

## CHAPTER 1

### GENERAL

**B**ijapur district, located in the central part of the northern region of Karnataka State, has a total area of 17,069 sq km. This forms a dry area in the Deccan Plateau and lies about 200 km away from the coast. This district has the largest area among all the districts in Karnataka and extends between the latitudinal parallels of 15° 20' N to 17° 28' N and longitudinal meridians of 74° 59' E to 76° 28' E. The district is bordered by Sholapur and Sangli districts of Maharashtra on the north and north-west respectively and the remaining part of the district is surrounded by other districts of Karnataka State. To its east lies Gulbarga and to the southeast and south lie Raichur district and is bounded by Belgaum district on the west. The district has a dry climate and forms part of the plain (*maidan*) land. The rivers Bhima, Krishna, Doni, Ghataprabha and Malaprabha drain this land which is popularly referred to as *the land of five rivers* and hence Bijapur district is called the *Punjab of Karnataka*. The dry and pleasant climate supports the growth of white jowar (sorghum) and wheat. The phrase *If the Doni swells, the streets of the river basin are full of grain* reflects the importance of the river Doni in this area. Though the mean annual rainfall is 500 mm, the district is subjected to drought conditions more often due to uneven and untimely rainfall.

#### Origin of the name

Bijapur has a very ancient history. It is said that the district and the areas in and around were parts of *Dandakaranya* of *Ramayana*. The ancient historical records of this part are said to be found in the references of Ptolemy, the great geographer of Egypt, who lived in the 2<sup>nd</sup> century A.D. The inscription of Jayasimha II (1029 A.D) discovered in Devur of Sindgi taluk (S.I.I. Vol.20, No.23) mentions Bijapur as *Vijayaapura*. Subsequently, in other inscriptions (S.I.I. Vol. 18, year 1084, same No. 165; same volume, year 1151 No. 156 and same volume, year 1153 No. 158) one finds the mention of the capital *Vijayaapura*. According to one version, one of the

*Mandalikas* of Badami Chalukyas, built the city of *Vijapur*, while the other version has it that *Bijjanahalli* became Bijapur when it was declared the capital by one of the *Mandalikas*. The same town might have also been called *Vidyapur*. The locals believe that the seven villages namely *Gajakanahalli*, *Bajakanahalli*, *Chandanakeri*, *Kyadagi*, *Katharakeri*, *Kurubanahatti* and *Kujanakutti* were agglomerated which then became *Bijjanahalli*. Through cultural modification, *Bijjanahalli* might have become *Vidyapura* and later *Vijayapura* and then *Vijapur* or Bijapur in the local language. Since the names *Vijayapura* and *Bijjanahalli* find separate mentions in the inscription, it is also possible that these two villages might have, in fact, been separate towns. As the name Bijapur is quite ancient, in the light of the inscriptions referred to above, the argument that *Vijayapur* and *Bijjanahalli* refer to the same place loses ground.

In the regime of Adil Shahi rulers, King Ibrahim II changed the name of Bijapur to *Badyapur* and subsequently Sultan Mohammed changed the name to *Mohammedpur*. The Persian inscription on the doors of Ibrahim Raja refers to *Vijayapur* as *Vidyapur* (Centre of studies). In an ancient map which is in Persian, Bijapur is referred as *Dur ul Jafer* which means the seat of Victory. Presently the name Bijapur is more in vogue, perhaps due to the influence of the British, when the name *Vijapur* became Bijapur and gained currency since then. When the Bahamani kingdom was established, *Vijapur* was included in the Gulbarga Province. It became the capital city when the Adil Shahi kingdom was established.

### **Area and Population**

The geographical area of Bijapur district as given by the Surveyor General of India is 17,069 sq km. According to village papers, however, the district has an area of 17,135 sq km making it the biggest among the districts of Karnataka. It extends 175 km north-south and 145 km east-west. The Census of 1991 indicates that Bijapur taluk is the biggest of all taluks in the district in terms of area (2,659 sq km) and Bilgi taluk (782 sq km) ranks among smallest of all the taluks. The total population of the district is 29,27,990 and Bijapur taluk represents 16.16 per cent, and Bilgi taluk forms 4.06 per cent of the total population of the district forming the taluks with very high and low population respectively. Of the total population of the district, 22,39,244 people live in rural areas. The general information of the district taluk-wise is given in Tables 1.1 and 1.2.

Table 1.1 : Taluk-wise general information of Bijapur District

Taluk	North longitude Degree & Minutes		East longitude Degree & Minutes		Height in meters above sea level		Area in Sq Km	% of district area	Total population	Male	Female
	From	To	From	To	Min.	Max.					
Badami	78 18	75 53	15 48	16 08	450	800	1,397.19	8.19	2,56,620	1,28,589	1,28,031
Bagalkot	75 26	76 07	16 03	16 27	450	800	935.29	5.48	2,09,038	1,06,200	1,02,838
Basavana Bagevadi	75 40	76 17	16 18	16 47	450	800	1,973.96	11.56	2,57,117	1,30,664	1,26,453
Bijapur	75 20	76 07	16 27	17 05	450	800	2,659.24	15.58	4,73,047	2,45,090	2,27,957
Bilgi	75 23	75 50	16 13	16 31	450	800	781.76	4.58	1,18,978	59,491	59,507
Hungund	75 50	76 22	15 52	16 14	450	800	1,354.22	7.93	2,45,318	1,22,691	1,22,627
Indi	75 36	76 14	16 58	17 28	450	800	2,224.87	13.03	3,03,133	1,56,794	1,46,339
Jamkhandi	75 00	75 34	16 24	16 53	450	800	1,169.09	6.85	3,39,354	1,72,800	1,86,554
Muddebihal	76 04	76 27	16 09	16 41	450	800	1,501.76	8.80	2,19,236	1,10,334	1,08,902
Mudhol	75 02	75 30	16 09	16 26	450	800	950.34	5.57	1,94,553	98,573	95,980
Sindgi	76 00	76 29	16 29	17 10	300	450	2,176.40	12.75	2,80,915	1,47,375	1,36,540
Total district	74 59	76 28	15 20	17 28	300	800	17,069.00	100.0	29,27,990	14,91,019	14,36,971

Source : Taluk-wise Basic Statistics, Chief Engineer, Department of Minor Irrigation, Bangalore.

