
CHAPTER - VI

CRITICAL REVIEW OF THE DROUGHT RELIEF MEASURES

CHAPTER - VICRITICAL REVIEW OF THE DROUGHT RELIEF MEASURES6.1 INTRODUCTION :

The present work cannot be complete unless we take a critical review of the measures adopted and implemented so far by the Government of Karnataka in collaboration with the assistance of Central Government and of some international voluntary agencies such as world bank. The measures could broadly be classified into two categories : 1) the short term measures which are taken after the occurrence of the drought and the intention being to give some sort of relief to the severely affected agricultural population in terms of heavy losses to the agricultural output and consequently to their monetary incomes, 2) the long term measures, the intention of which is to turn out the drought prone area into the area free from the droughts. Of these two categories the former seems to have been given the top priority by undertaking the different programmes under the broad heading of drought relief measures. These include, relief works to provide employment, drinking water, fodder supply, goshalas and fodder banks, supply of food grains, remissions/suspensions of land revenue, while the latter category refers to DPAP which includes minor irrigation, soil and water conservation, CADA, dry-land farming, afforestation and pasture development dairy development, sheep and fisheries development, sericulture and horticulture. To this list of DPA programmes we may add one more that is the major irrigation development programme. In the following paras we take a

brief resume of the various programmes formulated by the Government of Karnataka and implemented by different agencies along with the results.

6.2 SHORT TERM MEASURES :

Extent of the intensity of the drought conditions prevailing in the district can be had by looking at the following figures. During 1985-86, 1210 villages out of 1244, in the district covering 1711718 (71 per cent) out of 2401782 persons and 717347 (86 per cent) out of 833232 cattle population suffered under the grip of a severe drought. The same story repeats every year. The conditions were still worse in 1986-87. The Bijapur district along with the state of Karnataka is reeling under drought since 1982-83. As a sample we take stock of 1985-86 drought hereunder.

The immediate impact of the drought is felt by the small farmers, marginal farmers and the landless labourers. In Bijapur district according to 1981 Census report the number of population of these three classes was 4,25,738. By the end of 1985-86 the number of population affected and their relative percentages to the total population in their respective totals were 40,568 (68.39 per cent), 17,857 (62.52 per cent), 2,85,581 (84.53 per cent) and 3,44,006 (80.80 per cent) correspondingly. Looking at their relative percentage share almost the entire population belonging to these categories suffered severely in terms of loss of their incomes making them migrate on a large scale to the prosperous areas within the state and in some cases without the state. To relieve the population from the distress sales of their valuables especially of cattle and distress migration, the Government of Karnataka has adopted short term measures of which a brief mention could be made below.



65,074 persons were given employment, 96.56 lakh man-days of employment were generated incurring an expenditure of Rs.2748.40 lakhs on various relief works. Rs.33.07 lakhs were spent on drinking water supply, Rs.34.50 lakhs were spent on sinking tube wells, Rs. 18.78 lakhs spent for the transport of fodder, Rs.10.13 lakhs on the maintenance of goshalas. A sum of Rs.1187.56 lakhs was spent on various relief measures as enumerated above. Remission and suspension of land revenue to the tune of Rs.19.55 lakhs as a relief measure was granted.

The above figures of the extent of drought reveal that because of the consecutive years of drought from 1982 onwards the problem of drought affected population seems to have become much more serious to be tackled with. Taking into account the needs of the relief to be provided in the drought years and the actual relief provided by the government through various relief measures a vast discrepancy has emerged between the two. Since the percentage of the beneficiaries works out to be just 5 to 10 per cent of the total affected population one cannot say that the short term measures have been successful in alleviating the economic conditions deteriorated by the frequent occurrence of droughts. This has also been conceded by the authorities responsible for the implementation of the short term measures. On the whole, on short term measures one cannot expect them to provide a lasting solution to the drought prone areas, and the long term measures which become a continuing comprehensive programme under the name of DPAP is a must.

