15,243 lakh mandays.

Source: Office of the Executive Director, DPAP Ahmednagar.

received a setback due to large number of pending cases with electricity board and their inability to accept new cases. In the case of construction of new wells, it has been represented by the banks that in each case test bores to ensure availability of water would be more advisable as the ground water survey does not indicate availability of water in specific cases. This has been suggested to protect the small and marginal farmers from the loss that they would suffer in the event of non-availability of water. Due to the difficulties in implementing the different schemes under this sector as mentioned above, the targets for the project period have been revised as 114 as against 263 in case of D.C.B. wells and 139 as against 265 for installation of electric and diesel pump sets.

The lift irrigation schemes are very useful but only two lift irrigation schemes have been completed. In DPAP programme, Vambori Lift Irrigation Scheme is included. But it is not in much progress. If this lift irrigation scheme is completed, it will supply water to 1846 ha. kharif crops and 2372 hectares area of rabi crops from Shevgaon, Pathardi and Rahuri talukas. So this scheme is very useful but it was included in ^{the} programme in 1978-79. ^{The} Government should complete this scheme as early as possible and it will be really boon to people from that drought area.

Thus, the present procedure of getting the benefits of subsidy and loans for digging wells or other irrigation

purposes are excessively time consuming, and quite often, involves^d production of a large number of documents. This was because several departments and institutions (ground water department, electricity board etc.) were involved in scrutiny and sanction for the proposals. There ^{is} was a need for simplification of the procedure and curtailing the time required for processing applications if the programme ^{is} has to be speeded up ^{to} and make the benefits available to farmers.

From the Table 5.4 it can be seen that only two tanks are completed and others are in different stages. In some cases the main problem is to acquire the land from the farmers; it is a difficult task. For example, Jankhed tank and Shirala tank in minor irrigation sector under DPAP could be constructed.

There is slow progress in the construction of tanks on account of the scarcity of cement~~s~~ and other materials.

Dry Land Farming

Dry land farming programme is the extension activity namely laying out of demonstrations and training and visits. These items involved only subsidy expenditure and it was a direct benefit to the individuals who participated. It may be observed from the resultant yields of the one hectare large scale demonstration plot taken during 1979-80 that there is a marked increase in the yields of demonstration plots as compared to local one. The following figure would

give the comparative yields for a few watersheds in the district for rabi season. The demonstration plot yield is shown in Table 5.6.

Table 5.6: Table Showing the Comparison between Average Yield and Demonstration Plot Average Yield in Different Watersheds

Name of watershed	Season	Crop	Average demonstration plot yield (in kg.)	Average yield of local plot (in kg.)
1. Mirajgaon	Rabi	Jowar	890.25	286.5
2. Chas/Walki	Rabi	Jowar	667.00	268.0
3. Walwad	Rabi	Jowar	813.00	297.0
4. Kaudgaon Nepti	Rabi	Jowar	1080.83	453.5
5. Kanhur	Rabi	Jowar	1053.00	260.0
6. Katrad	Rabi	Jowar	1124.00	488.0
7. Rakshi	Rabi	Jowar	1205.00	480.0
8. Koregaon	Rabi	Jowar	1447.0	630.0
Total Average			1034.8	395.2

Thus the benefit in the yield is almost double the quantity of the average yield of the local method. The adoption of the improved technique however is found to be rather discouraging. The farmers while accepting the advantage of the wide spacing of jowar are completely adverse to adopt the side spacing, under the impression

that the fodder yields are very low.

In spite of this the adoption of improved practices of dry land farming during the project period for kharif and rabi is shown in Table 5.7.

Table 5.7: Table Showing the Number of Farmers Adopting the Improved Practices and Area of Adoption During Project Period

Sr. No.	Year	No. of farmer adopting	Area of adoption (in hect.)
1.	1975-76	870	3,045
2.	1976-77	1,206	2,612
3.	1977-78	2,175	2,175
4.	1978-79	1,068	4,612
5.	1979-80	7,112	12,597.09

By adopting above technique the increase in grain yields would be estimated to be twenty to forty per cent above the normals. The extra added yields/hectare is the direct benefit to the cultivators.

Thus, in dry land farming programme, only 12,431 farmers have been benefited as against 18,705 during the project period 1974-80. The scheme received a set back due to non-availability of the subsidy for nitrogenous fertilisers.

