

CHAPTER IV

AGRICULTURE AND IRRIGATION *

THE district of Bidar is predominantly an agricultural district like its contiguous districts. It is a *maidan* district, forming a part of the Deccan trap, with an average rainfall of 907.5 mm. (35.73") received mostly during the period from June to October. The district grows mainly dry crops of which jowar is the staple food-crop. The present (1976) percentage of area irrigated to the total cultivated area is only 3.5 per cent. The income from agriculture and animal husbandry, forestry and fisheries constituted about 64.08 per cent of the total income of the district in 1956-57, and this percentage had increased to 77.92 by 1974-75 according to the State Bureau of Economics and Statistics.

Agriculture is the most important sector of the economy of the district and it is the chief occupation of the district. About 76 per cent of the working population depend mainly on agriculture. In 1971, the population of the district was 8,24,059, the rural and the urban population being 7,04,928 (85.54 per cent) and 1,19,131 (14.46 per cent) respectively. Only 2,72,098 persons were workers, forming about 33.02 per cent of the total population. Out of the 2,72,098 workers, 89,691 (*i.e.* about 32.96 per cent) were cultivators, 1,02,539 (*i.e.*, about 37.68 per cent) were agricultural labourers and 79,868 (*i.e.*, about 29.36 per cent) were other workers. Thus, the number of persons engaged in agriculture was 1,92,230 constituting about 70 per cent of the total number of workers. The taluk-wise figures of cultivators and agricultural labourers according to the 1971 census were as follows :

**Agricultural
population**

* Besides, agriculture and irrigation, this chapter includes horticulture, animal husbandry and fisheries.

<i>Taluk</i>	<i>Total</i>	<i>No. of</i>	<i>No. of</i>	<i>Percentage for</i>	
	<i>No. of</i> <i>workers</i>	<i>cultivators</i>	<i>agricultural</i> <i>labourers</i>	<i>Column</i> <i>3 to 2</i>	<i>Column</i> <i>4 to 2</i>
1	2	3	4	5	6
Aurad	45,424	17,115	17,907	37.68	39.42
Basavakalyan	59,898	23,546	20,965	39.16	35.00
Bhalki	52,658	17,041	22,987	34.26	43.65
Bidar	62,891	16,512	21,368	26.26	33.98
Humnabad	51,227	15,477	19,312	30.21	37.69
Total	2,72,098	89,691	1,02,539	32.96	37.68

It can be seen from this table that the percentage of cultivators to the total number of workers was highest in Basavakalyan taluk, followed by Aurad, Bhalki, Humnabad and Bidar taluks. The percentage of agricultural labourers was highest in Bhalki taluk followed by Aurad, Humnabad, Basavakalyan and Bidar taluks.

**Size of land
holdings**

The size of cultivated holdings may be taken as an index of the size of the farm-business and consequently the economic position of cultivators. The two factors that determine the size of holdings are the pressure of population on land and the area of cultivable land available. By and large, the size of holdings in the district is small. The following table shows the distribution of land-holdings according to size-group with the extent of land under each size-group in the district as in 1955-56 :

<i>Size of</i> <i>holding</i>	<i>No. of holdings</i> <i>in '00s</i>	<i>Percentage</i> <i>to total</i>	<i>Area</i> <i>(in hectares)</i>	<i>Percentage</i> <i>to total</i>
Below 2 hectares	240	31.2	25,920	5.4
2 - 4 do	167	21.7	50,625	10.6
4 - 6 do	109	14.2	55,485	11.6
6 - 12 do	154	20.0	1,32,030	27.6
12 - 24 do	76	9.9	1,25,550	26.2
24 - 40 do	17	2.2	48,600	10.2
40 - 80 do	5	0.7	27,540	5.8
Above 80 do	0.8	0.1	12,555	2.6
Total	768.8	100.0	4,78,305	100.0

Source ; State Bureau of Economics and Statistics, Bangalore.

The distribution of operational land-holdings in the district according to sizes as in 1970-71 is shown by the statement given below :

Size of operational holding (hectares)	No. of holdings		Total area (hec.)		Average area per holding (hectares)
	Number	Percentage	Area	Percentage	
Below 0.5	3,902	4.35	1,150	0.24	0.29
0.5 - 1.0	7,348	8.38	5,557	1.16	0.76
1.0 - 2.0	15,352	17.52	22,497	4.69	1.79
2.0 - 3.0	12,113	13.80	29,531	6.16	2.44
3.0 - 4.0	9,130	10.45	31,425	6.56	3.44
4.0 - 5.0	7,083	8.08	31,443	6.56	4.44
5.0 - 10.0	19,244	21.96	1,35,110	28.19	7.02
10.0 - 20.0	10,598	12.09	1,43,230	29.88	13.51
20.0 - 30.0	2,140	2.54	50,476	10.53	23.59
30.0 - 40.0	512	0.58	17,183	3.58	33.56
40.0 - 50.0	139	0.16	6,099	1.27	43.88
50.0 and above	83	0.09	5,655	1.18	68.13
Total	87,644	100.00	4,79,356	100.00	5.47

Source; World Agricultural Census, 1971.

Note; (1) A land-holding means the area actually owned according to the Patta. The data for less than four hectares are based on sample census of holdings and for above four hectares they are based on complete census of land-holdings.

(2) An operational holding means an area owned + area leased in-area leased out within or outside the village.

This table discloses that the largest single extent of land was held by the seventh category (10-20 hectares), while the next largest extent pertained to the sixth category (5-10 hectares). The largest number of holdings belonged to the group of 5-10 hectares and the next in order was of the group one to two hectares. The average size of land-holding in the district was 6.2 hectares as against the State average of 4.4 hectares.

The size of about sixty-five per cent of the land-holdings ranges from less than two hectares to six hectares. Such uneconomical small holdings and fragmentation of lands constitute a serious obstacle to increasing the productivity of the cultivated area. Keeping this in view, the Karnataka Prevention of Fragmentation and Consolidation of Holdings Act, 1966 was adopted and it is in force since May 1, 1969. It seeks to put a check on all transfers of lands which result in fragments. The holders of such lands cannot dispose them off to any one other than the contiguous holders. The Act also provides for consolidation of the existing

**Consolidation
of holdings**

fragments of lands so as to form economic holdings. (The State Agricultural Census Commissioner, Bangalore, has classified the holdings under different size-groups and the area held by tenure under each group as in 1973. The details for the district in this respect are given in a separate table in General Appendices).

**Land
utilisation**

The total geographical area of the district is 5,451 sq. kms. or 5,45,099 hectares, as provisionally computed by the Survey of India. The total cropped area in 1972-73 was 3,71,082 hectares, forming about 68 per cent of the total geographical area. The subjoined statement gives particulars of land utilisation in the district for the years 1970-71, 1971-72 and 1972-73 :

(Area in hectares)

Category	1970-71	1971-72	1972-73
1 Geographical area (Provisional figure as computed by the Survey of India).	5,45,100	5,45,099	5,45,099
2 Reporting area for land utilisation purposes as worked out by the State Survey Department and local bodies.	5,45,100	5,45,099	5,45,099
3 Forests ..	9,574	9,573	9,573
4 Area under non-agricultural use	29,347	29,347	29,897
5 Barren and uncultivable and	16,906	16,906	16,841
6 Permanent pastures and other grazing lands.	25,848	25,848	25,848
7 Land under miscellaneous tree crops and groves not included in net area sown.	24,377	24,377	24,376
8 Cultivable waste land	11,497	11,497	11,761
9 Fallowlands other than current fallows	51,046	53,058	57,632
10 Current fallows	41,767	42,954	51,914
11 Net area sown	3,34,738	3,31,539	3,17,257
12 Total cropped area	4,09,036	3,98,139	3,71,082
13 Area sown more than once ..	74,298	66,600	53,825

The reduction in respect of the total cropped area for the years 1971-72 and 1972-73 is due to the famine conditions prevalent in the district during the period.

**Land
reclamation**

A scheme for reclamation of cultivable waste lands and to improve the alkaline, saline and water-logged area was introduced in the district in the year 1965-66. An extent of 1,693 hectares of cultivable waste land has been so far identified, and of which upto 1971-72, a total area of 633.58 hectares was reclaimed under this scheme, and the farmers were paid a subsidy of Rs. 25 per acre

but not exceeding Rs. 200 per farmer. The following table shows the extents of area reclaimed and the amounts spent under subsidy scheme only from the years 1965-66 to 1971-72 :

<i>Year</i>	<i>Area reclaimed under subsidy (in hectares)</i>	<i>Amount spent (in Rs)</i>
1965-66	25.56	957.47
1966-67	122.73	5,609.16
1967-68	137.44	7,911.75
1968-69	128.46	4,830.50
1969-70	64.54	4,999.70
1970-71	71.28	3,989.80
1971-72	83.57	4,697.50

A Land Utilisation Survey Scheme was taken up in 1968-69 in the district for assessing the area of cultivable waste lands under Government. The waste lands were surveyed based on vegetation, topography, slope, erosion, soil depth, soil type and pH of the soil. Based on the findings of the survey, the waste lands were classified under four groups, viz., "A", "B", "C" and "D" classes of lands. The class "A" lands were found to be suited for cultivation without any kind of development or special treatment. Lands which needed special treatment by soil and water conservation methods were grouped under category "B". The lands of category "C" were those which were not found suitable for the cultivation of crops but were suited for afforestation. Lands not suited for cultivation and afforestation and found fit for only grazing and pasturing purposes were grouped under "D". The extents of such lands identified upto 1971-72 were 32.47 hectares (A), 3,271.05 hectares (B), 12,549.66 hectares (C) and 9,615.96 hectares (D) for each of the categories of land respectively, the total being 25,469.14 hectares.