6.3 LONG TERM MEASURES :

Drought Prone Area Programme

At the very outset a mention should be made that the DPAP introduced by the GOI in 1970-71, has its origin in the rural works programme, the objective of which was to create rural employment through government executed schemes. The DPAP was to be carried out with the assistance of the World Bank. To be more specific the objectives of the DPAP are : i) to increase and stabilise production from agriculture and the related activities, ii) to reduce severity of the impact of drought, iii) to restore the ecological balance. This programme has been in operation since 1974-75 and the World Bank assistance was available from 1974-75 to 30-6-1981. The major activities included in this programme have been carried out by the different agencies by the Karnataka Government. For every year the Government of Karnataka has incurred the expenditure on the various items.

Minor Irrigation :

Constituting the DPAP of the various programmes the minor irrigation development seems to have received the top-most priority in the allocation of financial resources. Instead of going into the yearwise details we mention that during the thirteen years period 27 per cent of the total expenditure has been used for the development of minor irrigation. The minor irrigation works taken up under the DPAP in Bijapur district so far completed covered just 0.52 per cent of the net sown area by the end of June 1986. On the completion of the minor irrigation works undertaken in the DPAP the percentage of the area irrigated in the net area irrigated by other sources in the district works out to be 4 per cent (In absolute figures 6574 ha).

Soil and Water Conservation :

Another major item of expenditure is the soil and water conservation for which the total amount spent was Rs.344.627 lakhs, forming 29.16 per cent to the total aggregate spending over DPAP. It resulted into 64911 hectares of cultivated land being brought under contour bunding. Besides, 22 farm ponds and 154 nala bundings and 244 gully plugging were constructed. As regards the soil conservation programme implemented by the government we may add that the result of the soil conservation did not prove to be beneficial from the point of view of raising the productivity of land and also retaining the moisture of the soil. For this the explanation could be adduced is that there is a lack of dialogue between the soil conservation department of the government and the farmers. The soil conservation department while preparing the plan of raising the contour bunds takes into account the village area as a whole including the topology of the land and watershed whereas the individual farmer considers the plan and its worthwhileness from the viewpoint of his individual plot, and these two often do not coincide with one another, which result into the demolition of bunds dividing the individual plots immediately after they are raised by the department. Since the individual farmer thinks in terms of his own individual interest, he does not want that the benefits of raising the bund should go to neighbouring farmers at the cost of his own.

Again one more item which forms a part of the soil and water conservation is dry land farming on which a sum of Rs.43.128 lakhs was spent forming 2.41 per cent of the total expenditure. In fact the government should

have given much more attention towards evolving more efficient dry farm techniques resulting into the improvement of the productivity of land under the given agro-climatic conditions in the district. From its relative share in total expenditure we may dare to say that this aspect of the agriculture of the drought prone area is being neglected by the government. We, therefore suggest the larger share in the aggregate expenditure on the agricultural development should be allotted for dry-farm technology.

Afforestation :

The main purpose of the afforestation programme under the DPAP is to maintain the ecological balance and also to correct the disturbed ecological balance either in a region or in a country. In Bijapur district afforestation programme was conceived with a view to restoring ecological balance in the district by developing the destroyed forest in selected watersheds. Under this programme extensive planting of trees has taken place in the form of small plantations, village woodlots, wind breaks along the roads, planting in conjunction with pasture, and planting seedlings on private lands. The amount spent on this particular programme during the period comes to Rs.361.610 lakhs of which the relative share in the total expenditure works out to be 20.21 per cent next to the expenditure on minor irrigation works. The area covered under afforestation so far is 5021 hectares inclusive of village woodlots, tree planting in conjunction with pasture and small plantation. This programme also includes free supply of seedlings to farmers and maintenance of forest nurseries on which the expenditure incurred is Rs.18.4 lakhs. In connection with the afforestation programme we would like to point out that after planting the trees the adequate attention is not being paid

so as to the planted areas are developed in forest area. Sometimes the planted areas do not have any prospects of developing themselves in the forest. This might be due to improper selection of the area and even after planting the trees due to lack of adequate supervision, one cannot help feeling that the extension of the area under afforestation is just out of the curiosity of the government to fulfil the targets and that too more preferably in terms of expenditure. In other words, especially this programme seems to be financially and area plantation target oriented rather than the result oriented, i.e. assessments in terms of the survival of the seedlings planted. As an example of the waste we may quote a practical experience that is sometimes the seedlings are just distributed to the school children who do not understand the purpose of the distribution and as such they throw away those seedlings which go waste.