Under this programme 12,431 farmers were benefited

and an employment potential of about 94,000 man days was created at the cost of Rs. 22.69 lakhs during the project period and it is shown in Table 5.8.

Table 5.8: Table Showing Physical Targets Achievements under Dry Land Farming Sector During Project Period

Name of the item	Unit	Project target	Revised target	Target for 1979-80	Cumulative physical achievement since the beginning of the project
1. Large crop demonstration	No.	250	370	170	490
2. Small crop demonstration	No.	2,000	3,059	1,320	4,369
3. Farmers' training visit	No.	150	207	132	273
4. Subsidy on agricultural inputs	No.	18,705	22,918	7,830	12,431

Forestry and Pasture Development

The works of forestry and pasture development schemes under DPAP have been carried out by employing various labourers at plantation sites, nursery sites, grass seed multiplication farms.

Table 5.9 shows the physical achievements under forestry and pasture development.

Table 5.9: Physical Achievements under Forestry and Pasture Development During Project Period

Name of the item	Unit	Project target	Revised target	Cumulative physical achievement since the beginning of the project
Forestry				
1. Tree plantation in conjunction with pasture development	Ha.	2,000	2,500	2,250
2. Small timber plantation	Ha.	2,000	1,475	1,175
3. Social forestry				
a) Wood lots on village common lands	Ha.	500	448	368
b) Wind breaks	Km.	300	283	283
c) Private wood lots	Ha.	-	-	-
4. Nursery	Ha.	5	1,022	10.5
5. Establishment	Staff Dn.	1	1	1
Pasture Development				
1. Dry land pasture on public land	Ha.	19,500	7,523	4,623
2. Pasture development on private land	Ha.	500	500	483
3. Seed multiplication	Ha.	200	100	200

Due to the performance of tree plantation under Drought Prone Area Programme, soil and moisture conservation in barren and denuded forest lands has been considerably achieved. The growth of plants, is slow due to adverse soil and climatic conditions, and direct benefits by way of fuel-wood and small size timber, can only be expected after a long period.

Pasture development carried out either on public land, community land or on private land, has shown positive benefits. Lands which were almost unproductive and producing hardly 300 kg. of grass per ha. that too of inferior quality have been turned into productive lands, with increased fodder production upto 1200 kg. per ha.

Six pasture blocks (600 ha) were allotted to co-operative sheep societies and the benefits accrued by the sheep societies by way of increase in mutton and wool can be attributed mainly to pasture development.

It is proved that Cenchrus Ciliaris is having very limited scope in pasture. Stylosanthes hamata^{is} found to be quite suitable for this district. Grazing in the pasture blocks should not be allowed as it is very difficult to control the same. The scheme of pasture development on private lands has not given the desired response.

Observations and Comments

Broadly speaking, these schemes do not provide for inclusion of individual beneficiary except under the scheme pasture development on private lands where 483 hectares area

belonging to 121 beneficiaries were brought under the scheme of pasture development on private land at a total cost of Rs.0.47 lakhs.

The indirect benefits viz. restoration of ecological balance in the localities brought under these schemes which increases the subsoil moisture prevention etc. cannot be assessed at present.

The main problem in the implementation of afforestation and pasture development scheme has been a lack of suitable types of saplings and grass seed in adequate quantities. This caused delay in implementation and also affected the result achieved.

Furthermore, as the new varieties of grass put into the field by department, there is a problem of adoption and mortality. In afforestation programme there is high incidence of mortality of saplings. For better forestry, parental care required during the seedling stage is most important; so there should be strong and sincere follow-up programme in the plantation and further care should be taken.

However, unless these developed areas are rigidly protected from grazing, illicit cutting and forest fires, expected benefits and yield from these cannot be realised. So provision of guards (watchmen) for their protection till the 7th age is therefore absolutely essential.

Under this programme, an employment potential of

28.37 lakhs man days has been created in DPAP area during the project period due to various schemes implemented under forestry and pasture development programme at the cost of Rs. 135.91.

Grass like Anjan, Sewan and Kubabul should be planted for better development of forestry.

Cattle and Dairy Development

The dairy development activities under the DPAP are based on the AMUL pattern and the programme envisages the establishment of milk producing cooperative societies at the village level.

The salient features of the dairy development programme are summarised below.

