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DEVELOPMENT OF IRRIGATION FACILITIES IN GULBARGA DIVISION: A STATISTICAL ANALYSIS

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Introduction:

It is emphasized the Agriculture is a predominant occupation in India since ancient times. Of course, due to urbanization, industrialization and globalization have increased employment in industrial and commercial organizations. But for the majority of the rural people, still the agriculture is the main occupation. Agriculture needs several inputs - Water is considered an essential input. Initially, small tanks and canals were used for irrigation. New technologies in civil engineering brought in giant irrigation projects. Large dams impounded waters in rivers thereby creating large reservoirs. Canals from these dams are taken through long distances to fields in command areas.

Irrigation:

It is not always possible to use river water effectively. When water is needed - during non-monsoon season, it may not be available in a river in requisite quantities. When river water is not required for agriculture - during rainy seasons-, rivers may overflow causing floods and most of the flood water will flow into the seas. In order to even out the demand-supply function, minor irrigation through tanks was conceived. Many tanks and reservoirs were built to harvest rainwater. It was also possible to have a sequence of tanks connected by canals and waters going to rivers were diverted to these tanks. Tank based irrigation brought in stability in agricultural production. Tank water was used for other purposes as well - bathing, washing etc. Even now, tanks play a significant role in irrigation. Technology brought in construction of large dams impounding large waters in a reservoir. Krishnarajasagar on Cauvery is an early example.

Since monsoon is not uniform and the tanks and dams tap only rain water, it is possible not to have water for irrigation during drought years. Hence the other component of the water cycle. Water percolates into the soil and forms an extensive grid of underground streams. This is known as ground water. This is a natural way of storage and hedge against drought. Ground water can be tapped by means of wells and bores. We may draw water manually or by means of a mechanized pump. The present paper presented the statistical estimates of the irrigation facilities that are available in Hyderabad-Karnataka region. The head quarters of this is region is Gulbarga division. The Hyderabad-Karnataka region consists of six districts, namely, Bidar, Bellary, Gulbarga, Koppal, Raichur and Yadgir. Basically the region is consists of dry agricultural lands. The characteristics of the region are discussed as under:

Gulbarga:

The district is situated in the northern part of Karnataka state. The district has total area of 16174 Sq. Kms. This constitutes 5.93% of the area of the state. The region is characterized by black cotton soil, expanses of flat treeless surface, a range of hills covering a surface of about 60 miles and same lower belts following the main rivers. The district is a draught prone area. The average rainfall is 777 mm. and the normal rainy days are 46 in a year. The climate is very hot during the summer which effects adversely on the work capacity of the people. The temperature ranges between 42° centigrade in summer to 26° in winter. The period from December to May is the driest part of the year. Gulbarga district has dry land. Major source of irrigation in the district are through wells and borewells. The district lacks adequate infrastructure which is one of the basic cause of long economic stagnation in the district.

Bidar District:

Bidar district belongs to Gulbarga division which is one of the four administrative divisions into which the state is organized. Bidar district comes under the Hyderabad-Karnataka Region. The district has five Taluks with their respective head quarters located at Aurad, Basavakalyan, Bhalki, Bidar and Humnabad. Almost 700 kilometers from Bangalore, Bidar lies at the farthest north-eastern corner of Karnataka. Bidar covers an expanse of 5448 square kilometers of land, with the districts of Nizamabad and Medak in Andhra Pradesh on the East and the districts of Nanded and Osmanabad in Maharashtra on the west.The climate

of this district is characterized by general dryness throughout the year, except during the southwest monsoon. The summer season is from the middle of February to the first week of June. This is followed by southwest monsoon season, which continues till the end of September. The months of October and November constitute the post-monsoon or retreating monsoon season. The average annual rainfall at Bidar is 847.2mm. About 81% of annual rainfall is received during the period from June to September. Maximum rainfall is recorded in the month of September. The variation in rainfall from year to year is large and the district is drought-prone. The average numbers of rainy days in the district are 52. The relative humidity is high during the southwest monsoon, being between 65% to 75%. Summer is the driest part of the year, when the relative humidity in the afternoon is between 30% and 40%. The entire district forms a part of the Deccan Plateau and is made up mostly of solidified lava. The northern part of the district is characterized by the expanses of level and treeless surface punctuated here and there by flat and undulating hillocks, black soils and basaltic rocks.