Allied activities :

Close to agriculture the other activities supporting agriculture are animal husbandry, sericulture, fisheries and horticulture. The purpose of all these activities is to raise the incomes of the farming population in the district which is becoming frequently subjected to droughts. The actual amount spent amounts to Rs.324.663 lakhs forming 23.79 per cent to the total.

Animal husbandry :

For the development of animal husbandry the development of pasture is a precedent. The government has tried to develop the pastures by means of developing a new varieties of fodder crops. This programme is considered

to be worthwhile undertaking from the viewpoint of developing the waste lands in drought prone areas. By converting the waste lands into pastures the industry of animal husbandry and also sheep farming will have rather bright prospects and as such in some of the arid areas the incomes derived from such industries will supplement the incomes derived from purely agricultural activities. The government has adopted measures for popularising these activities by means of cross breeding of animals and sheep and distribution of loans for purchase of such animals and sheep, along with the development of dairy co-operatives, the response for which seems to be poor from the village community.

Fisheries :

Strangely enough the expenditure incurred for the development of fisheries is greater relatively to the expenditure on horticulture and sericulture. Unfortunately relatively a larger expenditure on development of fisheries did not bear the fruits as the activity of fisheries has not become a principal activity. We cannot have the evidence as regards the increase in output of fish.

Sericulture :

one more promising area which is being included in the DPAP is sericulture. Under DPAP, this programme is having a special merit from the point of view of the exports and the absorption of the rural labour power. So in the overall DPAP this is being considered as labour intensive and export oriented. Despite its export and labour absorption capacity the expenditure incurred forms just 4.32 per cent to the total. As a result just 1142 hectares have been brought under mulbary cultivation. The extension of

mulbary cultivation has been constrained by lacs of sufficient water. Therefore with a view to making this particular activity as one of the important subsidiary occupation to the vast majority of the weaker sections in the rural areas is being constrained by the inadequate development of the available water resources in the district.

Horticulture :

Being considered as the instrument of restoring ecological balance and also an additional source of income to small farmers, marginal farmers and agricultural labourers, the department of horticulture has been adopting certain measures with a view to inducing the farmers to undertake the horticulture as an allied activity. The expenditure incurred so far on this amounts to Rs. 77.208 lakhs (1.31 per cent of the total) resulting into the coverage of just 29.20 hectares of mixed orchards in addition to the certain fruit plants distribution. In point of fact horticulture should be developed by converting certain suitable areas into plantations just like tea, coffee or rubber plantations.

If one looks at the number of programmes undertaken under the DPAP, one should feel that the DPAP is a comprehensive programme converting the drought prone areas into the non-drought areas by way of generating employment opportunities, improving the productivity of land through the development of adequate water supplies, and moisture retaining measures such as soil and water conservation, afforestation, development of dry land technology, creating of additional sources of income, by horticulture, sericulture, fisheries to a vast majority of the rural population who are likely to be hit more severely by the droughts. (Table No.6.1).