Table 1.2 : Taluk-wise General Particulars of Bijapur District

Taluk	Village as per 1991 census	In Unin- habited	Hoblies	Town/ City	Munici- palities	Irrigation pumpsets with electric pumps	Borewells for drinking water purpose	Total ration card holders	Rain gauge centres	Average rainfall in mm from 1901 to 1970	Average days of rainfall
Badami	146	0	4	3	3	6,891	633	54,003	4	578.4	37
Bagalkot	89	1	3	1	1	4,859	540	44,587	6	574.3	42
Basavana Bagevadi	119	0	3	2	2	9,022	784	58,312	7	584.3	49
Bijapur	107	1	5	1	1	12,166	1,146	94,120	12	565.4	28
Bilgi	65	0	2	0	0	6,369	353	28,443	3	529.9	44
Hungund	160	0	4	2	2	3,363	622	54,299	8	593.5	46
Indi	122	1	3	1	1	16,634	1,131	69,595	8	594.9	38
Jamkhandi	71	0	3	3	5	13,460	608	73,678	5	551.4	36
Muddebihal	149	1	4	2	2	4,551	653	52,124	4	576.5	42
Mudhol	77	1	2	2	2	12,340	407	40,713	3	542.3	30
Sindgi	142	1	3	1	1	9,455	807	61,507	8	568.9	43
Total dist.	1,247	6	36	18	20	99,060	7,684	6,31,381	68	571.9	35

Source : District at a Glance, Bijapur district, Economics and Statistics Department, Bijapur.

Out of the total population of the district, 22,39,244 people live in rural areas. The taluk-wise population of the rural and urban areas of the district is given in Table 1.3 and 1.4

**Table 1.3 : Rural population (1991 Census)**

Taluk	Total population	Male	% of total population	Female	% of total population
Badami	1,87,544	93,950	50.09	93,594	49.91
Bagalakot	1,32,135	66,042	49.98	66,093	50.02
Basavana Bagevadi	2,34,095	1,18,885	50.78	1,15,210	49.22
Bijapur	2,79,916	1,44,616	51.66	1,35,300	48.34
Bilgi	1,18,998	59,491	49.99	59,507	50.01
Hungund	1,89,826	94,647	49.86	95,179	50.04
Indi	2,78,012	1,43,693	51.69	1,34,319	48.31
Jamkhandi	2,13,268	1,08,922	51.07	1,04,346	48.93
Muddebihal	1,77,260	88,825	50.11	88,435	49.89
Mudhol	1,63,458	82,777	50.64	80,681	49.36
Sindgi	2,64,732	1,35,712	51.26	1,29,020	48.74
District total	22,39,244	11,37,560	50.80	11,01,684	49.20

The average population of all the taluks of the district is 2,66,181. Of the total population of the district, 76.48 % live in rural areas and 23.52% in urban areas. In Bilgi taluk as per the urban classification of 1991 no towns have been recorded. In Sindgi and Indi taluks, 90% of the people live in rural areas. There are more number of uninhabited villages in the district, and for administrative convenience, villages are merged with neighbouring ones. In 1991, there were only six villages which were uninhabited. The average number of villages per taluk is 113 and Hungund with 160 villages and Bilgi with 65 villages form the taluks with highest and lowest number of villages respectively. The average population of all the towns of the district is 38,264 and excluding Bijapur town, Bagalkot (76,903) is the town with the highest population while Almatti seethimani is the town with the lowest population. After the census of 1991, a small part of Almatti village of Basavana Bagevadi taluk and that of Seethimani of Bagalkot taluk were merged and together brought under the administration of Almatti seethimani Notified Area committee. This was classified as an urban area in 1991. A major part of Mahalingapur municipal area belongs to Mudhol taluk while a small part of it belongs to Jamkhandi taluk.

Table 1.4 : Population of Urban areas (1991 Census)

Town/City	Total	% of total population		% of total population	
		Male	Female	Male	Female
Alamatti, Seethimani Notified area	4,594	2,402	52.29	2,192	47.70
Badami Municipality	19,982	10,173	50.91	9,809	49.09
Bagalkot corporation	76,903	40,158	52.22	36,745	47.78
Basavana Bagevadi Municipality	23,022	11,779	51.21	11,243	48.84
Bijapur Corporation	1,93,131	1,00,474	52.02	92,657	47.98
Guledagudda Municipality	33,895	16,941	49.98	16,954	50.02
Hungund Municipality	15,391	7,799	50.67	7,592	49.33
Ilkal Municipality	40,101	20,245	50.49	19,856	49.51
Indi Municipality	25,121	13,101	52.15	12,020	47.85
Jamkhandi Municipality	48,143	24,214	50.30	23,929	49.70
Kerur Municipality	15,199	7,525	49.51	7,674	50.49
Mahalingapur Municipality	26,067	13,016	49.93	13,051	50.07
Muddebihal Municipality	20,094	10,367	51.59	9,727	48.81
Mudhol Municipality	31,095	15,796	50.80	15,299	49.20
Rabakavi/Banahatti Municipality	60,609	30,874	50.94	29,735	49.06
Sindgi Municipality	16,183	8,663	53.53	7,520	46.47
Talikot Municipality	21,882	11,142	50.92	10,740	49.08
Teradhal Municipality	17,334	8,790	50.71	8,544	49.29
<b>Total Urban area</b>	<b>6,88,746</b>	<b>3,53,459</b>	<b>51.38</b>	<b>3,35,287</b>	<b>48.62</b>

The population density of the district is 172 per sq km, the urban population density is 2,222 per sq km and rural population density is 134 per sq km. The population density of Jamkhandi rural area is 182 per sq km and marks the highest population density among the taluks. Bijapur taluk has the lowest rural population density (105 per sq km). The villages of the district have been classified as follows based on population density.