Soil conservation is one of the important items of work being attended to in the district since 1965-66. The objects of this work are to check soil erosion and to preserve soil moisture as the moisture-retention capacity of the soils is poor. This is done by contour bunding and soil acceleration programme which are well suited for this area. This work provides employment to the small farmers and daily wage workers. A separate division for the soil conservation work was formed in 1973 in this district. During the recent famine, soil conservation work was done for providing mass-scale employment in the district. The area bunded since inception of the scheme upto 1973-74 was 64,623.42 hectares and the amount spent was Rs. 89,92,578 during the same period. The

Soil
conservation

taluk-wise area banded and the amount spent on soil conservation during 1973-74 are given below :

<i>Sl No.</i>	<i>Taluk</i>	<i>Area banded (in hectares)</i>	<i>Amount spent (in Rs.)</i>
1	Aurad	3,502.04	5,50,488
2	Basavakalyan	7,202.15	8,68,223
3	Bhalki	3,346.11	6,15,560
4	Bidar	4,761.99	6,44,094
5	Humnabad	8,837.91	13,36,146
Total		27,650.20	40,14,511

The Forestry Section of this division covered an area of about 10 hectares under afforestation programme in the catchment area of the Nizam Sagar River Valley Project. The catchment area lies in this district, while the project is in Andhra Pradesh.

Soils

The Bidar area can be divided into two major land forms, namely (a) high-level laterite plateau and (b) basalt plateau. The high-level laterite plateau is characterised by medium grey tone with drainage and the land-scape is not at a higher level than the surrounding basalt land-scape. The basalt land-scape comprises stepped mesa basalt plateau characterised by a general dark grey tone. The soils derived from the lateritic plateau consist of shallow to deep reddish brown clayey soils with varying quantities of ferrogenous gravels while the lower footsteps and the interplateau valley plain have very deep dark grayish brown clayey soils. The soils of basalt plateau are generally black clayey soils of varying depths, characteristic of the basaltic landscape. The soils found in the different taluks of the district are mentioned below :

Aurad taluk : Deep black soils are found in this taluk. They are clay to clay loam in texture. The pH of the soil is neutral, low in carbon, phosphorus and potassium with normal total soluble salts. The water-holding capacity is low.

Basavakalyan taluk : The taluk has laterite soil in about half the area and the rest has deep lack soils. Laterite soils are poor in base, in water-holding capacity and in fertility specially in phosphorus and potash content. They are clayish in texture and well drained. Deep black soils are medium in organic matter and potash contents. They are poorly drained and alkaline, and their water-holding capacity is poor.

Bhalki taluk : Deep black soils are found in this taluk. They are clay to clay loam in texture, alkaline, poorly drained, and their water-holding capacity is less. They are low in phosphorus and medium in potash and normal in total soluble salts.

Bidar taluk : Laterite type of soil is found in some parts of the taluk, while other parts of the taluk have shallow to deep black soils. They are well-drained and have poor water-holding capacity. They are alkaline and are poor in phosphorus content and medium in potash.

Humnabad taluk : Laterite soils are found in a major part of the taluk and medium black soils in other parts. Their organic content is low and they are poor in phosphorus and medium in potash contents and neutral in pH content. They are well-drained and their water-holding capacity is poor.

The main agricultural seasons in the district are the *kharif* (*mungari*) and the *rabi* (*hingari*). The *kharif* sowings commence in June and July and those of the *rabi* crop in September and October. The *kharif* harvests commence in September and lasts upto February, whereas the *rabi* harvests are from January to April. The *kharif* area is predominant in Aurad and Bhalki taluks and in parts of Humnabad and Basavakalyan taluks. The *rabi* area is more in Bidar, Humnabad, Bhalki and Basavakalyan taluks. In the summer months also, crops are grown in a small area under assured well irrigation. The important *kharif* and *rabi* crops grown in the district are :

Cropping
seasons

<i>Kharif season</i>	<i>Rabi season</i>
1 Jowar	1 Jowar
2 Greengram	2 Bengal gram
3 Blackgram	3 Sunflower
4 Tur	4 Wheat (both dry and irrigated)
5 Paddy	5 Sunflower
6 Minor millets	6 Coriander
7 Groundnut	7 Rabi pulses (Mixed)
8 Sesamum	8 Linseed
9 Hybrid jowar	9 Chillies
10 Hybrid bajra	
11 Hybrid maize	
12 Coriander	
13 Chillies	
14 Sunflower	
15 Niger	
16 Sugarcane	
17 Cotton G-22-grown in Aurad and Bhalki Taluks.	
18 Hybrid cotton-grown in all the taluks, but in a large area of Aurad and Bhalki taluks.	
19 Sannhemp is grown mainly for green manure purpose.	

Sugarcane is the only irrigated commercial crop, but *rabi* wheat has also become an important irrigated crop after the introduction of high-yielding varieties and hybrid jowar during the *kharif* season. The important rotation of crops followed in the district are as follows :

	<i>Khurif season</i>	<i>Rabi season</i>	<i>Summer season</i>
1	Khurif jowar		Groundnut or vegetables under irrigation if water is available.
2	Groundnut		
3	Blackgram or China moong or local moong.	<i>Rabi jowar or gram or sunflower.</i>	Summer groundnut or hybrid jowar crop under irrigation if water is available.
4	Paddy		
5	Hybrid bajra+tur		
6	Cotton		
7	Sannhemp	Gram or wheat or sugarcane planting from Jan. to March	

Of the total cropped area, 79.2 per cent is occupied by the food-crops and 20.8 per cent by the non-food-crops. Generally, the farmers have the practice of taking two crops in a year. But after the introduction of the high-yielding varieties, the growing of the third crop in summer has also come into vogue. The areas under important crops, productions and average yields in 1971-72 were as follows :

<i>Sl. No.</i>	<i>Name of crop</i>	<i>Area (in hectares)</i>	<i>Production (in tonnes)</i>	<i>Yield per hectare (in kgs.)</i>
1	Paddy	13,529	20,892	1,544
2	Jowar	1,19,622	63,891	534
3	Bajra	25,152	17,833	709
4	Wheat	7,059	3,869	548
5	Other cereals	16,282	3,228	198
6	Pulses	1,24,763	53,227	426
7	Sugarcane	7,100	4,71,105	82,650
8	Cotton	13,146	4,649	353
9	Oil seeds	64,531	30,038	465

According to the available crop estimates, the production of food-grains in 1970-71 in the district amounted to 1.64 lakh tonnes which was 51 per cent higher than the production of 1.09 lakh tonnes in 1961-62. The production of cereals went up by 46.6 per cent over a period of eight years ending 1970-71. The output of pulses

registered an increase of 61.3 per cent during the same period. The production of sugarcane increased from 4.53 lakh tonnes in 1961-62 to 4.71 lakh tonnes by 1970-71 and the oil-seeds showed an increase of 45 per cent during the same period. These increased outputs were made possible by following proper preparatory tillage and use of (i) improved implements like mould-board ploughs, (ii) quality composts, (iii) improved and hybrid seeds, (iv) suitable seed-rates and proper spacings, (v) chemical fertilisers specially under irrigation, (vi) good crop rotations and (vii) plant protection measures for the control of pests and diseases.

The land is prepared by ploughing twice and harrowed twice or thrice during the months of April and May for all *kharif* crops except *kharif* jowar for which only one harrowing is done as the crop requires firm seed-bed for growth of plants. After sowing of the *kharif* crops one or two inter-cultivations and one or two hand-weedings are done according to the needs. For raising *rabi* crops one deep ploughing and two or three harrowings are done. In the lands where *rabi* jowar is grown, ploughing is done in alternate years and only two harrowings are done before sowing is done during the months of August and September. One or two inter-cultivations and two or three hand-weedings are done as per needs.

**General
cultivation
practices**

The manures that are in common use in the district are farm-yard manure, green manure, compost and fertilisers. The farm-yard manure available in the cattle sheds is conserved by using sectional filling methods or by the usual methods of dumping it in one place till it is carried for use. Compost is an important manure used for crops. About two lakh tonnes of rural compost was prepared in 1974-75. The five municipalities in the district are preparing urban compost. About 6,000 tonnes of this were prepared during 1974-75. Growing of green manure crops is an ancient practice in the district. Sannhemp and Diancha are the main annual green manure crops. Sesbania and glyricidia are grown on the borders of fields. Green manure crops were grown in about 7,000 hectares and about 1,50,000 seedlings and cuttings of green manure were distributed in 1974-75.

Manures

Distribution of fertilisers to the farmers was being done through permit system upto June 1974. Since then the supply is being made on the basis of identity-*cum*-input cards through the Community Development Blocks. The quantity of fertilisers distributed during 1972-73 was 1,300 tonnes of nitrogenous fertilisers, 900 tonnes of phosphorus fertilisers and 368 tonnes of potash fertilisers. In 1973-74, the quantity supplied was 3,931 tonnes of nitrogenous fertilisers, 281 tonnes of phosphatic fertilisers and 922 tonnes of potash fertilisers.

Implements

The most important old implement is the wooden plough which is still in use though several modern implements have been introduced. Harrows are commonly used. The improved implements in use are the mould-board ploughs drawn by two bullocks and four bullocks, land-levellers, bund-former, seed-cum-fertiliser drills, ridgers, (hand-operated and power-operated), dusters and sugarcane-crushers. Tractors are being supplied to the farmers on hire-purchase system by the Department of Agriculture, the Agro-Industries Corporation and commercial banks. In 1956-57, there were no tractors with the farmers in the district. In 1965-66, there were 21 tractors and in 1972 there were 51 including those owned by co-operative societies.

Seeds and seed farms

Improved varieties of seeds and hybrid seeds are being supplied to the farmers under a seed-multiplication and distribution scheme in order to step up production. The nucleus seeds are obtained from the Agricultural Research Stations at Raichur and Dhadesugur of Raichur district and the University of Agricultural Sciences. These nucleus seeds are sown in the two seed farms of the district and the foundation seeds obtained thereby are distributed to the registered seed growers. Then the seeds are distributed to the farmers. Due to failure of crops during 1972-73 and non-availability of seeds with farmers, seeds were distributed on loan basis by the Karnataka Seeds Marketing Co-operative Federation during the *kharif* and *rabi* seasons of 1973-74.

There are two seed farms in the district, one at Bhalki and the other at Hudgi of Humnabad taluk. The seed farm at Bhalki was established in 1958. The area of this farm is 7.59 hectares and there are wells for irrigation. The soil of the farm is medium black. The crops grown in this farm are *kharif* jowar, China moong, paddy, sugarcane, gram, wheat and *rabi* jowar. The seed farm at Hudgi was started in the year 1961. This farm, the area of which is 9.62 hectares, has medium black soil. The main crops grown are *kharif* jowar, China moong, groundnut and improved varieties of gram and wheat.