Table No. 6.1

Statement showing the outlay and expenditure from 1974-75 to 1986-87 under D.P.A.P. Bijapur
(Rupees in lakhs)

Particulars	1974-75		1975-76		1976-77		1977-78		1978-79		1979-80		1980-81	
	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.
1. Minor irrigation	39.75	1.60	50.00	30.59	51.89	40.20	49.00	32.49	97.44	35.28	100.210	41.710	90.050	76.980
2. Soil Conservation and soil survey	45.00	15.06	50.00	26.24	59.60	44.12	56.09	50.64	85.81	39.26	70.000	50.797	28.107	26.490
3. Dry land farming	10.00				3.02						3.200	2.708	2.890	2.980
4. Afforestation.	18.00	31.84	15.00	31.23	38.56	24.22	12.90	13.78	22.00	21.11	30.000	26.965	12.979	14.480
5. Animal husbandry	20.00	2.50	15.00	8.71	29.33	9.50	16.23	12.64	25.84	13.17	90.940	16.882	84.586	21.640
6. Sericulture	5.00	-	2.00	1.11	1.43	1.81	1.33	1.27	3.15	1.72	5.040	3.598	9.885	6.240
7. Fisheries	6.00	1.77	15.00	14.51	33.00	13.23	19.00	16.73	32.00	23.57	25.000	10.509	15.620	7.700
8. Horticulture	6.00	1.33	3.00	2.25	2.52	2.43	4.28	3.88	3.50	2.22	8.000	4.011	5.024	1.050
9. Others	-	-	-	-	-	-	2.00	0.62	25.00	1.31	12.210	83.180	7.454	1.920
10. Project amn.	0.25	0.20	-	0.47	1.87	2.08	3.00	2.09	3.00	2.46	3.250	2.410	3.500	3.300
Total	150.00	54.30	150.00	116.11	221.22	137.59	163.83	134.14	305.00	140.10	347.850	242.770	260.95	162.78

Source : DPAP Bijapur, A profile of progress
District Rural Development Society
(DPAP) Bijapur.

Table 6.1 (contd.)

Particulars	1981-82		1982-83		1983-84		1984-85		1985-86		1986-87		Total expdt. from 1974-75 % to 31-10-86	
	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.	Out.	Exp.		
1. Minor Irrigation	80.00	54.83	80.660	22.760	94.660	38.877	177.660	47.455	50.10	29.58	98.55	25.04	482.442	26.96
2. Soil Conservation and soil survey	16.25	9.85	9.850	3.690	7.775	5.309	30.000	27.761	32.25	25.65	32.00	19.73	344.627	19.26
3. Dry land farming	13.05	10.13	15.237	9.130	5.727	6.901	26.215	5.299	2.75	3.33	5.00	2.65	43.128	2.41
4. Afforestation	16.92	12.23	39.840	19.590	60.030	61.235	69.000	60.740	31.20	33.14	33.04	11.05	361.610	20.21
5. Animal husbandry	93.50	35.75	58.200	42.750	82.018	29.310	36.352	19.781	-	-	-	-	212.613	11.88
6. Sericulture	11.02	9.55	14.670	4.950	27.744	18.472	35.265	24.488	4.60	4.03	-	-	77.208	4.32
7. Fisheries	14.20	12.07	10.013	12.290	-	-	-	-	-	-	-	-	112.379	6.28
8. Horticulture	4.42	0.74	10.339	1.220	2.276	1.000	2.770	2.572	0.60	0.60	0.68	-	23.463	1.31
9. Others	-	0.01	-	-	1.005	-	-	-	-	-	19.58	-	87.040	4.87
10. Project Admn.	11.15	4.86	5.000	4.430	5.000	5.302	8.000	7.320	10.50	5.49	8.00	3.39	44.802	2.50
Total	260.057	150.07	243.809	120.81	294.235	166.406	385.262	195.416	132.00	101.82	196.85	61.86	1789.312	100.00

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6.4 MAJOR IRRIGATION PROJECTS :