Bellary District:

Bellary district is situated on the eastern side of Karnataka state extending from southwest to northeast directions. This district is bounded by Raichur district on the north, Koppal district on the west, Chitradurga and Davanagere districts on the south, and Anantapur and Kurnool districts of Andhra Pradesh on the east. Bellary district takes its name from the word Balari which refers to goddess Durugamma as this goddess had manifested herself in this town. As per 2003 census the population of the district stood at 22,45,000. The geographical area is 8447 sq. km and there are seven taluks, namely, Bellary, Hadagari, Hagari Bommana Halli, Sandur, Kudligi, Hospet and Siruguppa. It has 2 revenue sub divisions, Bellary subdivision and Hospet subdivision, which in all have seven taluks. There are 27 hoblies, two CMC's, one Municipal Corporation, seven town panchayats, 542 revenue villages, and 436 thandas/habitations. The rural population constitutes 70%.The density of population is 196 per sq. km., which is much lower than the state average of 235 per sq.km.The normal rainfall is 639 mm. The major occupation of this district is agriculture and 75% total labour force is dependent on agriculture for its livelihood.

Raichur District:

The geographical area of the district, according to the Central statistical organization of the Government of India is 14,013 Sq Kilometers which works out to 5410 sq. miles. But the reporting area of the district for land utilization purposes, as worked out by the Commissioner for Survey, Settlement and Land Records in Mysore, Bangalore is 14007.9 Sq.Kilometers or 5,435.5 sq.miles. This slight difference is due to the different methods employed by them in measuring the area. The population of the district according the 1961 census, was 11, 00,895. In terms of area, the district occupies the third place among the districts of the State, while in respect of population it occupies the tenth place. It accounts for 7.36 percent of the total area and 4.6 percent of the total population of the State in 1961; the density of population then worked out to 202.51 per square mile or 77 per square kilometer and this was much below the State average, which was 319 per square mile or 123 per square kilometer, and the lowest next only to North Kanara district.

Koppal District:

Koppal was created Easter wile Raichur district and Came in to existence on 1997 Koppal district is naturally a maiden area and consists of Koppal, Gangavathi, Yelbuga and Kustagi talukas these areas are rocky areas with soil types like red sandy, block soils etc., The district comes under northern dry zone the climatological factors are very much suitable for growing the horticulture crops as we aware that agriculture is the main occupation of the district, but now days horticulture plays prominent role in the local occupation, at present district is having an area of about 14329 ha (2004) with production of 2.3 Lakhs tones, the important crops of the district are fruit crops, vegetable crops, plantation crops, spices and flower crops, the major fruit crops includes pomegranates in Kustagi, grapes in yelburga mango, sapota, citrus Ber etc the other fruit crops includes guava, papaya fig annonamuskmelon etc. At the movementm, pomegranate leades among the fruit crops ie., almost 30-35% of the district area, grapes 15-20% mango 20-30% other 10-15% the important verities of the pomegranate are Arkta Kesar and Ruby, Kustagi taluka of the Koppal district is considered as the important Pomegranate export pocket, the mango is also another fruit crop grown in the districdt, varities like Baneshan, Mallika, Hyb-13 and Khadar were being in introduced in the district, fig is the another important fruit crop where farmer are very much interested in growing as a commercial crop.