High-Yielding Varieties programme

Some high-yielding varieties were introduced in the district during 1966-67. The area covered under the programme in the year of introduction was 167.27 hectares. The important high-yielding varieties grown in the district are hybrid jowar CSH-1, hybrid bajra-HB-1, high-yielding variety paddy-Hansa and IR-20, hybrid maize-Deccan and Ganga, Russian, Australian and Bulgarian sunflower, Mexican wheat, UP-301, Sonalika, Kalyan Sona, Hira wheat varieties, CO-740 and IC-225 of sugarcane. Some more new varieties introduced recently are CSH-2 and CSH-5 of hybrid

jowar, HB-2 and HB-3 of hybrid bajra, IET-1991 of high-yielding variety of paddy, Moti of Mexican wheat, S-5 of tur, HY-45 of moong, Karegaon of blackgram and S-20 of tobacco. Hybrid jowar, sunflower, bajra, moong, blackgram and tobacco are grown under rainfed conditions. Mexican wheat, hybrid maize and sugarcane crops are grown under well irrigation. The areas covered under various high-yielding varieties during 1972-73 and 1973-74 were as follows :

(in hectares)					
Year	Hy. jowar	Hy. maize	Hy. bajra	H.Y.V. paddy	Mexican wheat
1972-73	7,774.8	31.6	184.4	894.4	1,646.0
1973-74	6,958.0	295.0	277.0	1,329.0	6,678.0

The Seed Act of 1966 is in force in the district and it ensures supply of genuine and quality seeds to the farmers.

The National Demonstration Scheme serves to carry the results of research to the cultivators. The demonstration helps to convince the farmers about increased production and profits from a unit area of land in a unit of time. During 1973-74, five national demonstration plots, one in each taluk of the district, were laid out. Multi-crop demonstrations are arranged with a view to demonstrating how best the farmers can utilise the available land with available resources of labour input and capital for securing highest productivity and profits per acre per year. During 1973-74, five demonstration plots under rainfed conditions and six demonstrations on commercial crops were laid out in the district. During the same year, in order to popularise the high yielding varieties in the district, 136 demonstrations on hybrid jowar, hybrid bajra, hybrid maize, Mexican wheat and paddy were held.

**Field
Demonstrations**

A comprehensive scheme for development of oil-seeds was introduced in 1961 in the district with the objective of stepping up production of oil-seeds and to minimise the fluctuations in the production by adopting improved agronomic practices, use of improved seeds, demonstrations and competitions. Short duration variety of NPH-1 castor, drought-resistant variety of S-206 groundnut, soyabean having rich protein content and C. 68405 variety of sunflower were introduced in the district under the scheme. During 1973-74, 34,000 hectares were covered by the different oil-seeds and the production was 21,123 tonnes. There were half-acre demonstrations, 10 in *kharif*, five in *rabi* and 11 in summer.

**Oil-Seed
Development
Scheme**

**Cotton
Development
Scheme**

Cotton is one of the commercial crops of the district mainly grown in Aurad and Bhalki taluks. A cotton development scheme was introduced in the year 1963-64 by distributing about 77 kgs. of cotton seed and covering an area of 350 hectares. The Sea Island cotton and Hampi cotton did not fare well in the district, but G-22 came up well. In 1972-73, Hybrid-4 cotton variety was introduced in the district. This crop failed during that year due to famine conditions. The scheme is being continued in the district.

**Sunflower
Development
Scheme**

A Centrally sponsored scheme for the development of sunflower was introduced in 1972-73 with the object of increasing the production of vegetable oil. The variety introduced was the high-yielding Russian variety-E.C. 68415 which is a short-duration crop of 90 to 100 days suited to all the three seasons and best suited for the multiple cropping system. It contains about 40 per cent of oil. The cake is used as cattle feed. The area covered under this crop in 1974-75 was 1,400 hectares. Ten demonstrations, eight training programmes and seven field days were conducted in 1974-75. During the same year, Bulgaria and Australian sunflower seeds were also distributed free of cost to the farmers in order to popularise them.

**Development
of pulses**

There are some State and Central schemes in operation in the district for the development of pulses. The crops covered are tur, bengalgram, *baisakhi* moong, blackgram, etc. Under a Centrally sponsored scheme for development of pulses, plant protection chemicals have been distributed at subsidised rates at 25 per cent of the cost of chemicals limited to Rs. 15 per hectare covering an area of 1,400 hectares, the total cost incurred being Rs. 21,000 in 1974-75. Under a State-sponsored scheme, 400 hectares were given assistance to the tune of Rs. 20,000. Eight demonstration blocks were organised in the district under the State scheme. Under the Centrally-sponsored scheme, ten demonstration blocks were undertaken for tur, 40 for bengalgram, 20 for greengram and 40 for blackgram in the district. About 900 hectares were covered under the Rhizobium culture seed treatment.

**Sugarcane
development**

A sugarcane development scheme was taken up in the district in 1958 with the object of increasing the acre-yield through intensive cultivation and improved agricultural practices. The scheme envisages the establishment of a seed nursery, conducting of demonstrations, distribution of fertilisers and plant protection chemicals and conducting crop competitions.

**Tobacco
development**

A scheme for the development of beedi tobacco was introduced during 1972-73. The quality of tobacco produced in this district is good. The agro-climatic conditions are found to be favourable during the growth period and at harvest time for this crop. It can be grown both under rainfed conditions and irrigation. Demonstration

plots are laid out, farmers are trained and field days conducted in respect of this crop also.

An Emergency Agricultural Production Programme was taken up in the district in 1972-73 during the scarcity period. About 35.70 quintals of hybrid jowar seeds for covering an area of 357 hectares, seeds of hybrid bajra of about 5.91 quintals for covering an area of 43 hectares and seeds of hybrid maize to the extent of about 28 quintals for sowing in an area of 162 hectares were supplied free of cost to cultivators. Special crop loans were given under the scheme for the *rabi* crop of 1972-73 through the Community Development Blocks at the rate of Rs. 60,000 per Block amounting to Rs. 3 lakhs. About 900 farmers were benefited by this. In addition, the Department of Agriculture had a target to cover an area of 1,300 hectares under hybrid jowar, 100 hectares under hybrid maize and 4,300 hectares under Mexican wheat. They could cover 562 hectares under hybrid jowar, 164 hectares under hybrid maize and 1,646 hectares under Mexican wheat. This scheme was not however continued in 1973-74 and 1974-75. However, it was resumed during later years.

**Emergency
agricultural
production
programme**

Measures for plant protection are gaining popularity among the farmers, as they help to step up agricultural production. A plant protection scheme is being implemented in the district with the objects of giving technical advice, conduct large-scale plant protection campaigns and plant protection trials to find out the suitability of newly introduced pesticides and fungicides, imparting training to the farmers in the use of pesticides and fungicides and distributing plant protection equipments and chemicals at subsidised rates. The area covered under plant protection programmes carried out in the district during the years 1973-74 and 1974-75 are detailed below :

**Plant
protection**

Sl. No.	Programme	1973-74	1974-75
1	Seed treatment	20,100	19,975
2	Control of field rats	6,600	25,000
3	Control of soil and polyphagus pests	30,600	35,000
4	Intensive plant protection measures.	38,300	33,500
5	Weed control by chemicals	123	112

Under a rodent control scheme, an area of 120 hectares was treated with fumigation under a demonstration-cum-education programme by customs services unit in 1973-74. In 1974-75, 607.5

**Rodent
control**

hectares were covered under a similar programme. In 1973-74, about 400 hand-operated and eight power-operated plant protection equipments were distributed at 25 per cent subsidised rates. E.O.B. ampules were distributed to the farmers free of cost to control stored grain pests at a cost of Rs. 9,970 each in 1973-74 and 1974-75. About ten weedicidal trails and one insecticidal and another fungicidal trial on hybrid jowar and one seed treatment trial with sulphur dust were carried out in the *khariif* season of 1974. About 50 tonnes of different dusts and wettable powder formulations and 4,500 litres of liquid formulations were sold at full cost and at 50 per cent and 25 per cent subsidised rates through the Karnataka Agro-Industries Corporation and Marketing Federation, Bidar.

There was an unusually heavy menace of rodents in the district during 1974-75. The total area affected was 40,000 hectares and the menace started immediately after the sowing of the *khariif* crops. The crops affected were pulses, *khariif* jowar and cotton. This necessitated resowing in an area of 12,000 hectares. There was also damage to the standing crops of sugarcane. In the beginning, the rats were controlled by broadcasting fried rice mixed with endrin, parathion, malathion, etc. Later, rodenticides like zinc phosphide and aluminium phosphide were used as baits in an area of 17,500 hectares and about 275 kgs. of rodenticides were distributed at 50 per cent subsidised rates. They were also controlled by fumigation by custom services unit at a cost of Rs. 2,95,000 at the rate of Rs. 20 per acre, half of which was paid by the Government and the other half was treated as land revenue due by the farmers under the Agricultural Loans Act, 1973. The area, thus covered was 14,750 acres, out of which 10,000 acres were treated by fumigation under Pests and Diseases Act, 1968. To help control the menace of rats, both in houses and fields, rodenticides were distributed to the farmers at 50 per cent cost. About 275 kgs. of the chemicals were distributed.

A Soil-Testing Laboratory was started at Bhalki in 1974-75. It has an ambitious programme of testing the soils, conducting of soil-testing weeks, and A.B.C.D. trials, soil sampling, etc.

**Research
Station**

A Minor Sugarcane Research Station was started at Bidar in the year 1953 in order (1) to find out suitable early high-yielding varieties of sugarcane and other crops like jowar, Mexican wheat, etc., (2) to evolve suitable requirements for sugarcane, etc., (3) to evolve suitable agronomic practices with regard to seed-rates and spacing for common crops of the area, (4) to supply improved varieties of seeds for cultivation along with the package of practices and (5) to impart training and to demonstrate improved methods of cultivation to the

progressive farmers of the tract. The area of the farm attached to the station is 12.67 hectares. The following various research works are undertaken on the farm : (1) varietal-cum-fertiliser trial on Mexican wheat and irrigated wheat, (2) response of I.C. 225 sugarcane to phosphorus and potash levels, (3) studies on moisture conservation in sugarcane on C.O. 740 variety of sugarcane, (4) comparison of different varieties of pulses and (5) varietal-cum-sowing date experiments on cotton. During the year 1973-74, the income of this farm by the sale of produce was Rs. 9,493 and the expenditure was Rs. 12,705.