So far what we have analysed the various programmes undertaken in DPAP which at present has become a regular feature of the instrument of the government policy to enable the population in the drought affected areas to get rid of the impending incidence of droughts, during last few years. By taking into account the population affected by drioughts mainly agricultural population and the amount spent on DPAP programme, so far, and the concrete results that have emerged therefrom one feels very much pessimistic on the impact they have failed to make on the gigantic problem of the district. For instance, by looking at the cumulative expenditure during the thirteen years' period (Rs. 1789.412 lakhs) and the only rural population (1823154 - census figures of 1981), by dividing the former by latter, the average per capita expenditure on the drought affected population it comes to just Rs. 9.82 per capita which is for the whole period. Further the per capita, per year expenditure works out to 76 paise which becomes the matter to be laughed at. Hence the need arises to look for other projects which have rather bright prospects. They are 1) Upper Krishna Project 2) Malaprabha Project, 3) Ghataprabha Project 4) Ramthal Project 5) Hipp argi barrage and 6) Mulwad lift irrigation project.

Upper Krishna Project (UKP) :

The districts of Belgaum, Bijapur, Gulbarga and Raichur through which the river Krishna flows in Karnataka are in a rainfall shadow area where the rainfall is very meagre and unevenly distributed. Under the existing circumstances, if the water is made available by irrigation, the entire

economic picture of the area will be transformed, contributing greatly to the economic development of the region, in particular the Bijapur district and the Karnataka State in general. The UKP comprises the construction of two dams one at Almatti and another at Narayanpur and a network of canals. The first dam at Almatti will impound bulk of storage requirements, while the lower dam at Narayanpur will serve mainly as diversion dam. UKP has been planned to be completed in two stages. After completion of the first stage the Bijapur district will have 3,37,000 acres irrigated (Table 6.2). Since we do not have the estimated potential of irrigation after completion of second stage, we are not able to mention how much area of the total land in Bijapur district will be benefitted by irrigation, when the entire project is completed the area irrigated will be 10.52 lakh hectares (26 lakh acres) of which 4.25 lakh hectares (10.50 lakh acres) will be benefitted after the completion of the first stage of the project.

Though the project has bright prospects from the view point of success of drought relieving measures the project has been delayed for a longer period of time under the pretext of inadequate funds. The Karnataka govt. has spent so far Rs. 41654 lakhs on the project since its inception, at current prices. Though the amount allotted seems to be large enough in real terms they are not large because of the inflationary rise in prices of construction materials and wages too. Initially the project was conceived by the erstwhile Hyderabad State along with lower Krishna project - Nagarjun Sagar project. In 1963 the project was planned to irrigate 12 lakh acres with the estimated cost of Rs.58 crores. But now the completion of the project is likely to cross Rs. 2200 crores at the current prices. If the project is delayed further there will be a further escalation in the cost. The project

should in fact be completed before 2000 A.D. The financial resources every year to be allotted are still greater and the progress of the work will have to be speeded up. If we take into account the current expenditure roughly Rs.50 crores per annum the project will take 44 years for completion leaving apart the inflationary factor. Considering the financial requirements for utilisation of state's share in water, the then public works and Irrigation Minister Mr. H.D.Devegouda informed the Assembly, if irrigation projects in the State are to be continued and financed at the present rate it would take 60 to 70 years to fully tap state's irrigation potential. State required Rs. 900 crores to complete the ongoing projects and to fully exploit the water resources under the Bachawat award, according to which the deadline of 200 A.D. is fixed, if the State of Karnataka has to retain its right over the Krishna waters.¹ Therefore to save the water rights and consequently the drought affected population the project will have to be completed before 2000 A.D. For that a top most priority will have to be given in the allocation of budgetary resources of the government. Realising this particular aspect of overall irrigation projects in Karnataka State and the actual amount spent on the projects being lower than the allotment the ex-cabinet Minister Mr.H.D.Devegouda resigned from the Cabinet. Incidentally we mention as noted earlier, on the same river another project known as LKP - lower Krishna project in Andhra Pradesh at Nagarjunasagar was completed long back and automatically they are benefitting from the unutilised water from Karnataka due to overall delay in irrigation projects in Karnataka in the Krishna basin.