Density of Population in Village	Total Villages	% of the Villages	Population	Total Villages	% of total Villages
Up to 1	2	3	1 to 10	4	0.32
11 to 20	3	0.24	21 to 50	40	3.21
51 to 100	304	24.28	101 to 200	672	53.97
201 to 300	160	12.83	301 to 500	43	3.45
More than 501	20	1.6	—	—	—

Bijapur district is clubbed under the revenue division of Belgaum. The district has 11 taluks and four revenue sub-divisions. Under Bijapur revenue sub-division Bijapur, Basavana Bagevadi and Muddebihal taluk, under Bagalkot revenue sub-division Badami, Bagalkot and Hungund taluks, under Indi revenue sub-division Indi and Sindgi taluks, under Jamkhandi revenue sub-division Bilgi, Jamkhandi and Mudhol taluks have been included. As per the census of 1991, the district has 11 taluks, 1,253 villages and 18 urban agglomerations. (For details see Table 1.2).

Of the 11 taluks of the district, Bagalkot, Badami, Jamkhandi, Mudhol and Bilgi taluks were clubbed in August, 1997 and the new district of Bagalkot was constituted. The Hundekar committee recommended the up-gradation of Ilkal, Guledagudda and Nidagundi to taluk level but only the above-mentioned six taluks were merged and the Bagalkot district was formed and the remaining taluks (Basavana Bagevadi, Bijapur, Indi, Muddebihal and Sindgi) still remain with Bijapur district. After reorganization of the district in 1997, Bijapur, which had the largest area in the State gave up its position to Gulbarga division. Though Bagalkot district was formed newly by dividing Bijapur district, the information in this chapter is related to the undivided Bijapur district. The details of the reorganized district is given in Table 1.5 'A' and the details of Hobli/revenue-wise villages is given in Table 1.5 'B'

Table 1.5 : 'A' Details of the district after reorganization

Bagalkot	Bagalkot district Sub Division	Area in sq km	Bijapur	Bijapur district Sub Division	Area in sq km
	Badami	1,397.19		Basavana Bagevadi	1,973.96
	Bagalkot	935.29		Bijapur	2,659.24
	Hungund	1,354.22		Muddebihal	1,501.76
	Jamkhandi Sub-Division			Indi Sub-Division	
	Bilgi	781.79		Indi	2,224.87
	Jamkhandi	1,169.09		Sindgi	2,176.4
	Mudhol	950.34			
	Total District	6,587.92		Total District	10,536.23

Table 1.5 'B' : Details of Hobli-wise villages as per 1981 Census report

Taluk	Number of villages	Hobli/Revenue Circle	Number of Villages
Badami	159	Badami	41
		Kulageri	41
		Kerur	37
		Guledagudda	40
Bagalkot	90	Bagalkot	19
		Kaladagi	29
		Sitimani	42
Basavana Bagevadi	120	Basavana Bagevadi	27
		Huvina Hippargi	41
		Kolhar	52
Bijapur	109	Bijapur	21
		Babaleshwar	24
		Tikota	23
		Nagathana	19
Bilgi	65	Bilgi	36
		Anagawadi	29
Hungund	170	Hungund	40
		Karadi	45
		Ilkal	43
		Amingad	42
Indi	122	Indi	38
		Balloli	43
		Chadachan	41
Jamkhandi	71	Jamkhandi	25
		Savalagi	23
		Terdal	23
Muddebihal	154	Muddebihal	38
		Dhavalagi	37
		Talikota	36
		Nalarwad	43
Mudhol	78	Mudhol	33
		Lokhapur	45
Sindgi	143	Sindgi	51
		Almel	44
		Hippargi	48
<b>Total</b>	<b>1,281</b>		<b>1,281</b>



### Territorial changes

Bijapur district was inhabited since the time of the Stone Age. Sites that range in age from Palaeolithic to Neo-historical time have been unearthed from this part. Scholars have identified some important pre-historical sites of the district such as Khyda, Danakshirur, Anagawadi, Ingaleshwara, Salwadagi, Kolhara, Nimbala, Sidlapadi, Teradal, Hanagandi, Kulvalli, Halingali, Ihole, Maskanal, Taddavadi, Pattadakal, Inchageri. Places like Ihole, Badami, Bagalkot, Dhulakhed, Galagali, Hipparagi and Mahakoota have been identified with different episodes of Ramayana. This place is reckoned to have formed a part of *Dandakaranya*. In the 2<sup>nd</sup> Century B.C., Ptolemy, the great Egyptian geographer, made a mention of ancient places like Badiyami (Badami), Petrigral (Pattadakal), Indi, Kalligeris (Kalkeri of Sindgi). The historical events from 5<sup>th</sup> century to 14<sup>th</sup> century in this district are to be found in inscriptions. It is mentioned that Pulikeshi I of Chalukya dynasty (as per the rock edict) built the fort of Badami. After Chalukya's rule, which lasted till the middle of 8<sup>th</sup> century, the Rashtrakutas ruled till the end of 10<sup>th</sup> century, followed by Chalukya Kalyanas till 12<sup>th</sup> century and for some time the Kalachuris ruled. In ancient times, areas of the present Bijapur district was shared among Tardavadi-1000, Hagaratagi-300, Anandur-300, Kisukadu-70 etc. and the major part of the district was within Tardavadi as indicated in inscriptions. During the 13<sup>th</sup> century, this was under the administrative rule of Yadavas of Devagiri. With the collapse of Devagiri at the beginning of the 14<sup>th</sup> century, this came under the rule of Tughlaks and when Bahamani kingdom was established in 1347, the present Bijapur district became a part of Gulbarga Province. Bijapur region was formed newly in 1478 and Kwaja Mohammed Gawan, a minister of the Badami king took over the administration. After his death, in 1489 Yusif Adil Khan declared Bijapur province as an independent State. During the rule of Adil Shahi, a centralized government functioned from Bijapur. There were 16 divisions called sixteen sarkarss. Aval Sarkar was the urban part which included Bijapur within which were 30 *paraghanas*. In 1686 Aurangzeb conquered Bijapur. Till 1723 this was under the rule of Moghuls and later under the Nizam of Hyderabad. The Marathas conquered this region in 1760. The southern part of the district was under the subordination of Hyder Ali and Tippu Sultan from 1778 to 1787.