A Small Farmers Development Agency was started at Bidar in 1970. Its main aims are (i) to identify small farmers and their problems, (ii) to work for betterment of their socio-economic conditions and (iii) to make potentially viable farmers as viable farmers. It has to identify also marginal farmers and agricultural labourers and their problems. It arranges for supply of necessary inputs, credit and marketing facilities in order to help the people of these categories. At first, a farmer who owns between $2\frac{1}{2}$ acres and 5 acres of irrigated land or $2\frac{1}{2}$ acres and 10 acres of dry land was termed a small farmer. But, later in 1974, the Central Government decided that a farmer holding between 1.25 and 2.5 acres of irrigated land or 2.5 and 5 acres of dry land is to be defined as a small farmer. It has been estimated that there are about 40,000 small farmers in the district. Upto the end of October 1974, 35,318 farmers were identified as small farmers (2,601 small farmers were later deleted due to death or sale of their holdings or their migration to some other districts), the remaining 32,717 small farmers, 25,278 farmers were members of the co-operatives at the time of their enumeration. The total number of small farmers registered is 5,926 in Aurad taluk, 6,739 in Basavakalyan taluk, 7,499 in Bhalki taluk, 6,893 in Bidar taluk and 5,660 in Hunmabad taluk. The Agency makes arrangements for providing short-term, medium-term and long-term loans to them through co-operative banks and commercial banks. The Agency assesses the needs of small farmers and makes a selective approach in respect of assigning the programmes under minor irrigation and animal husbandry. The underground water survey forms the basis for taking up minor irrigation programmes. About 250 open irrigation wells have been dug up. About 650 pumpsets have been distributed. Under the animal husbandry programme, schemes like poultry farming, supply of milch animals and sheep-rearing have been taken up. Inputs are supplied and help for adoption of improved agricultural practices is rendered all over the district. Crop loans to the tune of Rs. 28.08 lakhs benefiting nearly 8,500 small farmers were provided during 1971-72

**Small
Farmers
Agency**

and an area of 35,250 hectares was covered. Demonstration plots were also laid out on the fields of small farmers in an area of $1\frac{1}{2}$ acres each under hybrid jowar, hybrid maize and Mexican wheat, with an outlay of Rs. 200 per plot. Implements were supplied to 380 small farmers at 25 per cent subsidy, Nearly 880 acres were brought under tractor ploughing for the benefit of 243 small farmers. Crop loans amounting to Rs. 2.23 lakhs were disbursed to 658 marginal farmers.

**Agro-
Industries
Corporation**

The Agro-Industries Corporation Ltd., started the agricultural engineering section at Bidar in 1970. This section was formerly under the Agricultural Department. The Corporation has taken steps to arrange supply of inputs to farmers and custom service of tractors, boring and blasting machines. While, in 1970, it had in the district two blasting and boring machines, in 1972, it had seven blasting machines, two ordinary boring rigs and one high-power boring rig. During 1971-72, 581 wells were deepened and 47 bore wells were dug. It has also opened several Agro-Kendras to supply inputs to the farmers.

**Marketing
Federation**

A branch of the Karnataka Seeds Marketing Co-operative Federation started functioning at Bidar in July 1973, with the objective of supplying scientifically processed and laboratory-tested pedigree seeds at reasonable rates to the farmers. There are about 55,000 nominal members of the Federation in the district. Each taluk headquarters has a selling point. In the *kharif* season of 1975, 850 quintals of hybrid jowar were sold at Rs. 765 per quintal whereas in the *rabi* season of 1975, 15 quintals of hybrid jowar at Rs. 665 per quintal, 100 quintals of Sonalika variety of wheat at Rs. 320 per quintal, 80 quintals of U.P. 301 variety of wheat at Rs. 295 per quintal and 25 quintals of Hira variety of wheat at Rs. 350 per quintal were sold to the farmers.

**Crop
competitions**

Crop competitions are organised every year with a view to inducing a large number of cultivators to adopt improved package of practices in respect of sugarcane, wheat, hybrid jowar, grams and groundnut. The competitions are held at the taluk-level and the district-level and prizes are awarded to those who achieve best results.

There is a Farmers' Forum in the district. It was revitalised during the year 1973-74. There is a branch of the Krishika Samaj at each of the five taluk headquarters and there are 42 Raita-Sabhās in the district. There were in 1973-74, in all 46 life members, 132 original members and 1,108 active members in the various branches in the district.

Improvement
of land

A Land Improvement Board was constituted for the district in 1964. It has five official members with the Deputy Commissioner of the district as the president and two non-official members. Its objectives are: (i) preservation and improvement of soil, (ii) prevention of erosion of soil, (iii) conservation of water resources, (iv) introduction of dry farming methods, (v) improvement in the methods of cultivation, (vi) reclamation of waste, saline or water-logged land, (vii) prohibition or control of grazing or reservation of land for pasture, (viii) planting, maintenance and control of tree-growth by (a) regulation or prohibition of firing of vegetation, (b) cultivation of waste or fallow land, (c) eradication of *hariyali* or any other kind of weed vegetation which is likely to affect injuriously or interfere with cultivation, and (ix) such other matters not inconsistent with the object of the Karnataka Land Improvement Act, 1961, which may be prescribed.

The Land Improvement Scheme envisages to help farmers to conserve soil and soil moisture. The soil conservation (contour bunding) programme is confined to agricultural lands having shallow, medium and deep soils in the dry tracts where the rainfall is less than 30". The Department of Agriculture in the district executes works according to sanctioned plans. The average cost incurred for executing the contour-bunding works per acre is worked out and the recoverable cost, after allowing prescribed subsidy, is being collected in 15 annual equal instalments from the farmers concerned. The area bunded and the amount spent thereon from 1965-66 to 1975-76 are given below :

Year	Area bunded in hecbares	Amount spent (in Rs.)
1965-66	268	84,745
1966-67	837	1,56,250
1967-68	1,080	1,55,883
1968-69	2,163	3,11,058
1969-70	2,164	2,27,997
1970-71	2,872	3,06,676
1971-72	4,307	4,89,547
1972-73	16,026	29,28,014
1973-74	23,368	33,00,451
1974-75	193	1,24,422
1975-76	..	3,00,411
Total ..	53,278	83,85,454

Figures refer to incomplete works

The extent of area bunded and the amount spent under a Centrally sponsored scheme operated by the Nizam Sagar River

Valley Project during the years from 1972-73 to 1975-76 are shown hereunder :

<i>Year</i>	<i>Area bunded (in hectares)</i>	<i>Amount spent (in Rs)</i>
1972-73	1,965	3,90,500
1973-74	3,540	6,69,150
1974-75	22	1,63,332
1975-76	422	1,53,560
Total	5,949	13,76,542

HORTICULTURE

The Bidar district is well-suited for development of fruits and vegetables as it has suitable climate and soils. It has had large mango plantations since centuries. The work of the Department of Horticulture was started in this district in 1960-61. Multipurpose Horticulture Farms have been established at Bidar and at taluk headquarters with the main object of encouraging the farmers to adopt the improved practices and get more returns.

The department made an intensive survey of the district to assess the natural resources and to explore the possibilities of intensive and extensive cultivation of horticulture crops. The soils in most parts of Bidar, Humnabad and Basavakalyan taluks are red laterite in nature (clay to clay-loam in texture), poor in bases and water-holding capacity and well-drained. The water-table, being comparatively high, is suitable for the cultivation of grapes, mangoes, sapota, guava, lime, *mosambi*, coconut, etc., and vegetables like potatoes, cabbage, tomatoes, brinjal, beans, etc. The medium black to deep black soils of Bhalki taluk and of parts of Aurad taluk are suitable for the cultivation of mango, custard apple, tamarind, banana, lime, *mosambi* and vegetables like chillies, cabbage, cauliflower, brinjal, tomato, leafy vegetables, etc. The extent of areas under different horticultural crops and their production as in 1972, were as follows :

<i>Sl. No.</i>	<i>Name of crop</i>	<i>Area (in hectares)</i>	<i>Production (in tonnes)</i>
1.	Mango	620	3,800
2.	Banana	175	10,300
3.	Guava	146	720
4.	Citrus varieties	84	1,664
5.	Vegetables	200	1,850

Among the vegetables, there is a local variety of brinjal which is known as "Bangara Badane (Baingan)". The plant is a small bush of robust growth growing upto about 18 to 20 inches in height with five to six side branches. It is as a whole full of thorns including calyx. The flowers are purple and the fruit is moderately round to cylindrical and about two-and-a-half inches long and greenish purple in colour with six to eight longitudinal striations. The fruit is very hard and full of seeds and has a good storage capacity. The crop is cultivated throughout the year except during the months of October and November. The crop comes to bearing in about 90 days. It is susceptible to fruit borer and little leaf virus disease.

"Bangara
Badane"

There is another peculiar plant in this district, called *Chiranji* (*Buchnanian latifolia*, Roeb) locally known as "Mole Kai". It is a fairly big, perennial wild plant growing in the forests of Aurad. Bidar and Humnabad taluks. The plant belongs to the family of *Anacardiaceae*, mostly resembles cashew, almond and teak plants and lasts for many years. It puts forth flowers (racemose type of inflorescence) during the third week of December and bears fruit in bunches during January. Its fruit is circular and small in size as that of a pea. The fruits are green in colour in the beginning and when ripe turn purple. The kernel is sweet and can be eaten. The endocarp is hard and it gives sweet seeds when broken. The seeds are like red gram and are used in several sweet preparations.

Chiranji

Mango is a major fruit crop grown as a plantation crop, in waste lands and on avenues. The varieties that are commonly grown are Alanpur-benishan, Ratnagiri-alfansa, Souranjahagir, etc., which are important varieties for the dessert purpose. Besides these, there are some juice varieties like *Cherukarasam* and *Peddarasam*. Grapes and citrus varieties are the other important fruit crops. The cultivation of grapes is fast extending after the introduction of a scheme for the cultivation of grapes under the Agricultural Refinance Corporation which extends loans for the purpose. The common varieties of grapes are Anab-E-Shahi and Thomson seedless (Bedana). Cashew, as a waste land crop has been introduced recently and it is faring well. With the help of lift irrigation, Banana (Basri), Chillies and onion are being grown extensively. In recent years, the cultivation of potato, ginger and turmeric is gaining importance in the district.