1. Indian Express, Bangalore 2-2-1988.

Ghataprabha Project :

A total of 1,56,501 hectares (3,86,708 acres) of land will be ultimately benefitted from the Ghataprabha waters in Bijapur district, out of which just a half the potential is availed for want of the completion of Stage III. When completed Badami, Bagalkot, Bilgi Hungund, Jamakhandi and Mudhol talukas will get assured water supply. Again budgetary provisions are posing as constraints in completion of the work.

Malaprabha Project :

31,092 hectares (76824 acres) of land in Badami taluka of Bijapur district will receive irrigation cover from this project ultimately. So far the potential created and availed is 5522 hectares (13645 acres) in the said taluka.

Hipparagi Barrage :

This barrage scheme across river Krishna at Hipparagi village in Jamakhandi taluka of Bijapur district with three separate foreshore lifts has the potential of irrigating 50,585 hectares (1.25 lakh acres) in Belgaum and Bijapur districts. Though started in 1973 under famine relief works has made financial progress of Rs. 375.59 lakhs as at the end of 1984-85 without any potential progress. This project too like other projects suffers its progress, without provision in budget allocation (During 1985-86 there was no provision in expenditure for this project).

Ramthal Lift Irrigation Project :

This project envisages the construction of barrage across the river Malaprabha near Ramthal village in Hungund taluka of Bijapur district with

potential of irrigating 22,260 hectares (55,000 acres) in Hungund taluk, at a cost of Rs. 45.20 crores is yet to be taken for construction. One can understand the progress with a budget provision of a mere Rs.1.00 lakh in the budget estimates of 1985-86.

Mulwad Lift Irrigation Project :

With the estimated cost of Rs.550 crores and the ultimate potential of 6.5 lakh acres, this lift irrigation project is eluding the thirsty lands of Bijapur district. Since the World Bank and NABARD have not evinced interest in the project, the burden has to be completely borne by the Government of Karnataka. Though the foundation stone was laid on 8-12-1986 and Krishna Lift Irrigation Corporation was constituted after the discussion of 45 years, it is to be seen when the results will come up, that too while the government of Karnataka is facing a severe financial constraints to complete the ongoing projects like UKP and other projects.

As far as the present situation is concerned just 12.52 per cent of the net sown area in the district is brought under irrigation which was only 1.3 per cent in 1950-51. Considering this percentage share of irrigated area in the cultivated area by the end of the period of our study the progress seems to be unsatisfactory despite the government's frequent claims that the government has been tackling the problem on a war footing. However, if every thing goes well the irrigation potential after the completion^{of} all the on-going major, medium and minor irrigation projects 37.78 per cent of the net cultivated area in the district would be brought under irrigation. If we take into account the possibility of undertaking other irrigation projects in addition to the on-going projects then another 10 to 20 per cent of the cultivated area will be irrigated. So we may roughly say that in the long

run a little more than half of the cultivated area in the district will be irrigated and when this will be accomplished then only the district will be freed from being frequently subjected to the uncertainty of income resulting from failures of the monsoon. But unfortunately taking into account the experience in the field of irrigation construction works and their respective time dimension we may sound a pessimistic note that the district itself will have to travel a long way to be turned out into agriculturally prosperous area giving fillip to the development of other sectors of the economy of the district in particular and the state of Karnataka in general.

6.5 Dry land Development Board :

Still another 50 per cent of the cultivated area remains outside the irrigation cover and will depend on the monsoon with a larger degree of uncertainty. So roughly 50 per cent of the agricultural population will be depending upon dry farming. Karnataka State, it is claimed, is the first in the country to initiate, in 1984 to constitute Dry Land Development Boards. Each Board has been entrusted with the development of water shed area in each district as a model in a period of 7 years, at an average ^{cost} of Rs.2,000 per hectare, for 16 districts, the amount required would be Rs.80 crores. Annual plans are being drawn to implement a master project for this purpose in phases.