As a result of the war between the British and the Peshwas in 1817, Bijapur area was subjugated to the British. Later the Bijapur taluk was handed over to the King of Satara. Indi and Muddebihal taluks were brought under Bagalkot revenue sub-division which was under the Collectorate of Dharwar (power delegated to collect revenue of the district). When these sub-revenue districts were dissolved in 1820, Indi and Muddebihal taluks were merged with Dharwar Collectorate till 1825. Later in the same year, it was included under Puna Collectorate and was again merged with Dharwar Collectorate in 1830. When Sollapur Collectorate was formed in 1838 the above two taluks were included in it. Chandakavate of Nippani and 31 villages of Nidagundi *paragana* were included in Sollapur Collectorate in 1839. In the same year the villages of Indi and Muddebihal taluks were merged and included in the newly carved Hipparagi taluk came into being. Some parts of Satara were brought under Sollapur Collectorate. Later the Managoli taluk was constituted when 14 villages of Chimalagi paragana of Kagavadi were brought under it. When Satara state came under British rule in 1848, Bijapur was transferred to Satara Collectorate, and in 1862 was merged with Sollapur Collectorate. The five taluks north of the Krishna River,

namely Indi, Muddebihal, Hipparagi (Sindgi) Managoli (Bagevadi) and Bijapur were under Sollapur Collectorate till 1864. Bagalkot, Badami, Hungund taluks were ruled by the Peshwas followed by the British, and from 1818 to 1837, were under Dharwar Collectorate.

In 1839-40, fifteen villages of Chincholi, and in 1857-58, fifteen villages from Naragunda were clubbed and new sub-taluks of Bilgi (Bagalkot taluk) and Kerur (Badami taluk) respectively were formed. In 1837, these two sub-taluks were transferred to Belgaum taluk from the Dharwad Collectorate. These two taluks were clubbed with the newly constituted Kaladgi taluk in the same year. Indi, Hipparagi (Sindgi), Bijapur, Manegoli (Bagevadi), Muddebihal, Bagalkot, Badami and Hungund taluks were with Kaladgi Collectorate. In 1869, Hipparagi taluk was renamed as Sindgi taluk and Manegoli taluk as Bagalkot taluk. The Head of the taluk was called Mamuldar, and that of subtaluk as Mahalkar. The details of the taluk listed in the district as per the census of 1881 are given in the following table

Taluk	Area sq mile	Area Sq. km.	% of district area	Number of villages	Population	% of total population
Indi	871	1,393.6	15.13	136	71,940	11.27
Sindgi	812	1,299.2	14.10	150	72,650	11.38
Bijapur	869	1,390.4	15.09	108	76,896	12.04
B.Bagevadi	764	993.2	10.78	126	86,743	13.59
Muddebihal	564	902.4	9.80	161	65,024	10.18
Bagalkot	683	1,092.8	11.86	200	96,156	15.06
Badami	676	1,081.6	11.74	236	89,147	13.95
Hungund	518	828.8	9.00	217	80,037	12.54
Total	5,757	9,211.2	100.00	1,334	6,38,493	100.00

The district headquarter was shifted from Kaladgi to Bijapur in 1885. During the period from 1941 to 1951, 28 villages from Badami were transferred to Belgaum district and three villages from Bijapur to Jath taluk of south Satara district and one village of Indi taluk to Mangalvade taluk of Sollapur and two villages of Sindgi taluk to Gulbarga district and four villages of Athani taluk of Belgaum to Bijapur district.

The smaller provinces were merged with the State in 1948. Then 17 villages from Oundh state, 52 villages and four towns from Jamkhandi state, nine villages from Kurandawad senior state, 77 villages and two towns of Mudhol state and 13 villages from Sangli state were transferred to Bijapur district.

Among the parts which merged with the district, since Jamkhandi and Mudhol provinces were each big enough to become a taluk, and since they also had the infrastructure and administrative facilities, both the provinces were elevated to the status of independent taluks. Jamkhandi and

Mudhol, which were important towns of the provinces became the taluk headquarters. Teradala mahal, which originally belonged to Sangli province and affiliated to Jamkhandi taluk, was clubbed with Jamkhandi taluk and some parts of Oundh and Kurandawada province, which were affiliated to Bijapur taluk were merged with Bijapur taluk. Before the merger of the provinces, there were two administrative centers in the district – Bijapur and Bagalkot. After the merger of the provinces Jamkhandi and Mudhol taluks and Bilgi, Peta were merged and a third province was constituted and Jamkhandi was chosen as its headquarters. In 1953, the two provinces were bifurcated out of Bijapur taluk. Indi and Sindgi taluks were merged and became Indi province. The remaining taluks of Bijapur and Bagevadi were clubbed to form Bijapur province. In 1948, Ramadurg province, considered as separate taluk was merged with Bijapur district. In 1950 Ramadurg taluk was transferred to Belgaum district. The details of the taluks as per census of 1951 are as follows:

Sub-division	Taluk	Area sq mile	Area sq km.	% of district area	Population	% of district population
Indi	Indi	854.3	2,212.6	13.01	1,76,090	10.61
	Sindgi	829.9	2,149.4	12.64	1,62,810	9.81
Bijapur	Bijapur	1,027.8	2,662.0	15.65	2,50,907	15.11
	Basavana Bagevadi	764.3	1,979.5	11.64	1,64,128	9.89
	Muddebihal	570.4	1,477.4	8.69	1,34,641	8.11
Bagalkot	Bagalkot	351.5	910.4	5.35	1,20,420	7.25
	Badami	531.5	1,377.6	8.10	1,55,900	9.39
	Hungund	512.0	1,326.1	7.80	1,60,168	9.65
Jamkhandi	Mudhol	349.1	904.2	5.32	99,235	5.98
	Jamkhandi	448.3	1,161.1	6.83	1,67,719	10.10
	Bilgi	374.4	848.0	4.99	68,160	4.11
		6,566.9	17,008.3	100.00	16,60,178	100.00

Details of taluks in the district as per 1991 Census are as follows:

Sub-Division	Taluk	Area sq km	% of district area	Population	Male	Female
Indi	Indi	2,224.87	13.03	3,03,133	1,56,794	1,46,339
	Sindgi	2,176.40	12.75	2,80,915	1,44,375	1,36,540
Bijapur	Bijapur	2,659.24	15.58	4,73,047	2,45,090	2,27,957
	Basavana					
	Bagevadi	1,973.96	11.56	2,57,117	1,30,664	1,26,453
	Muddebihal	1,501.76	8.80	2,19,236	1,10,334	1,08,902
Bagalkot	Bagalkot	935.29	5.48	2,09,038	1,06,200	1,02,838
	Badami	1,397.19	8.19	2,56,620	1,28,589	1,28,031
	Hundgund	1,354.22	7.93	2,45,318	1,22,961	1,22,627
Jamkhandi	Mudhol	950.34	5.57	1,94,553	98,573	95,980
	Jamkhandi	1,169.09	6.85	3,39,354	1,72,800	1,89,554
	Bilgi	781.76	4.58	1,18,978	59,491	59,507
Total		17,069.00	100.00	29,27,990	14,91,019	14,36,971

In 1951, the area of the district was 6,600 sq miles with a population 13,96,185 and when Jamkhandi and Mudhol taluks were clubbed, the number of taluks went up from 8 to 10. Bilgi continued as sub-taluk and its three villages were clubbed with Jamkhandi taluk. Bilgi sub-taluk was elevated to taluk level in 1959.

## GEOLOGY

Bijapur district forms a part of peninsular India. The rocks of the Proterozoic Era have been laid in a narrow basin extending from near Belgaum, across Bijapur district, to Chincholi in Gulbarga district. Since these rocks are well developed on either side of Kaladgi town, they have been stratigraphically classified under the Kaladgi Group. It is essentially constituted of sedimentary rocks like conglomerate, quartzite, shale and limestone. Towards northeast, the rocks of the Kaladgi Group are bordered in some parts by another group of younger rocks designated as the Bhima Group. These rocks were formed towards the end of the Proterozoic Era.

Bijapur district has a dry and arid climate of the Deccan (south) plateau. To the north of the Krishna River, lies the Deccan Trap rocks and to its south lies the Kaladgi Group of rocks. Further southeast lies the gneissic terrain. Distinct geographical units like the Bhima valley, Central plateau, Doni valley, urban Bijapur area, Krishna valley area, southern ranges and south eastern hills and peaks of Hundgund can be identified in the district. The part of the district lying north of the Krishna is almost a plain land. Here, but for a small branch of Mahadeva range commencing from

near Tikota and extending up to Bijapur, the area is largely a plain terrain dotted by hillocks of layered rocks. The wide river valley between the hills is ideal for human settlements.

As one proceeds towards the southern part of the Krishna, the geographical characters of the district changes abruptly. This forms a hilly area. The hill ranges of this part can be classified into two groups – the Malaprabha northern range and the Ghataprabha northern range. The ranges lying north of Malaprabha commence from near Teradala on the west and extend in ESE direction upto Bilgi and thereafter further up to the confluence of the Krishna and the Ghataprabha rivers. But from Kadapatti two distinct branches commence, one of which extends south easterly while the other extends north easterly. Here the rocks belonging to the Kaladgi Group more or less rise to the same height and show a steep gradient towards the Krishna River while the other side has a moderate slope.

The central north ranges extending from the area of Belgaum district are spread over in the entire part of Malaprabha and Ghataprabha. The hills in the northern range have a moderate slope on one side and are steep on the other side towards the Malaprabha River. The hill ranges here seem discontinuous and have different names like Kerurgudda, Gajendragada range, Badami gudda, the last of which, rising to a height of 2,300 feet (6,980 m) above mean sea level is the highest. The south eastern part of the district has many hills and they are constituted of gneisses.

### **Kaladgi Group**

The Kaladgi Group of sedimentary rocks were first described near Kaladgi and hence the name. Earlier, they were referred to as Puranas but the term is now obsolete. This group lies unconformably over the Archaean gneisses and the Dharwar schists and is interbanded with ferruginous rocks and devoid of fossils.

The Kaladgi Group is overlain to the north and west by the Deccan traps. Due to erosion of the basaltic cover, at some places as in Jamkhandi, the Kaladgi Group is exposed in the form of inliers. The Lower Kaladgi Group of rocks consists of quartzite, limestone and shales and the Upper Kaladgis consists of quartzite, limestone, shale and haematite. The sedimentary rocks of Kaladgi Group have been studied extensively in recent years. Broadly, the sedimentary rocks of this area have been subdivided into two separate groups called the Kaladgi Group (older) and the younger Badami Group. While quartzite largely forms hill ranges, limestone, shale and clay occupy the lower part and are covered by black soil. Both the lower and the upper group have distinct lithology as given below:

### **Badami Group**

- |                        |   |
|------------------------|---|
| 1. Katageri Formation  | Argillites and dolomites                |
| 2. Ramadurga Formation | Conglomerate and quartz arenite.        |
| 3. Mudhol Formation    | Quartz arenite, dolomite and argillites |

**Kaladgi Group**

- |                       |                                     |
|-----------------------|-------------------------------------|
| 1. Lokapur Formation  | Dolomites and limestone             |
| 2. Bagalkot Formation | Conglomerate, quartzite and breccia |

Since limestone has been deposited over a larger area in the Kaladgi Group, it has more economic importance and has encouraged the establishment of limestone based industries in this area (for more details see Chapter 5 :Industries).

**Badami Group**

The Badami Group unconformably rests over the gneisses and the Kaladgi Group. The quartzites are red in colour and form a distinct feature of this group. These rocks retain their tabular nature. The world famous Badami and Aihole cave temples have been carved in the red sandstone of the Badami Group.