The actual functioning of the programme started from October 1975 onwards. At the village level, it was proposed to establish 80 primary milk cooperative societies according to the appraisal report. Seventy societies have been established till date. Due to inclusion of additional 13 watersheds in the programme area, 161 new villages have been added thus increasing the total number of villages to 276 in the programme. Thirtynine dairy cooperative societies have been established in these new watersheds during 1978-79. At present 109 dairy societies are functioning in the programme area. All the societies are run on cooperative lines. Since they happen to be in drought area, capital of grants

of Rs.4,000/- to cover their initial expenses was given. Similarly a managerial subsidy to meet the managerial expenses was also provided which gave indirect benefits in establishing societies. From the capital grants the milk cans were purchased and kept at the disposal of milk federation to cope up with the increased demand of containers due to rise in milk production. In order to overcome the losses due to transport expenses to the federation, the transport subsidy was given to federation. All these incentives induced the farmers to take up the dairy business. This can be seen from Table 5.10 showing year to year increase in milk delivery by the DPAP societies.

Table 5.10: Milk Collection by DPAP Societies in Ahmednagar District in Project Period 1974-75 to 1979-80

Year	Milk (in litres) Lakhs	No. of societies delivering milk
1975-76	19.42	16
1976-77	45.89	57
1977-78	63.12	68
1978-79	77.35	93
1979-80	91.50	103

At the district level, 5 federations viz. Ahmednagar District Milk Federation, Ahmednagar, and the Amritsagar

Milk Federation and Sanganner Milk Federation operate in Akola and Sanganner talukas respectively. In South Ahmednagar, Kopargaon and Bhableshwar were already in operation. These federations are collecting the milk from DPAP societies also and the average collection of milk is 72,000 litres per day. The federations are being provided with transport subsidy in order to make up the losses incurred in collecting milk on uneconomical route.

As regards the processing facilities so far under DPAP the original project included one chilling plant. But after considering the capacity and large project area, finally 5 chilling plants were constructed.

The information showing chilling centrewise capacity and yearwise average handling of milk per day is shown in Table 5.11.

Though there is not enough milk to reach the full capacity at present, it is expected to achieve the same in subsequent years.

Artificial Insemination

Artificial Insemination Centre, Ahmednagar has been strengthened by men and material and by necessary addition to buildings. Ten Jersey bulls were posted at the District Ahmednagar Centre from DPAP funds. The semen of those bulls was supplied to various A.I. sub-centres in the watershed of the DPAP areas as well as to the A.I. sub-centres in the

Table 5.11: Capacity and Average Handling of Milk Per Day by Different Chilling Plants During the Project Period

Sr. No.	Name of chilling plant	Commencing from	Capacity per day (litre)	1976-77	1977-78	1978-79	1979-80
1.	Narayangavhan Tal. Parner	August 1976	12,000	7,196	5,244	5,684	5,496
2.	Rajur Tal. Akola	August 1976	8,000	3,508	3,161	3,210	3,435
3.	Tisgaon Tal. Pathardi	December 1978	20,000	-	-	2,980	3,782
4.	Jamkhed	December 1979	20,000	-	-	-	3,129
5.	Karjat	Not yet started	10,000	-	-	-	-

whole district outside the watershed area. Considering the demand of only cross breeding in DPAP areas by the cattle owners, three cross breeding centres of the Bhartiya Agro Industries Foundation, Uralikanchan are also started in the DPAP areas in the year 1978-79.

Table 5.12 will show the number of artificial insemination done and the calves born in the DPAP areas through jersey bulls of the DPAP and by the BAIF centres.

Table 5.12: Number of A.I. Done and Calves Born under DPAP Dairy Development Scheme During the Project Period

Year	No. of A.I.	No. of calves born
1976-77	2,035	-
1977-78	2,262	190
1978-79	3,068	222
1979-80	5,559	370

The scheme of getting artificial inseminations work done from lay insemination could not succeed on account of meagre salary of the secretaries of the dairy cooperative societies as also the fact that no added incentive was offered to them for this work. Due to increased number of dairy animals and the number of cross breeds expected to be increased in the year to come due to A.I. Technique, regular

animal health cover to the livestock was a felt need. The project provided two mobile units in phased manner one in *the* first year and second in the second year of the project. Due to regular animal health cover, there are no major disease problems in the area. This factor greatly accounts for the increase in the productivity of the livestock. The area where mobile units are working ^{was} as almost deprived of veterinary facilities prior to introduction of the project activities. The work done by mobile veterinary units under DPAP, Ahmednagar is shown in Table 5.13.