The Department of Horticulture has given due importance for the establishment of farms and nurseries which will serve as demonstration plots besides catering to the horticultural needs of the district by supplying varieties of fruit plants, vegetable seeds, seedlings and ornamental plants. It has laid out three farms and

Farms and
nurseries

four nurseries. A Multipurpose Horticultural Farm was established at Bidar in 1964 with an area of 15 hectares. The plants grown in this farm are *mosambi*, lime, sweet-lime, sapota, mango, guava, papaya and oranges. Vegetables are grown as an inter-crop. A Horticulture Farm was started at Halli in Basavakalyan taluk in the year 1967 with an area of about 32 hectares for growing vegetables and fruits. A cashew plantation farm is maintained since 1965 at Rekulgi in Bidar taluk in an area of 149 hectares.

A District Horticulture Nursery was formed at Bidar in 1960, with an area of about half-an-hectare, planted with fruit plants, vegetables and ornament plants for supplying seedlings and seeds to the needy local people. There is a nursery near the office of the District Horticultural Officer, Bidar, which has an area of about an hectare and is mainly ornamental. A rosary with about 80 varieties of roses is maintained here and varieties of *bougainvillaea* are propagated. In addition, fruits and vegetable seedlings are also raised. There is a Taluk Horticultural Nursery at Basavakalyan with an area of 0.41 hectares, which is mainly a propagation centre for vegetables and fruits. Nirna of Humnabad taluk has a Taluk Horticultural Nursery with an area of 0.8 hectares planted with fruit plants and vegetables. It is also a propagation centre for vegetables, fruits and ornamental plants.

Basava vana

The Basava Vana at Basavakalyan was established on the occasion of the celebration of the eighth centenary of Basaveshvara for growing ornamental and medicinal plants. The area of this vana is about two hectares and about 770 different varieties of medicinal plants are planted there. A nursery is also maintained in the vana for propagating vegetables and fruit seedlings. (see also Chapter XIX).

Development Schemes

The Department of Horticulture has introduced various schemes for developing horticulture in the district. A Fruit Development Scheme was introduced in the year 1969-70 for detailed surveying of areas suitable for fruit cultivation, for rendering technical guidance in laying out new orchards and for bringing more area under fruit cultivation. In 1972-73, this scheme had a target of 40.50 hectares of new cultivation, of 101.25 hectares (250 acres) for rejuvenation and of supplying 25,000 fruit plants. The achievement was new cultivation in 34 hectares, rejuvenation of 10 hectares and supply of 11,612 plants.

A Vegetable Development Scheme, introduced in the same year, (1972-73) has the objects of supplying vegetable seeds of all varieties suitable for the area, of rendering technical guidance on the modern techniques of commercial cultivation of vegetables and of bringing

larger areas under vegetables. During 1972-73, an extent of 101 hectares was covered under this scheme. A Coconut Development Scheme was taken up in 1969-70 with a view to inducing the cultivators of the district to take up coconut cultivation as the crop can be successfully grown in the tract. Till the end of 1972-73, coconuts were planted in an area of about 70 hectares. A Cashew Development Scheme was introduced in 1969-70. Under this scheme, cashew was planted in about 45 hectares upto 1972-73. In addition to the above schemes there are also other schemes like Plant Protection Scheme, Scheme for the Development of Subsidiary Crops, Scheme for Intensive Cultivation of Vegetables and Quick Growing Fruits in Big Towns and Scheme for Vegetable Cultivation in river beds, tank beds and paddy fields after paddy harvest.

Several demonstration plots have been laid out on cultivators' fields in respect of fruit and vegetable crops for demonstrating the effect of various plant protection chemicals and for stressing the need for plant protection. The crops covered are mango, sapota, guava, grapes and vegetables in an area of half an acre each. During 1971-72, there were four demonstration plots in Bidar taluk, one each in Bhalki and Basavakalyan taluks and three in Humnabad taluk. In 1972-73, there were three demonstration plots in Bidar taluk, five in Bhalki taluk, two in Basavakalyan taluk and one each in Humnabad and Aurad taluks.

Demonstration plots

The Applied Nutrition Programme was launched in the district during 1966-67 in Bidar, Santhpur, Humnabad and Basavakalyan Community Development Blocks. School and community gardens are laid out as a measure of horticultural education among the rural people and for raising kitchen gardens and for showing the nutritive value of horticultural crops. This receives Central and UNICEF financial assistance for purchase of vegetable seeds, tools and equipment for horticulture, poultry and fisheries. The taluk-wise number of villages which received aid from UNICEF were two villages for community gardens and six villages for school gardens in Bidar taluk, nine villages for school gardens in Basavakalyan taluk, two villages for community gardens and six villages for school gardens in Aurad taluk and two villages for community gardens and five villages for school gardens in Humnabad taluk. The UNICEF has supplied 50 sets of kitchen garden tools to each of the Blocks.

Applied Nutrition Programme

A loan scheme was sanctioned by the Agricultural Re-finance Corporation in 1968-69 for the establishment of grape-vine yards at the rate of Rs. 10,000 per acre made available through Primary Land Development Banks. The amount has to be repaid in four instalments after the fifth year of starting the grape-vine yard. An

Agricultural Re-finance Corporation

extent of about 59 hectares of grape-vine yard has been financed by the Corporation.

**Peace Corps
Volunteers**

Four couples of the American Peace Corps were working in Humnabad, Hudgi, Chitaguppa and Nirna villages of the district in co-operation with the Horticulture Department. The women volunteers of the corps worked with village women in kitchen gardening and nutrition education. Some of them also imparted knowledge of nutrition in the local schools and worked in dispensaries or with midwives. Their other activities were teaching work in *Balawadies* and working with *Mahila Mandals*. The men volunteers worked with farmers in the production of fruits and vegetables. They were also assisting in expanding the activities of the Karnataka Horticultural Society.

**Horticultural
training**

A horticultural training course was started in 1971-72 at the Multipurpose Horticultural Farm at Haladkeri of Bidar taluk with a view to imparting technical knowledge of theory and practice in horticulture. The age limit for admission to the course is from 18 to 25 years. The number of trainees trained was 25 in 1971-72, 18 in 1972-73, 25 in 1973-74 and eight in 1974-75. Each trainee receives a stipend of Rs. 50 per month. Under Half-a-Million Job Programme 56 candidates were given training for a period of six months. Each of them was paid a stipend of Rs. 100 per month.

**Horticultural
Society**

The Horticultural Society at Bidar is a branch of the Karnataka Horticultural Society, Bangalore. This branch has 44 members. It is supplying fruit plants, vegetable seeds, implements, fertilizers, etc., every year to its members. A Grape Show was conducted in 1974. A branch of the society has been formed at Nirna in Humnabad taluk.

IRRIGATION

The district is in the medium-rainfall region, the average rainfall being 907.5 millimetres. There is much variability in rainfall. The actual area irrigated in the district in 1969-70 was only 3.5 per cent of the net area sown, while the proportion of the irrigated area in the State as a whole was 12 per cent of the cultivated area. The net area irrigated was 11,780 hectares of which the area irrigated by tanks was 986 hectares forming 8.4 per cent, the area irrigated by wells was 10,089 hectares forming 85.6 per cent and the area irrigated by other sources was 705 hectares, its percentage being 6.0. At present, canal irrigation is non-existent in the district. Within the district, there are variations in the percentages of irrigated area as between one taluk and another. The following table gives the taluk-wise position in regard to areas irrigated by different sources :

(in hectares)

<i>Taluk</i>	<i>Tanks</i>	<i>Wells</i>	<i>Other sources</i>	<i>Total</i>	<i>Net area sown</i>	<i>Percentage of net area irrigated to net area sown</i>
Aurad	32	202	26	260	85,899	0.32
Basavakalyan	392	2,068	142	2,602	64,812	4.01
Bhalki	5	739	..	744	68,540	1.09
Bidar	489	3,409	537	4,436	80,280	5.52
Humnabad	68	3,670	..	3,738	35,183	10.60
Total	986	10,088	706	11,780	3,34,714	3.5

There is a great need and considerable scope for development of irrigation in this district. There are the following rivers and rivulets : the Manjra, the Karanja, the Madhura-nala, the Chulki-nala, the Manik Nagar-nala, the Mullamari, the Hallikhed-nala and the Hudgi-nala. It is proposed to utilise them for irrigation and the work in regard to some of them is in progress.

The question of harnessing the waters of the Karanja river for irrigation purposes had been under consideration for a long time. The erstwhile Hyderabad Government had selected a site near Kamalpur village, about 24 kms. upstream of the present site near Byalhalli village of Bhalki taluk. After the re-organisation of the States, when Bidar district became a part of the new Mysore State, further investigations were continued and the present site near Byalhalli village of Bhalki taluk was selected on merits of having a shorter length of dam and sound foundation on massive trap stones in the river bed for spillway. The dam-site is 25 kms. from Bidar and 27 kms. from Humnabad.

Karanja Project

The project envisages the construction of an earthen dam with a central cement concrete ogee spillway. The canals on the left and the right banks are proposed to irrigate about 38,030 hectares in Bhalki and Bidar taluks. The cost of the project was originally estimated at 9.90 crores of rupees. Subsequently, the original proposals were further re-examined and have been suitably modified with the dual object of increasing the scope and utilisation of the waters of the project and of minimising the costs. The total catchment area of the basin at the dam-site is 1925.38 sq. kms. out of which an area of 552.03 sq. kms. lies in Andhra Pradesh and the rest in Karnataka. The total yield from the catchment at the dam-site is estimated at 19,690 M.Cft. with 75 per cent dependability. After making suitable reservation in the yield for utilisation by Andhra Pradesh and for a minor irrigation project on the up stream of the

dam-site in this State, a safe dependable yield of 13,819 M. Cft. would be available at the dam-site for utilisation under this project in this State. The gross storage capacity of the reservoir would be 217.66 M. cum

**Chulki-nala
Project**

The Chulki-*nala* stream is a tributary of the Karanja river. The catchment area of this stream at the place where the dam is proposed to be built is 243.46 sq. kms. The project envisages the construction of an earthen dam with a chute spillway on left flank across the Chulki-*nala* for irrigating an area of 4,050 hectares in Bhalki and Basavakalyan taluks of the district. The length of the left and the right bank canals would be 26.43 kms. and 25.22 kms, respectively. The estimated cost of the project is Rs. 275.50 lakhs.