**Bhima Group**

A group of highly disturbed sedimentary rocks, tabular in disposition are spread over from Gulbarga district to Muddebihal taluk in Bijapur district. Since these sedimentary rocks are largely developed in the valleys of the Bhima River, they have been named the Bhima Group. The Bhima Group is divided into two formations - the lower one consisting of conglomerate, quartzite and shale and the upper one consisting of flaggy massive limestone and argillite. Its thickness varies from 150 to 200 m. The Bhima Group is further subdivided into the following formations:

- |                                |  |
|--------------------------------|--|
| 1. Harnal Formation            | Purple shale   |
| 2. Katamadevarahalli Formation | Variogated yellow to dark brown limestone  |
| 3. Halgal Formation            | Green to yellow, pale yellow coloured shale associated with quartzite and conglomerate.                |
| 4. Shahabad Formation          | Limestone  |
| 5. Rubbyhal Formation          | Green to yellow and purple coloured shale associated in the lower part with thin zone of conglomerate. |

**Deccan Trap**

Following the deposition of the Bhima Group, there occurred a period of quiescence in the geological history of Karnataka. After a lapse of millions of years, it was only towards the end of the Mesozoic era that large volumes of lava erupted over the earth's surface in these parts due to tectonic and volcanic activity. These rocks have been called the Deccan Traps. These are hard basaltic rocks with a characteristic tabular feature. The southern margin of the base of these massive rocks is seen in the district.

The traps have undergone spheroidal weathering and rocks of all shapes and sizes have been strewn over the area. The soil cover is typically black and dark brown in colour. When damp, the soil characteristically bulges. Since the trap rocks are hard, dense and durable they are used as good construction material and are specially preferred for concreting and laying of roads. Subsequent to the Deccan Trap volcanism, no new rocks have been formed in any part of Karnataka.

### Mineral wealth

**Limestone:** Limestones are carbonate rocks formed by both organic and inorganic processes. It essentially consists of the mineral calcite. The colour of the limestone depends on the impurities it contains. Depending on the oxide present, generally the colour could be pale blue, grey, yellow, pale red and brown. Kaladgi, Kajjidoni, Devanala, Bagalkot and Gaddankeri are known for important limestone deposits.

In the Kaladgi basin, limestone deposits are spread over for three to four kilometres from Hiresellykeri to Endigeri. It has a width of about 500 m. The samples collected for chemical analysis from this area have analysed 48% to 52% CaO, 2 to 3 % MgO, and 2 to 4% undissolved residue. In Kajjidone area, the limestone belt has extended over a wide area. Samples collected from this part have analysed 50% -54 % CaO, 0.1 to 1.00% MgO, and 1.6 to 3% undissolved residue. It is estimated that Kajjidoni area has huge limestone deposits.

In Devanal area too limestone is spread over a large area. Large reserves are estimated but it appears that as one proceeds southerly it is more dolomitic. In Bagalkot area, about 5 km from the Bagalkot railway station, the limestone deposit has 48-49 % CaO, 1 -2% MgO and 9-14 % undissolved residue. It is estimated that this area too has huge reserves of limestone.

The limestone strata in Gaddanakeri area extend over 5 km from Haveri to the bank of Ghataprabha River. It contains 48 - 50 % CaO, 1 - 1.6 % MgO, 9 - 14% undissolved residue. Large reserves are estimated.

High calcium limestone deposits occur over a large area in many parts of Mudhol and Muddebihal taluks. Such deposits have patches of dolomite. The chemical analysis of these deposits and the probable reserves are given in the table below:

Name	Area in acres	Width in meters.	Reserves in million tonnes
Madike Shiruru Kuchbala area	190	26	25.88
Shirur block	60	6	2.00
Minajagi	130	20	18.47
Talikot	300	30	60.98
Kalludevanahalli Mukihal	150	12	10.45
Salavadagi 1	300	12	20.90
Salavadagi 2	600	12	41.80
Hunasagi	700	12	48.78

High calcium limestone deposits occurring between Kajjidoni and Kagalagombe are also estimated to contain huge reserves. It contains 45.45 % CaO 1.8% MgO, 0.94 % alumina, 0.96% iron oxide, 12.69% silica and 34.45 % undissolved residue.

High calcium limestone deposits occurring in Chodhury Manya and Lokhapur area in Mudhol taluk extend over 8 km. in length, and 28 km in width. Samples collected for chemical analysis from this area have analyzed 48.85 – 54% CaO, 1.08% MgO, 0.32% iron, 8.98 % silica and 30.85% undissolved residue. It is estimated that about 200 millions tonnes of high calcium limestone is available from this deposit. About 45 million tonnes of limestone reserves are likely to be available from Muddapur and Thimmapur areas of the same taluk. Patches of magnesium rich limestones have also been reported from some parts of these deposits. The samples collected from the limestone in this area have analysed 33.2 – 43.65% CaO, 1.9 – 7.5 % MgO, 1.29 – 1.57% alumina, 1.68 – 1.79% iron, 16.42 – 20.97% silica, 34.45 – 35.05 % undissolved residue. In Kinchakandi Budrak area the limestone deposit occurs over one sq km area. This deposit is likely to contain 45 millions tonnes of limestone to a depth of about a meter from the surface.

The limestone deposits in Petlur area of Mudhol taluk might be of the order of 90 million tonnes. The limestone strata occurring in and around Budni, Chitrabhanukote areas have wide aerial extent. There is a limestone deposit in Varachagala area of the same taluk, which measures 2 km in length and one km in width and is in association with shale. The total reserves is estimated to be around 45 millions tonnes. Mallapur deposits occur on Lokhapur road and are of the order of 45 million tonnes. This contains 52% CaO, 2 – 4 % MgO. It is estimated that about 56 million tonnes of high calcium limestone occurs in Hire Shellykere and Chikka Shellykere areas of Bagalkot taluk. These deposits have analysed 54.69% CaO, 3.62% MgO, and 10.2 % undissolved residue.

The Department of Mines and Geology, in 1964-65 and 1967-68 took up the geological survey of high calcium limestone deposits which are spread over a vast area in Talikote in Muddebihal taluk and the drill samples have confirmed that about 697 million tonnes of cement grade limestone reserves are available from here. The limestone of this area is light gray and gray or light red in colour and is made up of parallel amorphous particles and is hard in nature. In some parts, at a depth of about 2 – 3 meters multi-coloured limestone is reported. Such deposits are 2 – 3 meters thick with layers from 1 – 1.5 inch in height. Limestone layers of this type are excavated in large quantities and are used as panels for floor and walls. Such layers occurring in various hues and similar to marble, are used as decorative stone. It is estimated that about 840 million tonnes of limestone is available in this district.