Fodder Development

Considering the importance of cross breeding programme, fodder development activity has been introduced in the DPAP areas since 1977-78 onwards as state activity. Initially, the programme was meant for the proper utilisation of marginal and fallow lands by cultivating the drought resistant grasses like cenchrus, hamata etc. due to difficulties of protection, availability of quality seed etc. the programme has failed.

Similarly, progressive farmers having some irrigation facilities and also possessing milch animals are provided with the programme of green fodder production inputs like seeds, fertilisers etc., on subsidised basis.

Similarly, under this programme Kubabul cultivation on trial cum demonstration basis has been introduced. Kubabul

Table 5.13: Table Showing the Work Done by Mobile Veterinary Units in the DPAP, Ahmednagar

Sr. No.	Item of work	Year	MVU I	MVU II	MVU III	MVU IV
1.	Number of dairy societies visiting per week	1976-77	30	-	-	-
		1977-78	28	15	-	-
		1978-79	27	30	-	-
		1979-80	34	28	26	32
2.	Number of cases treated and operations performed	1976-77	3,397	-	-	-
		1977-78	9,856	4,057	-	-
		1978-79	26,625	29,738	-	-
		1979-80	11,455	26,551	6,989	3,574
3.	Number of work campaigns/shibirs organised		Total No. 47			

has proved one of the best drought resistant plant which can be cultivated on the fallow land having minimum irrigation facility so as to get the maximum crop of leguminous fodder, having the maximum percentage of proteins for the milch animals. The response to programme of green fodder production and Kubabul cultivation is very encouraging and sufficient potential is also available for the same. Table 5.14 shows the achievements in fodder development under DPAP in the district.

Table 5.14: Fodder Development Programme in DPAP Ahmednagar During Project Period

Sr. No.	Name of the programme	1978-79		1979-80		Total		Yield in tonnes
		Beneficiaries	Area in hectares	Beneficiaries	Area in hectares	Beneficiaries	Area in hectares	
1.	Demonstration plots	-	-	34	34	34	34	-
2.	Subsidy to farmers	161	120	450	276	611	396	-
3.	Distribution of seeds, fertilisers, planting material for green fodder production							
	a) Lucern	336	32	404	40	740	72	2,016
	b) M.P.Chari	-	-	200	20	200	20	400
4.	Planting of Kubabhul							
	a) Trial-cum-demonstration plots	10	3	15	2	25	5	150
	b) Propagation on field bunds water channels etc.	-	-	200	10	200	10	-

Observations and Comments

Cattle and dairy development scheme is very useful in Ahmednagar district under DPAP, but there are some problems as follows. The supply of 24,150 additional cows during the project period was a very high target and it has been revised to an average of 500 cows per year. The revised target was achieved. However, it was found that the bankers having ~~ing~~^e clumsy procedures of scrutinising the applications. The participation of the banks was not whole hearted. The target was reduced because it was also found that good number of applicants were defaulters and as such could not qualify themselves for getting the loan. Even though large number of beneficiaries (landless and marginal and small farmers) exist in the project area all were not initially having cow of their own. After observing the results in the later years they also purchased their own cows and participated in the project in the succeeding year. The number of desired types of cows were also not available in large number. Though the target has been reduced, the reduced target has helped economically poor persons to establish dairy unit. It gave him direct benefit of Rs. 600/- per year on an average, by sale of milk, due to possession of dairy animal. The additional cows purchased by him was the source of surplus milk which acted as an asset of direct income. The scheme of additional cows has

gained popularity because of its direct benefits. From the Table 5.11 about chilling plants, it can be inferred that their capacity is not fully utilised. It clearly means, chilling plants are not in proper place. The chilling plants are taken to the places like Narayangavhan, Taluka Parner and Rajpur, Tal. Akola and others where there is scarcity of water and hence the capacity of the chilling plants cannot be utilised. So, adequate conditions like water for chilling plant, transport system, number of cows in the area should be considered for the sites of chilling plants.

In all, by this programme, 2,171 people have been benefited by having a milch bovine. An employment potential of 68,000 man days has been created during the project period at the cost of Rs. 187.71 lakhs.

Sheep Development

In order to promote sheep development, one sheep service centre under the supervision of one centre manager, was opened in June 1976 with the objective of formation of sheep growers societies. Till March 1980, seven such societies were functioning and eight more were formed. Membership of these societies varied from 12 to 15. These sheep growers cooperative societies have been formed with the main objective of regularising grazing in public pasture and to facilitate supply of selected inputs like rams and

medicines, suitable guidance in respect of marketing was also given by the sheep service centre.