Chandakavate watershed :

Chandakavate watershed near the village chandakavate in Sindgi taluk of the Bijapur district, with a total area of 28016 hectares, out of which cultivable land of 28010 hectares, covers 20 villages, 7958 farmers and 6 sub-watersheds, has the objectives of checking soil erosion and retention of

moisture, introducing dry land farming techniques, raising the underground water recharge bringing ecological balance by planting trees and encouraging the allied activities which would supplement the incomes of the village community, like dairy, and horticulture.

Since its inception on Oct. 1984, as on June 1986 that is within two years 3947 hectares of land is brought under soil conservation at the cost of Rs.32.50 lakhs, 819.65 hectares of wasteland is planted with 10.22 lakh of seedlings and 42.62 hectares of land is brought under orchards of different fruit plants at the cost of Rs.0.97 lakhs. The entire scheme estimated at Rs.2.60 crores is hoped to be completed within next 3 years. The scheme also imparts the dry land farming techniques to the cultivators.

All the developmental activities are taken up on the bases of watershed, conservation of soil and moisture and the extension of forest in wastelands being given the top priority, the scheme intends to check the run off of the rain water and raise the underground water level. The programme is already showing good results in the form of raised water level in the open wells of the area. But considering the 196 watersheds in Bijapur district, if the programme goes only with one watershed in a few years, again it would take several decades to benefit the remaining 50% of the land that would be outside the irrigation cover. Government of Karnataka has spent only Rs.1.6 crores out of the planned expenditure² of Rs.3 crores. More funds should be allocated on dry land development along with the irrigation projects, so that the entire rural population of the district would permanently be relieved from the vagaries of droughts. This will create a silver lining in the life of the agriculturists in the drought prone area.

2. Deccan Herald, Oct. 31, 1987.

Table 6.2

On-going Major Irrigation Projects benefitting Bijapur district.

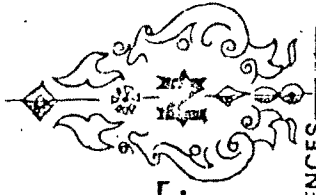
Talukwise area benefited in Ha. (Ac.)	UKP Stage-I		Ultimate potential created as on 31-3-86	Ghataprabha		Malaprabha		Potential created as on June 85				
	Almatti L.B. canal	Narayan-pur L.B. total canal		L.B. canal	R.B. canal	Total	Balekun-dri canal		R.B. canal	Kolchi canal	Total	
1. Bijapur												
2. Badami				8710 (21500)	8710 (21500)	29857 (73775)	626 (1547)	609 (1502)	31092 (76824)	5522 (13645)		
3. Bagalkot				34281 (84705)	34281 (84705)							
4. B.Bage-wadi	842 (2080)	842 (2080)										
5. Bilgi			23426 (57885)	23426 (57885)	19829 (49000)							
6. Hungund				7406 (18300)	7406 (18300)							
7. Indi	36828 (91000)	36828 (91000)										
8. Jarnakhandi			25348 (62635)	25348 (62635)	25348 (62635)							
9. Murde-bihal	15346 (37920)	15346 (37920)	22 (54)									
10. Mudhol			31155 (76983)	26184 (64700)	57339 (14683)	31273 (77280)						
11. Sindgi			83368 (20600)	83368 (20600)								
District Total	16188 (40000)	120196 (297000)	136384 (337000)	22 (54)	79929 (197503)	76572 (189205)	156501 (386708)	29857 (73775)	626 (1547)	609 (1502)	31092 (76824)	5522 (13645)