**Upper
Mullamari
Project**

A project is proposed to be constructed across the Mullamari stream in Basavakalyan taluk for irrigating about 3,280.5 hectares of land of which 567 hectares would be in Bidar district and 2,713.5 hectares in Gulbarga district. The catchment area is 207.20 sq. kms. The gross storage capacity would be 749.49 M. Cft. An earthen dam is proposed to be constructed with zonal section and about 834.08 metres in length, and the maximum height above the lowest bed-level would be 75.55 ft. The length of the right bank canal would be 42 kms. and of the left bank 34 kms. This project is estimated to cost about Rs. 170 lakhs.

**Nagora
Project**

The Madhura-*nala* is a tributary of the Karanja river. A dam is proposed to be constructed across this nala to help the scarcity-affected areas of Bidar taluk. The catchment area of the proposed dam site is 60.52 sq. miles (156.75 Sq. Kms.). The dam would be of an earthen embankment 2,209 metres long with an ogee spillway on the right bank. The maximum height of the dam above the lowest bed-level would be 33.75 feet. The length of the left and the right bank canals will be 3.90 kms. and 20 kms. respectively. The extent of area of irrigation by this project will be about 1,215 hectares of land in Bidar taluk. The cost of the project would be about Rs. 120 lakhs.

**Maniksagar
Project**

Manik Nagar-*nala* is a tributary of the Karanja river. The catchment area of this *nala* upto its confluence with the Hallikhed-*nala* is 282.31 Sq. kms. For harnessing the waters of this *nala*, a medium irrigation project is proposed to be constructed somewhere between Humnabad and Hudgi. The project envisages the construction of an earthen dam 904 metres long with flanked ogee spillway. The maximum height of the dam above the lowest river-bed level will be 11.745 metres. There will be two canals, one on the right bank about 19 kms. long and the other on the left bank about 11 kms. long. The area proposed to be irrigated by this

project is about 1,822.5 hectares and the approximate cost of the project would be about Rs. 100 lakhs.

A high storage reservoir across the Manjra river has not been found feasible as it would involve submergence of land in Maharashtra State. Hence a lift irrigation scheme is proposed to be taken up for irrigating 44,550 hectares in Aurad taluk. This scheme is necessary as Nizam Sagar dam is getting silted. The proposed barrage is three kms. from Kushnoor village of Aurad taluk. The total estimated cost is about Rs. 32.60 crores.

**Manjra Lift
Irrigation
Scheme**

In 1975, the total number of tanks in the district was about 68. The number of tanks with an *atchkat* between 10 and 50 acres was 13, number of tanks with an *atchkat* between 50 and 100 acres was 11, number of tanks with an *atchkat* between 100 and 500 acres was 31 and there were 13 tanks with an *atchkat* of more than 500 acres. All these tanks are maintained by the Public Works Department. Only one tank with an *atchkat* of less than 10 acres was maintained by a Taluk Development Board. There were 33 other sources of irrigation like pick-ups, anicuts and feeder channels.

Tanks

Wells form the major source of irrigation in the district and the irrigated area under wells account for about 85.6 per cent of the total irrigated area. Their taluk-wise figures in respect of the area irrigated under each well as in 1970 were as follows :

**Well
irrigation**

Sl. No.	Taluk	No. of wells for which area is reported	No. of wells for which area is not reported	Total No. of wells	Area irrigated (in hectares)	Area irrigated per well (in hectares)
1	Aurad	569	318	887	779	1.37
2	Basavakalyan	2,209	88	2,297	3,877	1.76
3	Bidar	2,250	14	2,264	3,943	1.75
4	Bhalki	1,004	2	1,006	1,759	1.75
5	Humnabad	2,328	469	2,797	4,288	1.84
Total		8,360	891	9,251	14,646	1.75

The numbers of irrigation wells constructed according to sources of finance as recorded in 1968-69 were 6,831 by private sources, 845 by liberalised loan scheme, 703 by Land Development Banks, 279 by local development works and community development funds, 509 by *taccavi* loans, 12 by co-operative societies and 72 by other sources. The numbers of irrigation wells constructed in recent years were : 289 in 1960, 289 in 1961, 331 in 1962, 343 in 1963, 366 in 1964, 299 in 1965, 304 in 1966, 340 in 1967 and 289 in 1968.

The numbers of wells according to different water-lifting devices in 1969 were : manual labour 18, Kapile 3,750, Persian wheel 8,

2,528 oil-engine pumpsets and electric pumpsets 2,050. In recent years, the farmers are making use of the pumpsets run by electric power for irrigation purposes. In 1975, the taluk-wise numbers of electric pumpsets in use were: Aurad taluk 213, Basavakalyan taluk 1,825, Bhalki taluk 665, Bidar taluk 2,913 and Humnabad taluk 4,117. The State Development Bank issued loans for sinking wells in Bidar district to the tune of Rs. 6,54,050 in 1965-66, Rs. 7,92,435 in 1966-67, Rs. 22,29,040 in 1967-68 and Rs. 11,10,785 in 1968-69.

**Famines and
Floods**

The "Durga Devi" famine is the earliest recorded one that devastated the whole of Deccan. It began in 1336 A.D. and lasted for about 12 years. Later in 1422 and 1423 A.D. there were hardly any rains and there was enormous suffering. The famine of 1876-78 did not much affect the Bidar District but the drought of 1899-1900 caused lot of hardships. The rainfall in 1899 was only 15 inches, even prior to that year also there had been scarcity conditions. Six relief works were organised, the highest daily attendance being 29,262. The total cost of relief measures incurred amounted to nearly Rs. 3 lakhs. The population at the Census of 1901 showed a decrease of 15 per cent which was largely due to famine, and the loss of cattle was estimated at more than one-half. The famine of 1921-22 was more severe than that of 1899-1900. In 1941, there was another visitation of famine in the Hyderabad State which caused suffering to people of the Bidar District also.

The recent famines of 1972-73 and 1973-74 owing to failure of rains affected the whole district very severely. Crops could not be grown in about 30 lakh hectares amounting to nearly 2/3 of the total cultivable area. The *kharif* jowar and groundnut were badly affected. The blackgram and moong crops were completely destroyed. The livestock population also suffered much. Several relief works were undertaken by the Government on a large scale in order to render succour to the people effectively. Some philanthropic institutions and individuals also extended help to the needy. Work was provided by taking up formation of roads, betterment of rural communications, metal-breaking, construction of minor-irrigation tanks and lift-irrigation schemes, repairs to old tanks, construction of *gokattas*, etc. The total employment generated was about 70 lakh man-days. The expenditure under roads during 1972-73 and 1973-74 was Rs. 1,81,33,385 employing about 90,44,221 workers, while under irrigation works the expenditure was about Rs. 30 lakhs providing employment for about 8,22,285 workers. Drinking water was brought and supplied at a cost of Rs. 5,82,745.

About 276 drinking water wells were dug and about 756 wells were deepened. About 369 irrigation wells were deepened at a cost

of Rs. 2,26,990. Forty-one gruel centres were run at an expenditure of Rs. 1,20,812 and a subsidy of Rs. 4,94,242 was given. About 2,054 lorry-loads of fodder were brought from different districts and were sold at the fodder depots opened for the purpose. Labour sheds numbering 262 were constructed at a cost of Rs. 28,875. About 3,396 weavers were given relief to the tune of Rs. 56,990. *Taccavi* loans to the extent of Rs. 30 lakhs were distributed to 2,156 farmers. The Indian Red Cross Society supplied 322 bags of milk powder, 51 cartons of soap-powder, 16 tins of multipurpose food, 698 tins of biscuits and also some new cloths and used clothes. In addition to normal facilities, by a special arrangement, affected persons were given medical aid at an expenditure of about Rs. 2,51,163.

The seasonal floods in the rivers and streams of the district are not so severe to cause any havoc.

ANIMAL HUSBANDRY

The agricultural operations are depending, to a considerable extent, on animal energy. Bullocks still continue to be the main source of power for lifting water and for transportation of produce to the markets. The cattle population of the district constitutes more than 76 per cent of its total livestock population. The animal husbandry sector contributed nearly Rs. 130.24 lakhs or 9.04 per cent of the total income of the district in 1960-61. The livestock population of the district consists of cattle, buffaloes, sheep, goats, pigs, poultry, horses and ponies, mules, donkeys and camels. In 1956, the livestock population in the district was 4,51,292, out of which the poultry accounted for 56,560. In 1961 and 1966, the corresponding figures were 5,82,472 and 84,667, 5,64,568 and 84,104. In 1972, the livestock population was 5,09,257 out of which the poultry numbered 1,00,707 (for details *see* General Appendices). This may be said to be a sizeable animal population.

It is possible to improve livestock productivity, both in quantity and quality, since cattle and other domesticated animals thrive well in the favourable climate of the district, if fodder and proper grazing facilities are made available. Of the total livestock population, sheep and goats formed nearly 21.5 per cent in 1972 as compared to 21.9 per cent in 1966. The total livestock population had decreased to the extent of 9.8 per cent by 1972 due to scarcity conditions and famine in the district. In 1966, the district had 104 animals per square km., 85 for every 100 persons and 148 for every 100 hectares of cultivated area, whereas in 1972, it had 93 animals per square km. and 62 for every 100 persons.

While in 1966, the district accounted for 2.7 per cent of the total livestock population of the State, the position in 1972 was that it had about 2.3 per cent of the State's livestock. The district is reputed for its champion dual purpose "Deoni" breed of cattle. A farm is being established in the district for development of the Deoni breed (*see* elsewhere in the Chapter). Other local breeds of cattle in the district are non-descript.