Observations and Comments

At the commencement of the scheme of pasture and sheep development, there is lack of site specific knowledge of technique to be adopted on these extremely poor and degenerated DPAP range lands. Again, pasture available to them are only seasonal with a result that a very large sum is required to be paid on account of feeding charges. Thirdly, the major hurdle in the sheep development programme has been the reluctance on the part of sheep owners to surrender only a part of their entire block of sheep to the cooperative societies. The insufficient grazing has adverse effect on the productivity in terms of both wool and mutton. Consequently, the achievement under the sheep development programme had to suffer.

It is thus, observed that in spite of aid from the DPAP sheep societies are not running in profit. The pasture available to them are only seasonal and therefore not available throughout the year with a result that a very large sum is required to be paid on account of feeding charges. The members of societies are also not very much interested in the welfare of the society. The pasture allotted to society cannot also be protected from encroachment from outside sheep. In general, it can be stated that this scheme has not progressed well due to its inherent defects. Under this

sector in all 430 shepherd families have been benefited and an employment potential of 1,638 man days has been created.

It is learnt that sheep development programme is going to close, but if ^{the} ~~took~~ following measures ^{are taken}, we hope it will be successful in district.

The sheep and goat (ovine) population constitute about 49.5 per cent in total livestock population in the district and sheep farming plays important role in the economy of the district. But so far there has been no systematic approach developed for development of sheep farming in the district. For this sheep breeders should be provided with the following facilities:

- 1) Improved grass land,
- 2) Veterinary services,
- 3) Facilities for marketing of improved nutrition and wool.

The criteria for selection of pasture should be as follows:

- 1) The area should have a large number of poor and marginal class of sheep holders.
- 2) The area should have minimum rainfall between 250 mm to 300 mm.
- 3) The plot should be near the place where drinking water could be available.

Inland Fisheries

Inland fisheries development programme was included in the project with a view to utilising the saving available in the other sectors of the project. The schemes under this programme were taken up for execution from 1978-79 with an amount of Rs. 2.75 lakhs.

Schemes like establishment of fish farm at Mulanagar dam site and perennial and long seasonal tanks from DPAP areas are stocked with fish. During 1978-79 stocking of 20.55 lakh seeds in 14 tanks was undertaken and all is stocked. There are 15 fishery cooperative development societies in district, i.e. at least one for each taluka. Each society has 150 members, majority of them belongs to landless farmers and backward class. In this scheme government provides fish seedlings to the societies for fishery development with 50 per cent subsidy grants. In addition to it 50 per cent grant for nylon thread is also provided. Government is also particular in sanctioning 50 per cent grant (upto maximum Rs.2,000) for purchasing of fish boat to fisherman.

Under the scheme of subsidy for purchase of nylon twins 2016 kg. of twins has been distributed while 28 boats have been provided to the fishery societies and its members under the scheme of subsidy for boats. The total quantity of fish stocked in the tanks was 64.62 lakhs. Considering the outlay of Rs. 3.07 lakhs for 1980-81 total outlay comes

to Rs. 9.44 lakhs for the period 1978-80.

The fishery development programme increased the production to the tune of 3,000 metric tonnes in district. About 3,000 thousand fishermen got the employment. There is increasing demand for establishment of societies, so this scheme is very popular in district.

Observations and Comments

Members of the fishery development cooperative societies collect the fish from tanks for which they have to pay Rs. 1/kg to the government as revenue. But these fishes are purchased by agents at nominal rate and by selling these fishes in the market they earn more profits. Thus the poor members of society get very less money at the cost of their hard work. So fishery development cooperative societies federation should be established and marketing of fishes should be made through federation.

Again there is increasing demand for fishery development societies but government gets very less amount of revenue from these societies, so supervisory staff to look after collection of fish should be appointed.

Rural Drinking Water Supply

Some of the villages in the programme area are facing acute drinking water difficulties. The scheme for providing drinking water to these villages was undertaken under DPAP. Under the scheme, the work of piped water supply was

undertaken for three villages at the cost of Rs. 11.96 lakhs, and all the schemes are in good progress. Bore wells have been provided in 28 villages at a cost of Rs. 2.98 lakhs till the end of 1980. The programme was thus implemented at a total cost of Rs. 14.94 lakhs benefiting about 8,000 families and also creating greater potential of employment. As regards benefits that accrued as a result of drinking water facility to be provided to these villages is quite appreciable. The village people have to bring drinking water from long distance. People's hardship in bringing water is now considerably reduced. More particularly it is a great boon to the female population of the region.