**Iron Ore :** There is a record that in 1960, there was in operation a licensed iron ore mine near Hungund which produced about 10,000 tonnes of ore. It is reported that this ore analysed 64.33 % iron, 6.39% silica and alumina, 0.016% sulphur and 0.016% phosphorous. This deposit was located about 36 km. from the Bagalkot railway station. No additional details are available on this deposit. There is a haematite deposit in Mahakoota area of Badami taluk. The iron content in



this ore is reported to be 60-64%. Pyrolusite, a manganese ore occurring in different parts of the district can also be treated with appropriate processes and mined after increasing the percentage of manganese dioxide.

**Copper :** Copper occurrences are reported from the limestone strata in Kajjidoni of this district. The Kaladgi limestone occurring near Gaddanakeri village contains brilliant green stains of malachite, and in some parts stains of chalcopyrite.

**Silica :** Silica (sandstone) deposits occur about 8 km. south of Guledagudda of Badami taluk at Parvathigudda and Maradigudda. These deposits extend for a depth of 15 m. The deposits from these two places are estimated to be of the order of 22 million tonnes. Samples from this part have analysed 65 – 68% silica, 1.5 – 3% aluminium oxide, 0.29 – 0.73 % iron oxide.

**Mica :** There is an indication of the occurrence of muscovite mica in Illala of this district. Asbestos Amphibole group of asbestos is reported from 2 km. south east of Yellanahatti of Bagalkot taluk, where it occurs as compact veins in rocks.

**Dolomite :** Dolomite and dolomitic limestone are spread over in this area in and around Bhaman gudni, Halki, Petlur and Katagiri. Of these, the deposits of Bhaman gudni and Novilikere are of importance. The deposits in this area are estimated to be the order 85,685,000 tonnes. The Bhamana gudni deposit is 138 m long and 100 –150 m wide. It is estimated that the area has about 25,83,000 tonnes of B.F. grade ore. The Novilikere deposit has analysed 28.64% CaO, 18.86 – 20.36 % MgO and 46 – 48 % L.I.O. It is estimated that the reserves are of the order of 16,191,000 tonnes and it is refractive, B.F. and glass grade deposit. The deposits available in Parvar and Varachagal dolomite bands are estimated to be around 13,500,000 tonnes and are of B.F. grade. In Petlur area, discontinuous parallel bands of dolomite of refractive, B.F. and glass grade have been reported to extend over 8 – 9 km in length. It is estimated that 13,425,000 tonnes of B.F. grade dolomite is available from this part. In Solikar area, 6000 tonnes of dolomite having 25.69 – 31.11% CaO, 15 –22% MgO and 1.1. – 9.42 % silica has been reported. As per the inventory taken by the department on 1.1.1995 the availability of a total 60 million tonnes of dolomite deposits have been confirmed.

## WATER RESOURCES

The district is endowed with rich water resources and is aptly called 'The Punjab of Karnataka' or the land of five rivers of Karnataka. The Krishna, Ghataprabha, Malaprabha, Bhima and Doni are the important rivers and their fertile banks have encouraged agriculture and commercial crops. The details of the rivers that flow in the district are described here:

### **The Krishna River**

The Krishna is one of the most important rivers of the State. Locally it is called 'Hirhole'. This river is referred to as Perdore in inscriptions and in Sanskrit, it is called Krishnaveni or Krishnavenna. It originates near Mahabaleshwara of Satara district in Maharashtra and in the Western Ghats. Later it flows through Satara, Sangli and Kolhapur of that State and later enters

Karnataka and flows through Belgaum, Bijapur, Gulbarga and Raichur districts. Near Segunisi of Athani taluk, Belgaum district the Krishna River forms a boundary separating Athani taluk and Jamkhandi taluk of Bijapur district. It fully enters Bijapur district at Muttur in Jamkhandi taluk and flows through Jamkhandi and for some distance follows the north westerly course. Later it marks the boundary between Bijapur, Basavana Bagevadi and Muddebihal taluks on the left bank and Bilgi, Bagalkot and Hungund taluks on the right bank and for some distance flows along the boundary of Muddebihal taluk and Raichur districts.

The Krishna River in Bijapur district generally follows a south east trend and meanders for one third of its distance in the district. The river flows steadily till it reaches the Muttur taluk boundary on the northern part of Jamkhandi. Here it abruptly turns southwards. Later it flows easterly near Galagali of Bilgi taluk and again it swerves north easterly and then again to the south and reaches the boundary of Bagevadi. Here onwards the river takes a south easterly course and branches out into two parts near Takkalaki, north east of Bilgi and both join near Chimmalagi creating a river island. Near Devur in Muddebihal taluk, it turns south and from the confluence of Ghataprabha River, it follows an easterly course till the border of the district. At this point again it swerves north east. From then onwards, the course of the river forms the boundary of Gulbarga and Raichur districts. The river leaves the boundary of the State near Buradipard village on the north eastern part of Raichur taluk. After flowing through Andhra Pradesh it joins the Bay of Bengal near Machalipatna. From the place of origin till it reaches the sea, the river covers a total distance of 1,400 km. In Karnataka its course is over 362 km long. River Krishna flows about 24 km in the north eastern part of the district at the border of Belgaum and Bijapur districts and near another village in Jamkhandi taluk, it enters the district. In Bijapur district, the total length of the Krishna river is 201 km.

Along the course of the river, in Bijapur district, black soil has developed extensively. On the right bank of the river, there are vast areas with step-like features. At places like Padasalagi in Jamkhandi taluk, the area drained by the river Krishna has unique features that stand out prominently. While the northern part is made up of trap rocks, the southern part is covered by sandstone of the Kaladgi Group. Between these two places lies the fertile alluvial land formed during high floods. In Bijapur district, till it joins the Ghataprabha, the Krishna River bifurcates into many branches forming small rocky islands in between. It even flows over the granitic country for a long distance. There are a series of small cascades in the valley part of the rocky land. Till this point, the river follows a narrow course, but near the confluence of Ghataprabha, the river attains a width of about 600 – 700 m. Since the river cuts across formations like granite, trap and sandstone in the course of its flow in the district, a number of creeks have developed and boulders have accumulated on both the banks.