The farmer of the district are very much interested in adopting hi-tech horticulture specially green house cultivation of vegetables, growing flowers under controlled conditions, keeping export point in mind and adopting hi-tech water management facilities specially Drip Irrigation, Sprinkler Irrigation and other Another important feature of the district it is having an area of 435 ha under oil palm crop distributed at Kavalur, Hirebidnal, Hiresindogi and Irkalgad areas.

Yadgir District:

Yadgir district is one of the 30 districts of Karnataka state in southern India.. This district was carved out from the erstwhile Gulbarga district, as the 30th district of Karnataka on 10 April, 2010. Yadgir town is the administrative headquarters of the district. The district occupies an area of 5,160.88 km. Presently, the district comprises three taluks: Shahpur, Surpur and Yadgir. The district has 16 hoblies, 117 Gram Panchayets, 519 villages (inhabited & uninhabited) and four municipalities. The district has a population of 956,180 (482,347 male and 473,933 female) as per the 2001 census. It has 1,024 primary schools, 149 high schools, 40 Pre-University colleges, six degree colleges, and 1 polytechnic institute. As Yadgir is a new district, separate statistics on different aspects are not available and Gulbarga district statistics is included Yadgir statistics, as it was a taluka under Gulbarga district.It is noted that all the six districts located in Hyderabad-Karnataka region are dry lands. Hence, irrigation is essentially needed to grow crops. Hence, preference is given by government by giving financial assistance under various schemes and programmes to the farmers for irrigation facilities.

State of Agriculture in Hyderabad- Karnataka : Agricultural Land holdings reveal the nature of farms owned by all the farmers for growing of crops. The agricultural land holdings owned by farmers in different districts is shown in the followingh table.

Table No. 1 Agricultural Land Holdings and Area 2005-06

SI. No.	Districts	Agricultural Land Holdings and Area 2005-06							
		Semi Medium (2-4 Ha)		Medium 4- 10(Ha)		Large (More than 10 Ha)		Total	
		Number	Area	Number	Area	Number	Area	Number	Area
1	2	162	163	164	165	166	167	168	169
1	Gulbarga	161974	443413	71044	415217	10722	147911	575793	1382084
2	Raichur	76966	211712	3689	215935	5277	723%	304330	697132
3	Koppal	54988	150399	22283	129570	2803	38952	208478	455504
4	Bidar	57165	153022	19035	10%%	2585	34333	238409	466717
5	Bellary	55544	151654	29828	173476	4347	64753	261950	548500
Total		406637	1110200	17959	1043894	25734	358345	1588960	3549937
Division Average		81327	222040	3592	208779	5147	71669	317792	709987
State Average		44076	119591	19108	110559	2740	40795	261409	427059

of the above stated agricultural land owned by farmers, a few hectares of lands are non- agricultural and not cultivated. Hence, thr net agricultural land utilization in the districts is presented in the following table.

Table No. 2 Agriculture Land utilization 2007 -08

SI. No.	Land utilization		Land Not Available for cultivation			Other uncultivated land				Fallow Land		
	Geographical Area	Forest	Non-Agricultural	Barren	Total	Cultivable	Permanent Pasture	Trees and Braves	Total	Current	Others	Total
1	143	144	145	146	147	!48	149	150	151	152	153	154
1	1610208	69089	67952	63155	131107	11802	37610	1845	51257	177990	22995	200985
2	835843	18167	20563	20084	40647	10712	19816	13680	44208	116438	40832	157270
3 -	552495	29451	38870 -	16627	55497	2568	14675	210	17453	68440	0	68440
4	541765	27707	22006	19127 .	41133	19382	13964	10861	44207	56972	41519	98491
5	8131%	97017	68623	53477	122100	24839	5472	3606	33917	682%	27805	%101
	4353507	241431	218014	172470	390484	69303	91537	30202	191042	488136	133151	621287
	870701	48286	43603	34494	78097	13861	18307	6040	38208	97627	26630	124257
	656891	105925	47216	27165	74381	14312	32057	9999	56367	43531	17416	60948

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