Thus, we conclude ~~in~~ this chapter by saying that the majority of the physical and the financial targets were achieved during the project period. Especially in the sphere of employment this programme has made a headway in the district. It will not be an exaggeration to say that this programme was really a boon to the unemployed and underemployed people in the Ahmednagar district.

Table 5.15: Drought Prone Area Programme in Ahmednagar District - Achievements Regarding Beneficiaries and Employment and Expenditure Incurred from 1974-75 to 1979-80

Sr. No.	Sector	Total budget grant for project period (Rs. in lakhs)	Total expenditure incurred during project period (Rs. in lakhs)	No. of beneficiaries in Ahmednagar district		Employment generated ('000 mandays)
				Project target	Achievement since 1974-75 to 1979-80	
1.	Agriculture soil and water conservation and land resources and land use capability survey	269.26	255.11	34,505	30,469	6,423
2.	Dry land farming	32.95	22.69	18,705	16,508	94
3.	Irrigation	180.51	164.12	643	359	913
4.	Lift irrigation	-	-	-	71	-
5.	Forestry and pasture development	148.91	135.91	-	-	2,837
6.	Cattle and dairy development	225.18	187.71	24,150	2,171	68
7.	Sheep development	14.49	5.95	2,222	430	1,638
8.	Inland fishery development	6.64	5.42	-	561	-
9.	Others (Poultry)	0.30	0.30	-	1,514	-
10.	Rural drinking water supply	15.28	14.96	-	8,000	-

CHAPTER VI

CONCLUSION

Difficulties in Implementation and Suggestions

After having reviewed the salient features of DPAP and evaluated the achievements of the programme in Ahmednagar district, in this concluding chapter we highlight the difficulties encountered in the implementation of the programme and give suggestions for its effective implementation. Our comments are in the following order.

In agriculture sector the soil conservation is an important factor. Even though the contour bunding programme has been successfully implemented, it requires continuous follow-up measures for maintaining the quality of soil.

In the minor irrigation sector, the targets pertaining to groundwater development scheme has not been fully realised because of inadequate bank loan facilities. The response from banking sector is not encouraging since the majority of the small and marginal farmers are defaulters.

Again, in the case of minor irrigation schemes only 4 tanks have been constructed and the remaining one is in progress. In some cases slow progress has become inevitable on account of shortage of cement and other materials. So these materials should be provided to these projects on a

priority basis.

As about lift irrigation scheme only two have been completed and one big lift irrigation scheme (Vambori Lift Irrigation Scheme) is yet to be completed. The Vambori Lift Irrigation Scheme is one of the most important schemes because it will help irrigate thousands of acres in the drought prone areas of Rahuri and Pathardi talukas. So it should be completed as early as possible. Again rivers like Mula, Pravara, Godavari, Kukadi are also flowing through these regions, so the co-operative lift irrigation projects should be taken wherever possible; and this scheme demands more priority than other schemes. Again, from the lift irrigation projects on Jaykwadi back water for some area of Newasa Taluka and lift irrigation schemes on Kukadi ^{from} ~~for~~ Parner taluka, more farmers will get water for kharif and rabi crops and thus they will be really benefited.

For the better forestry, a nursing care is required at the seedling stage of the plants, so in the developmental stage of forestry, more guards should be appointed.

More importance should be given to the development of the fibre yield plants like Agave (Chypat) which easily grows in dry and degenerated area (south Ahmednagar district) without any care. The natural growing plants like Coobhabul (highly protein contents) should be also planted; they grow without any special care.

Dairy development has played an important role in

providing some regular income to the participating farmers; but here the major difficulty is that the healthy milch cows are not available in the district and therefore they have to be brought from the outside districts; this makes the scheme more expensive. Even though, the Jersey cows are rich in milching, they need special care and green fodder; so a variety of local cows (Khilari, Dangi) should be provided through the scheme, which will definitely benefit the farmers.