**Veterinary
institutions**

In 1961, there were, one veterinary hospital at Bidar, three veterinary dispensaries one each at Bhalki, Aurad and Humnabad, and six rural veterinary dispensaries, one each at Mannaekhalli, Chitaguppa, Nirna, Basavakalyan, Hulsoor and Nittur, and a key-village scheme main centre at Bidar with six key-village units. By 1966, there were three more rural veterinary dispensaries, one each at Dubulgundi, Bimalkheda and Kushnoor and a poultry extension centre at Bidar. In 1975, there was one veterinary hospital at Bidar, nine veterinary dispensaries at Aurad and Kushnoor of Aurad taluk, Basavakalyan and Hulsoor of Basavakalyan taluk, Bhalki and Nittur of Bhalki taluk and Humnabad, Dubulgundi and Mannaekhalli of Humnabad taluk, seventeen rural veterinary dispensaries at Kamalnagar, Jambgi and Kherda (B) of Aurad taluk, Matala, Kohinoor, Mirkhal and Rajeshwar of Basavakalyan taluk, Dhanura, Saigaon, Dongapur and Dawargaon of Bhalki taluk, Ashtoor and Manhalli of Bidar taluk and Chitaguppa, Nirna, Bimalkheda and Ghatboral of Humnabad taluk. In addition, there were two key-village scheme main centres at Bidar and Humnabad. The key-village scheme main centre at Bidar has six key-village units, one each at Janawada, Malegaon, Bakchawadi, Chitta, Kamthana and Chimkod of Bidar taluk, while the key-village scheme main centre at Humnabad has five key-village units, one each at Hallikhed (B), Hallikhed (K), Ranjolkheni, Madargaon and Talmadgi. The poultry extension centre at Bidar has been upgraded into a regional poultry farm. There is a Deoni cattle breeding centre at the Karanja project.

**Deoni breed
of cattle**

The Deoni is a very prominent breed of cattle in Bidar district and parts of Gulbarga district of Karnataka State and Osmanabad district of Maharashtra State. About 60 per cent of this breed in Bidar district is found in Aurad and Bhalki taluks and the remaining 40 per cent in the taluks of Basavakalyan, Bidar and Humnabad. This breed is well-known not only as a draught animal but also for its high milk-yielding capacity. Further, its remarkable drought resisting quality is evidenced by its fight for survival during the recent famine. It is a valuable dual purpose breed of medium size, bullocks of which are good draught animals for heavy cultivation, and cows are good milk yielders producing on an average two to

three litres of milk per day. Outstanding cows have produced upto eight litres of milk per day.

The colour of the breed is mainly black and white in irregular patches and spots distributed all over the body. Red and white patches are also seen. The forehead is noticeably prominent and broad. Horns are strong and stout and take a characteristic outward and backward curve. It has a lean face and typical pendulous drooping ears which are moderately long and hang almost perpendicular, their inner surface being visible from the front. The other features are moderately developed with hump placed in front of withers, deep chest, well-arched ribs, straight back and powerful quarters, clean limbs and good feet. The long whip-like tail extends below the hock, reaching nearly to the ground with a black switch. The skin is fine, glossy and shining. It has a heavy dewlap, tough and pendulous sheath.

A Key-Village Scheme is in operation in Bidar district since 1958 for upgrading the non-descript breeds of cattle in the district. Deoni bulls are used to upgrade such stock. In addition, Holstein, Friesian and Red Dane breeds of cattle and Murrah buffaloes are used for the purpose. Other activities of the scheme are to lay out fodder demonstration plots for propagation of improved varieties of grasses. Chaff-cutters are also popularised to avoid wastage of fodder and to use it economically. Silo pits are made popular for proper preservation of fodder. Castration of scrub bulls, giving veterinary aid and appraising of the farmers about cross-breeding, feeding, management, etc., are also attended to. Thus the Key-Village Scheme aims at an all-round development of cattle in the area of its operation. The main centre of this scheme is located at Bidar with six key-village units at Bakchawadi, Chinkod, Chitta, Janawada, Kamthana and Malegaon located in a radius of 20 kms. from Bidar.

**Key Village
Scheme**

At the main centre at Bidar, bulls of Deoni and Holstein, Friesian and Red Dane of cattle and Murrah buffalo breeds are maintained. Semens of these bulls are collected and sent to all the key-village units and veterinary institutions of the district for artificial insemination on every alternate day. Semens are also supplied to the veterinary dispensary at Chincholli, and the rural veterinary dispensary at Sulepet in Gulbarga district and to the key-village scheme main centre at Gulbarga from where it is further supplied to the key village scheme main centre at Aland in Gulbarga district. During 1972-73, 2,831 artificial inseminations were done. About 21,000 root-slips of fodder and 210 kgs. of hybrid maize seeds were supplied for the development of fodder. Tower silos were constructed for which subsidy was given. In 1975, another key village scheme main centre was started at Hudgi of Humnabad taluk with five

key village units at Hallikhed (B), Hallikhed (K), Madargaon and Talmadgi of Humnabad taluk and Ranjolkheni of Bidar taluk.

**Bull
Distribution
Scheme**

Breeding bulls are being distributed to the farmers on 50 per cent subsidy basis under a Bull Distribution Scheme. During the year 1972-73, five breeding bulls were distributed two for Aurad taluk and one each for Basavakalyan, Bhalki and Humnabad taluks as per the advice of the District Development Council.

**Small
Farmers
Development
Agency**

The Small Farmers Development Agency, Bidar, is giving financial assistance to small farmers for establishing poultry units and for rearing sheep and milch animals. Under this scheme, 47 poultry units, 24 sheep units and 117 milch animals have been provided to small farmers. Under a poultry development programme, two units at Nowbad, four units at Zamistanpur of Bidar taluk, twelve units at Mannaekhalli, eight units at Boral and ten units at Mangalgi of Humnabad taluk and ten units at Khatak Chincholli and one at Dhanura of Bhalki were started. Under a Sheep Development Programme, sheep of Nellore, Deccani and Deccani-Marino cross breeds were distributed. Every selected sheep-breeder was given one unit each consisting of 18 ewes and two rams. Under this scheme, 24 units have been distributed—three units in Kamthana of Bidar taluk, six units each in Balur and Lakhangaon and three units each in Chalkapur, Mehkar and Saigaon of Bhalki taluk. Under a dairy development programme, 117 milch animals were distributed as follows :

<i>Sl. No.</i>	<i>Name of the village</i>	<i>Taluk</i>	<i>No. of milch animals supplied</i>
1	Balad (BZ)	Aurad	20
2	Balad (KH)	do	2
3	Kushnoor Thana	do	7
4	Basavakalyan	Basavakalyan	2
5	Belura	do	7
6	Hulsoor	do	2
7	Kherda (B)	do	3
8	Matala	do	5
9	Bhangoor	Bidar	7
10	Markunda	do	8
11	Hudgi	Humnabad	32
12	Madargaon	do	22

**Milk
Co-operative
Society**

There are two milk producers co-operatives functioning in the district, one at Hudgi of Humnabad taluk and the other at Basavakalyan. The Karibasaveswara Milk Producers Co-operative Society Ltd., Hudgi was started in 1970. The objectives of this society are to improve milk production and to spread the awareness of the

benefit to the rural folk in the jurisdiction of the society, to improve the local cattle in order to get more milk, to advance loans to members for purchasing milch animals and to collect milk and sell it. The area of operation is about 48 kms. in the surrounding villages. The milk is collected from service co-operative societies at Madargaon, Ranjolkheni, Bhangoor and Rajgera. The daily collection of milk ranges from four to five thousand litres. The milk is tested after collection and chilled in the two chilling plants. The milk is supplied to the Government Dairy at Gulbarga and to Bangalore. The society has also a feed-mixing plant supplied by the Department of Animal Husbandry and Veterinary Services. The Department is also making available the technical know-how about feed-mix according to standards. Shri Basaweshwar Dairy Farm Co-operative Society Ltd., at Basavakalyan started functioning in 1971. The area of its operation is the taluk of Basavakalyan. Milk to the extent of about 2,000 to 3,000 litres is collected per day and supplied to the Government Dairy at Gulbarga. The Department of Animal Husbandry and Veterinary Services has supplied a chilling plant free of cost to this institution. The society borrowed and advanced Rs. 17,129 to 18 members who are small farmers to help them to purchase milch cattle (*see* also Chapter VI).

Cattle are bought and sold mainly at annual cattle fairs and weekly shandis. Two important cattle fairs are held in the district, one being the Amareshvar cattle fair in Aurad taluk and the other being the Mahadeva temple *Jatra* at Kushnoor of Aurad taluk. The Amareshvar cattle fair is held during Mahashivarathri (February—March) where about 3,000 herd of cattle are brought there mainly from the taluks of Aurad, Bhalki, Basavakalyan and Bidar. The Mahadeva temple *Jatra* is held during March-April where about 2,000 herd of cattle are brought chiefly from Aurad and Bhalki taluks. On the occasion of the Basava Jayanti festival, a cattle fair is also held at Basavakalyan. At the weekly shandis held at Bidar, Dubulgundi, Jumbgi (BZ) and Khanapur, the cattle are brought for sale from the round-about taluks. In 1975, the ruling price of a bull was about Rs. 3,000, that of a pair of bullocks was Rs. 3,000 to Rs. 4,000 and cows at Rs. 1,000 each.

Cattle fairs

The area of hillocks in Aurad and Humnabad taluks and the plateau of Bidar taluk are well-suited for sheep-rearing. The local breed of sheep is non-descript though there is a large population of about 57,242 sheep according to the Livestock Census of 1972. There was, however, a decline in the population of sheep by 1972 as against 58,538 in 1966 and 78,751 in 1961 owing to scarcity and famine conditions during some years. The taluk-wise sheep population in 1972 was 9,888 in Aurad, 12,476 in Basavakalyan, 9,539

Sheep development

in Bhalki, 10,866 in Bidar and 12,979 in Humnabad taluks. The local breed has black-coloured wool of coarse variety used for blanket-making. Good breeds of sheep are supplied in order to improve the local breed through the Small Farmers Development Agency, Bidar. The Nellore and Deccani breeds, stud rams of the Marino cross and the Deccani cross have been supplied on loan basis to some small farmers. During 1973-74, a Sheep Development Scheme was sanctioned to this district in order to assist weaker section of the population. Under this scheme, five ewes and one ram were supplied free of charge to each farmer. About 20 farmers were benefited by this scheme in Aurad taluk, at a total cost of Rs. 10,769. There is a Wool Industrial Co-operative Society Ltd., at Bidar which was registered in 1955. The area of its operation is Bidar taluk. The main object of this society is to help revitalise the wool industry and to provide sufficient work to wool-weavers and facilities and latest equipments to improve the quality of wool (*see* also Chapter VI).