Source

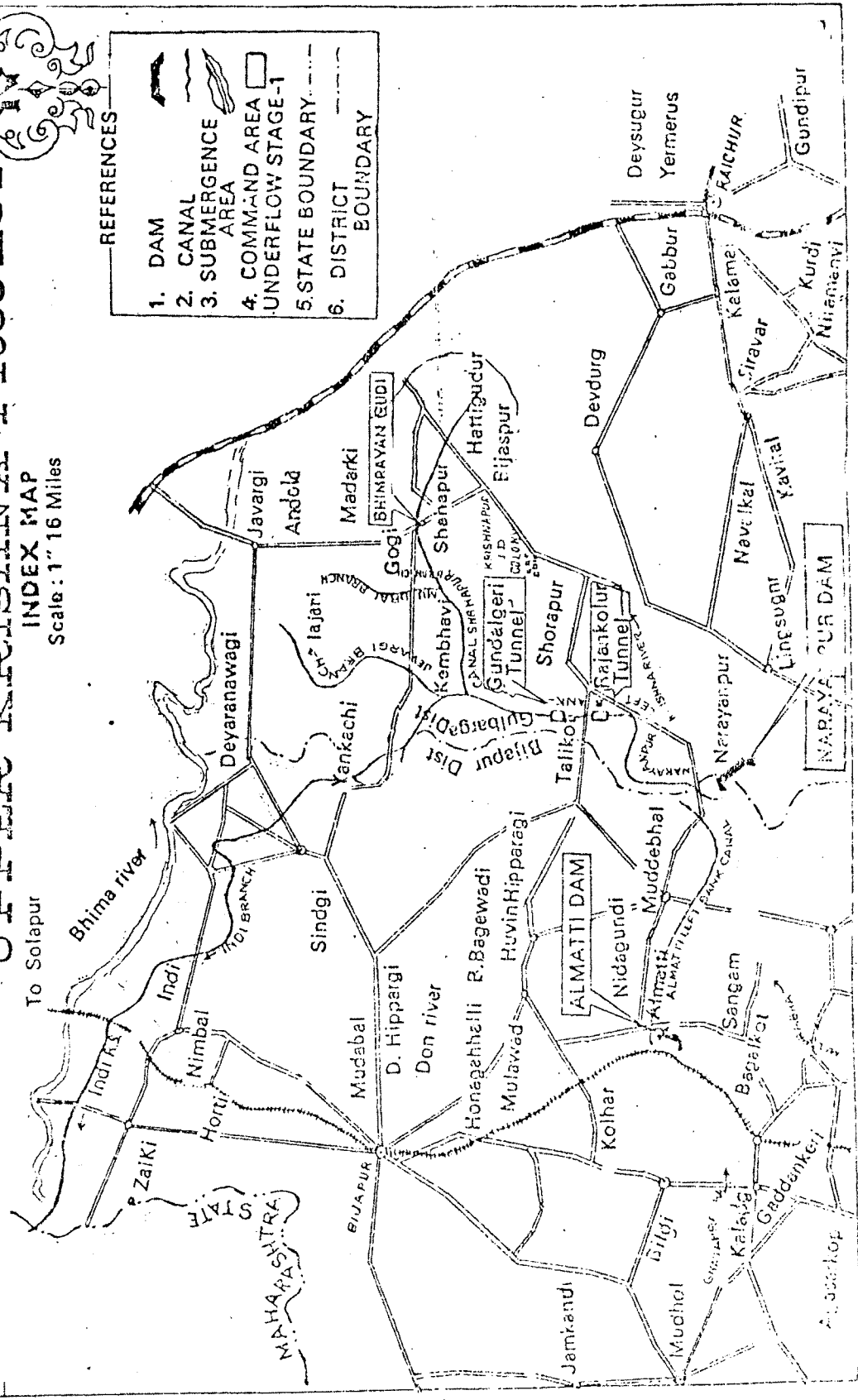
- 1) Irrigation projects in Karnataka (major & medium) 1985, Government of Karnataka, Irrigation Department.
- 2) Irrigation projects in Karnataka (major & medium) 1987.

UPPER KRISHINA PROJECT

INDEX MAP
Scale: 1" = 16 Miles



- REFERENCES
- 1. DAM
 - 2. CANAL
 - 3. SUBMERGENCE AREA
 - 4. COMMAND AREA UNDERFLOW STAGE-1
 - 5. STATE BOUNDARY
 - 6. DISTRICT BOUNDARY



REPRODUCED FROM THE BUREAU OF SURVEYING, RAICHUR, DISTRICT, 1955.