The most important limiting factors in the development of drought prone area are water and fodder. Due to non-availability of water and fodder during a scarcity year, people of this area migrate with their herds to neighbouring districts. As a result, the mortality rate of their cattle is increasing and the milk period of milch animals is falling. Therefore, to rehabilitate the economy of the people of this area, migration of the people with their herds should be checked. This is possible only by providing them water and fodder during the scarcity years - A fodder bank can be created which can supply fodder during the scarcity years.

The chilling plants are not fully utilising their capacity in the district. So, site of the chilling plants should be decided, after taking into account the adequate conditions like water for chilling plants, transport facilities system, number of cows in the area for utilising the full capacity of the chilling plants.

Since many people are not knowing about cattle distribution scheme it is absolutely essential that the implementing authority takes more interest in giving as much publicity as possible.

The sheep and pasture development programme, has evoked only very poor response. In the district, sheep and goat population constitute about 49 per cent in the total livestock population and sheep farming plays important role in the economy of the district; so for the better achievement of this scheme, sheep breeders should be provided with improved grass facility and also facilities for marketing the wool. Again pasture plots should be nearer to the place where drinking water facilities are available.

Under inland fishery development scheme there has been a great deal of achievements even within the short period. The members of the society can realise more benefits by establishing the federation of these societies at district level; marketing of fish could then be routed through the federation. This will go a long way in enhancing the income level of the fishing community.

Institutional credit in the form of bank loan is unsatisfactory. The unsatisfactory achievement in this field is due to various reasons. One major difficulty is that banks are not readily coming forward to finance the individual beneficiaries in view of poor recovery in the past. Some of the schemes pertaining to marginal farmers are not

found feasible by the banks. A great responsibility rests on the bank manager in spotting out the honest, viable persons, who would fruitfully repay the bank loan. To make the programme a success special officers should be appointed in this regard. It is also possible through a policy decision at the highest level to involve local branches of the nationalised commercial banks in programmes of agricultural finance especially designed to suit the needs of small landholders and perhaps also the agricultural labourers.

The discussion with DPAP staff in the district revealed that in some cases the benefits of DPAP have accrued to the affluent farmers. So the criteria for identifying small and marginal farmers should be total income level, assets and other property of the farmers. The criteria and conditions for giving benefits to the small and marginal farmers should not be made flexible in order to ensure that the genuinely needy persons alone get the benefit of the programme.

Again, the present procedure of getting the benefits of subsidy (and loan) for digging wells or for other irrigation purposes or under other schemes such as dry land farming or cattle and dairy development ^{is} ~~are~~ excessively time consuming, and quite often, involves production of large number of documents. So, there is need for simplification of the procedure and curtailing the time required for processing applications if the programme is to make a greater

impact on improving the conditions of the farmers.

It is observed that in the DPAP project period of five years - (1974-75 - 1979-80), there have been 4 executive directors. It also hampers the functioning of the programme. So, for the effective implementation of the programme, the tenure of the Executive Director should not be less than five years.

Conclusion

The case for special programme like DPAP is stronger in a country like ours where 19 per cent of the total area of the country and nearly 12 per cent of the population of the country is under shadow of drought ~~prone~~. Naturally, the phenomenon of drought has drawn the attention of different specialists belonging to different disciplines. Each has his own definition of drought. Among them, the meteorologists define drought in terms of negative departure of normal annual precipitation; agronomists define drought in terms of water deficit to the crop growth; hydrologists think in terms of underground water depletion and lowering reservoir water's level; while economists feel it as the shortage of water which creates economic hardship. Thus, the definition of drought by the meteorologists is the empirical and that of agronomists too particular.

The economy of the Ahmednagar district is predominantly agricultural. The district is characterised by wide

variations in rainfall from year to year, and therefore the degree of uncertainty regarding agricultural production is also very high. Sixteen per cent of the area and 22 per cent of the people in Ahmednagar district are vulnerable to the serious natural hazards. Drought and famines have occurred quite frequently in Ahmednagar district and caused a great damage to its economy. More particularly, the marginal and small farmers and landless and unskilled labourers have been subjected to the drought severely. On an average, in every five years two years have turned out to be scarcity years in the last twenty five years. The impact of scarcity was felt mostly in terms of loss of livestock, particularly during years 1971-72 and 1973-74. The percentage of net irrigated area to net sown area (in the period 1969-70) was about 11.61 per cent.