**Poultry
development**

The district has a considerable poultry population. The number was 1,00,707 in 1972, while it was 84,667 in 1961 and 84,104 in 1966. In 1972, Basavakalyan had the largest poultry population of 32,897 and the other taluks in descending order in this respect were Humnabad with 22,357, Bidar with 18,352, Aurad with 14,193 and Bhalki with 12,908. In order to develop poultry in the district, there is a Regional Poultry Farm at Bidar. It was started as a Poultry Extension Centre during 1961-62 with only 100 layers on free range system. The Centre was upgraded as the Regional Poultry Farm during the year 1971-72 for catering to the needs of the Applied Nutrition Programme which was introduced in all the blocks of the district. The objectives of the Farm are: (i) to rear chicks and supply them to the Applied Nutrition Programme Blocks and Small Farmers Development Agency, Bidar; (ii) to help the poultry farmers in the regular control of diseases, debeaking and culling of the poultry, (iii) to supply eggs to the consumers at reasonable rates by pooling the production centrally, (iv) to impart training to the farmers in construction of poultry sheds, poultry management and disease-control and other allied activities of the poultry industry, (v) to educate the farmers to establish poultry farms as a source of additional income to improve their economic condition, (vi) to educate the farmers and the public on the nutritive value of eggs, (vii) to educate the farmers and the public on the value of poultry manure.

In the early days of the Farm, white Leghorn breed was maintained for breeding purpose and hatching programme was also taken up. In recent years, birds of Mychix breed is maintained. This farm is getting a day-old chicks either from the Regional Poultry

Farm, Gulbarga or from the Central Poultry Farm, Bangalore, and the chicks are reared upto 10-12 weeks or above and supplied to the Applied Nutrition Programme poultry units, private poultry-breeders and Small Farmers Development Agency poultry units. It is also supplying poultry birds, pullets, cockerels and hatching eggs to the Applied Nutrition Programme poultry units, private poultry-breeders. In addition, the farm has been extending other facilities like custom-hatching, technical guidance and training to the poultry farmers. The following statement gives the figures of production as also the income and expenditure of the farm from 1961-62 to 1973-74 :

Sl. No.	Particulars	1965-66	1970-71	1972-73	1973-74
1	Average No. of ranges	101	48	144	251
2	Chicks reared	882	4,217	2,323	1,947
3	Birds sold for :				
	(a) Breeding	261	1,134	1,273	1,091
	(b) Table	358	2,070	590	392
4	Eggs produced	9,380	4,116	10,294	11,846
5	Eggs sold for :				
	(a) hatching	1,847	..	..	..
	(b) table	5,528	4,292	10,294	11,846
6	Income in Rs.	2,352	19,262	25,731	14,939

There are seven private poultry farms in Bidar town. Many small farmers in the district are keeping small numbers of birds as back-yard poultry. The excess eggs produced are exported to Hyderabad by wholesale merchants. Under a scheme for Assistance to Weaker Sections of the Community, in 1970-71, ten families were given assistance to establish ten poultry units. Out of this, five poultry units were set up at Bidar taluk and five in Aurad taluk. During 1971-72, ten more such units were started in Aurad taluk.

The local breed of pigs in the district is non-descript. With a view to improving them, the Department of Animal Husbandry and Veterinary Services distributed in 1971-72 ten exotic and improved boars and eight sows of Landrace breed to selected breeders of Janawada, Mannaekhalli, Nowbad and Chitta villages of the district, under a scheme for assistance to weaker sections of the community.

An Applied Nutrition Programme was started during 1967-68 in Bidar Community Development Block. During 1968-69, Basavakalyan, Humnabad and Santhpur (Aurad) Blocks were covered by this scheme and in 1971-72 the Bhalki Block was included. Under this programme, poultry units have been established under

Piggery
development

Applied
Nutrition
Programme

State and Central assistance. Under the State assistance, seven poultry units were set up in Bidar Block, seven at Santhpur (Aurad), two at Basavakalyan and three at Humnabad. Under a special Central assistance, 18 poultry units were established in Bidar Block, 12 in Santhpur (Aurad), eight in Humnabad, four in Basavakalyan and one in Bhalki blocks. One-third of the total number of eggs produced in the poultry units under State assistance were supplied to the nursing mothers and school-going children twice a week under a feeding programme.

Animal diseases

Non-contagious diseases are not of serious nature and they are easily treated by the qualified personnel of the Department in the veterinary institutions. Among the contagious diseases which are of a serious nature and are difficult to control, Haemorrhagic Septicaemia, Black Quarter and Entero toxaemia are sometimes prevalent in the district. During the year 1972-73, 1,39,145 prophylactic vaccinations were done against the Rinderpest disease. In the same year, 193 outbreaks of Haemorrhagic Septicaemia were reported, which were treated and 94,033 animals were protected. During the same year there were reports of 199 cases of Black Quarter which were also attended to and 56,377 animals were protected. Two outbreaks of Entero toxaemia of sheep occurred during that year and 1,867 sheep were inoculated. The numbers of animals treated, castrated, inoculated, etc., in the various veterinary institutions of the district during the year 1972-73 were as given below :—

<i>Sl. No.</i>	<i>Particulars</i>	<i>No. benefited</i>
1	Animals treated	80,652
2	Animals castrated	2,773
3	Animals inoculated	1,56,983
4	Villages visited	1,327
5	Artificial inseminations done	2,831
6	Outbreaks of contagious diseases attended.	314
7	Surgical operations done	432

FISHERIES

The district of Bidar being inland one, fishing is confined to the rivers, tanks and wells. The fishery industry has not made headway in this area. From the fishery point of view there are 48 major tanks with a water-spread of about 1,110 hectares, 10 minor tanks with a water-spread of about 74 hectares and two rivers with a water course of about 18.5 kms. each and 260 wells as in 1975. The

taluk-wise distribution of rivers, tanks and wells suitable for fishing are given below :—

(Water-spread in kms.)

Sl. No.	Particulars	Basavakalyan		Bhaliki		Bidar		Aurad		Humnabad	
		No.	Water spread area	No.	Water spread area	No.	Water spread area	No.	Water spread area	No.	Water spread area
1	Major tanks	9	464.1	6	101.4	14	284.3	11	166.5	8	147.1
2	Minor tanks	..	..	..	..	8	62.6	2	12.1	..	..
3	Rivers	..	..	2	136	2	48kms	..	..	..	..
4	Wells	60	..	50	..	50	..	50	..	50	..

The Department of Fisheries took up fish-culturing in 1959 in selected sheets of water by stocking Gangetic carps (Catla, Rahu and Mrigal). The main activities of this department in the district are as follows: (1) Survey of inland water area, (2) stocking of the perennial water sheets with quick-growing varieties of fishes, (3) organising fishermen's co-operative societies and rendering assistance by way of fishery requisites, loans, managerial cost to societies, etc., (4) improving of marketing facilities, (5) fisheries extension work in community development blocks and (6) demonstration of exploitation of fisheries. The Department opened a separate office at Bidar in 1974 upto which time the district was under the jurisdiction of Gulbarga office.

The fish fauna of the district are as follows :—

Fish fauna

Local names	Scientific names
Chappali meenu (Chambari)	<i>Notopterus notopterus</i>
Tamra meenu	<i>Osteobrama cotia</i>
Bele meenu	<i>Wallago attu</i>
Magur meenu	<i>Clarias batrachus</i>
Phool murrel	<i>Ophiocephalus marulius</i>
Murrel	<i>Ophiocephalus striatus</i>
Murrel	<i>Ophiocephalus punctatus</i>
Shengal	<i>Mustus seenghala</i>
Hao meenu	<i>Mastocembelus armatus</i>
Bomba meenu (Malage meenu)	<i>Anguilla bengalensis</i>
Gogali Meenu	<i>Ompak bimaculatus</i>
Kattarna meenu	<i>Puntius curmuka</i>
Rahu meenu	<i>Labeo rohita</i>
Catla meenu	<i>Catla catla</i>
Mirgal meenu	<i>Cirrhinus mrigala</i>

The fishing community in the district consists of Bhai and Koli who belong to the fisherman community by birth. Some of the Kshatriyas, Muslims and others also do fishing. The number of persons partly depending upon fishing is estimated to be about 500. The methods of fishing are cast net, gill net, *pandya* and hand hooks. Gill net and hand hooks are operated throughout the year and the cast net and *pandya* are used only in summer. The Fisheries Department auctions tanks and channels for fishing. The following table shows the revenue realised by the Department during the years 1973-74 and 1974-75 :

Sl.No.	Particulars	1973-74	1974-75
1	(a) Quantity of fish caught by Fisheries Department.	62 kg.	123 kg.
	(b) Amount realised (Rs.)	156	276
2	(a) No. of tanks auctioned	3	3
	(b) Amount realised (Rs.)	250	430
3	(a) Mileage of channels auctioned	96 kms.	96 kms.
	(b) Amount realised (Rs.)	773	1,390
4	Other sources of revenue		
	(a) Sale of fish seed (Nos)	1,500	nil
	(b) Amount realised (Rs.)	150	..
5	Total revenue (Rs.)	1,329	2,025

There is one Fisherman's Co-operative Society known as Machendarkhar Fishermen's Co-operative Society at Janawada with only 12 members having a share capital of Rs. 1,200, and a loan of Rs. 9,000 was sanctioned by the Department during 1970-71 and the Manjra river has been leased out to the society for fishing. The Society is run on no-profit and no-loss basis.

**Applied
Nutrition
Programme**

An Applied Nutrition Programme is in operation in the district in all the Community Development Blocks. It was taken up in 1967-68 and all the Blocks were covered by 1970-71. In each of the Blocks, 60 villagers were trained in fish culture and an extent of 60.75 hectares of water-spread area has been brought under fish culture by stocking fish seeds.