Central government launched Drought Prone Area Programme in the year 1970 in 54 districts and other contiguous districts. The programme was started in Ahmednagar district from the year 1974-75 with the help of International Development Association. In the initial stage the government accorded greater priority to the development of minor irrigation. But in view of scanty precipitation received by these areas, it was soon realised that the development of agriculture in these areas has its own limitations. So subsidiary occupations like dairy development and sheep farming came to

be stressed. So, ^{the} government has taken these measures in broad way.

This programme has been trying to provide assistance to small and marginal farmers and landless labourers. Finally on the basis of the data collected and the basis of the information gathered during personal discussions, there is no denying the fact that DPAP in Ahmednagar district for rural development of drought prone area, sponsored by the Government of India with the help of World Bank had come as a boon to the unemployed and underemployed population of the rural areas. The various projects implemented had provided employment to hundreds of persons; thus it has given a ray of hope to their miserable existence. Along with providing employment to the needy persons the scheme had been helpful in producing durable assets which has greatly contributed to the overall development of the particular areas.

Since Drought Prone Area Programme was introduced only during the seventies and the salient features of the programme could be realised only in the long run, it is too early to assess its impact on the economic development of the backward regions. But one thing is certain that this special programme makes a frontal attack on the fundamental problems faced by drought prone areas in the District of Ahmednagar.

If some of the suggestions mentioned in the section

are given a fair trial, we hope that DPAP in the district will confer more benefits on the marginal, small and landless labourers in drought prone area of Ahmednagar district.

BIBLIOGRAPHY

Books

- Apte D.P. The Crash Scheme for Rural Employment : An Evaluation of the Programme in Satara District in Maharashtra State, 1972-73, Pune, Agro-Economic Research Unit, Gokhale Institute of Politics and Economics.
- Borkar V.V. and Nadkarni M.V. Impact of Drought on Rural Life, Bombay, Population Prakashan, 1975. 7
- Eric Ekhome. Loosing Ground, Hindustan Publication Corporation, Delhi.
- Gangurde K. B. and Siddharaj Dhadda. Challenge and Response, A Study of Famines in India, Rachana Publications, Delhi, 1975.
- Pant, S.P. Evaluation of Drought Prone Area Programme (A Study in Jhabua District in Madhya Pradesh), Jabalpur, Agro-Economic Research Centre for Madhya Pradesh, Jawaharlal Nehru Krishi Vishwa Vidyalaya, 1973.
- Sevak, V.K. Management of Drought Prone Areas (Analysis and Case Studies from Jhabua District), Ahmedabad, Centre for Management in Agriculture, Indian Institute of Management, March 1978.
- Singh K.S. The Indian Famine 1967 : A Study in Crisis and Change, New Delhi, People Publishing House, 1975.
- Singh Tapeswar. Drought Prone Areas in India - Aspects of Identification and Development Strategy, Delhi, Peoples Publishing House, 1978.

Subramanian, V. Parched Earth (The Maharashtra Drought 1970-73), Orient Longman Ltd., 1975.

Reports

Government of India. Report of the Second Irrigation Commission, 1972.

_____. Integrated Agricultural Development in Drought Prone Areas : Report by the Task Force on Integrated Rural Development, Planning Commission, June 1973.

_____. Draft Fourth Five Year Plan 1969-74, Planning Commission.

_____. Drought Prone Areas Programme, Ministry of Agriculture and Irrigation (Department of Rural Development), New Delhi, 1978.

_____. Draft Fifth Five Year Plan 1974-79, Part II, Planning Commission.

Government of Karnataka. Economic Development of Bijapur District under Drought Prone Area Programme with World Bank Assistance - Project Formulation Unit, Directorate of Project Formulation, Evaluation and Manpower, Planning Department, Bangalore, 1973.

Government of Maharashtra. Report of the Fact Finding Committee, 1960.

_____. Report of the Maharashtra Irrigation Commission, 1962.

_____. Drought Prone Area Programme for Sholapur District, 1973.

_____. Report of the Fact Finding Committee for Survey of Scarcity Areas, Vol.I, 1973.

**Government of Maharashtra. A Note on Drought Prone Area :
Ahmednagar District, Executive Director of DPAP,
August, 1979.**

**_____. Development of Drought Prone Areas, Directorate of
Information and Public Relations, Bombay, December,
1979.**

**Sevak and Purohit. An Evaluation of Drought Prone Area
Programme Report, Agro-Economic Research Centre,
Sardar Patel University, Vallabh Vidyanagar, 1977.**

**Sevak R.D. Drought Prone Area Programme - A Case Study of
the Banaskantha District in Gujarat.**