Monsoons are the main source of water for the Krishna River. From June to December, floods are generally intense and often the river overflows both the banks. During the summer season, however, the river dries up, shrinks, and splits into a number of small streams, exhibiting in its course the rocky islands and black sand deposits. The Ghataprabha and the Malaprabha are the important tributaries of the Krishna River. The Doni, one of the tributaries of the Krishna,

also flows in the major part of the district and then enters the Gulbarga district. As the water flow is reduced during summer, the river can be crossed at many points. At many places there are facilities to cross the river using rafts. Bridges have been built along the river as for instance near Padsalagi, Jamkhandi road, Mudhol-Bijapur road near Galagali and Bijapur-Hubli road near Kolhar. Gadag – Sollapur railway line crosses the river near Almatti. Babalada, Jainapura of Bijapur taluk, Chimmalagi of Bagevadi taluk, Muttur and Shurpali of Jamkhandi district, Galagali and Devaragannur of Bilgi taluk are some of the important pilgrim centers located on the bank of this river. (for details see Chapter 17).

### The Ghataprabha River

The Ghataprabha River originates at Ramaghatta that lies 40 km west of Belgaum on the edge of the Western Ghats and flows easterly. Near Chimmalagi in Bijapur district at a place called Girisagara, the river joins the Krishna. The total length of the river is 305 km. The river which enters the Bijapur district about 13 km west of Mudhol town flows through Mudhol and Bagalkot taluks covering about 112 km length. Bagalkot, Mudhol and Chimmalagi towns are located on the bank of this river. The creeks formed by this river near Herkal in Bilgi taluk are quite picturesque. At the point where the Ghataprabha river joins the Krishna, its width is about 90 m. The Ghataprabha river is endowed with rich water sources. The large catchment area forms part of the *Malnad* track with rainfall from 127 – 635 mm. The annual flow averages 12,100 crore cubic feet. But soon after the rainy season, the river shrinks and becomes a small stream and in summer almost dries up. The river cannot be rafted.

### The Malaprabha River

The Malaprabha River originates in the Sahyadri peaks, 13 km. west of Jumboti at a place called Kanakumbi in Khanapur taluk of Belgaum district. The total length of the river is 330 km out of which it flows about 193 km distance in Khanapura, Bailahongala, Savadatti and Ramadurga taluks and 32 km in the borders of Bijapur and Dharwar districts and then about 105 km. in Badami and Hungund in Bijapur district. The river flowing near Ramdurg in Belgaum district passes through the edge of the south eastern part of the same taluk and following the edge of Badami taluk enters the boundary of Bijapur district. Then onwards, it takes an easterly course covering about 32 km. all along the borders of Bijapur and Dharwad district. After flowing a little distance, it turns towards north near Holehalur and enters Badami taluk at Kadalakoppa and flows in Bijapur district until it joins the Krishna river. In Bijapur district, in the initial stages it follows a meandering course towards north. Near Nagarala in Badami taluk, it turns eastward and again continues in a northerly direction till it reaches Nelavagi. From here it follows an easterly course and near Pattadakal, it takes a north westerly course. At Jalihal the river turns north easterly and at Ihole it again turns north west. It flows in a general northerly direction till it reaches Kamatagi where it again takes a meandering course flowing towards north east. Later the river joins the Krishna at Kudalasangama. It crosses Budihala, Ganjihala, Kelagala and though turns towards south east, it quickly changes its direction following a north easterly course.

Two distinct features could be seen in the areas drained by the Malaprabha River. In the first stage, it flows on black cotton soil and the river is shallow. Gradually it starts down cutting, carving deep valleys in its course. All along the course, many bends have formed and small islands dot the course of the river. During the rainy season, the river carries a huge amount of water and becomes muddy. At other times though the river is shrunken, the flow is persistent:

From the geological point of view, this river flows along the boundary the Kaladgi and Deccan trap. Beyond Ihole, the river flows all along the Kaladgi Group. Kamatagi, Kudalasangama, Tangadagi and Ganjihala are some of the places that are located on the banks of this river. Many archaeological sites have been discovered all along the bank of this river and Badami, a well-known place of historic interest lies just 5 km. away. Nandikeshwara, Pattadakal, Ihole – located on the banks of this river are known for Chalukya architecture. It is at the confluence of this river with Krishna that the famous Kudalasangama is located.

### **The Bhima River**

The River Bhima originates at Bhimashankar (Maharashtra State) in the Western Ghats. The river, which flows along Poona and Sollapur districts of Maharashtra, enters Karnataka near Dasur, which is in Indi taluk located on the northern tip of Bijapur. The river then flows eastward taking a meandering course along the border of Bijapur and Sollapur districts. With a few windings near Agarkeda in Indi taluk it follows a general south easterly course till it reaches Madanahalli of Sindgi taluk. From there it follows an easterly course till Afazalpur of Gulbarga district, after which it again takes a meandering course till it reaches Gattaragi of the same taluk following a general southerly course. Till here lies the boundary of Bijapur and Gulbarga districts and only the southern bank of the river lies in Bijapur district. The total length of the river in this district is about 96 km out of which about 46 km forms the boundary of Bijapur and Gulbarga districts. The Bhima River is joined by Borihalla in the north and Satalgaon stream near Rodgi in the east, at its right bank in Indi taluk of Bijapur district. This river joins the Krishna near Sangama in Shahapur taluk of Gulbarga district. It flows more or less on a sedimentary terrain. All along the course of the river, dark coloured rocks are exposed over which a thick bed of fertile black soil has been deposited. The fertile soil produced by the river accumulates on both the banks every year. The soil has the capacity to hold moisture to a large extent. The Bijapur and Sollapur highway passes through the Bhima river. Centers of pilgrimage are profuse all along the course of the river. Places like Agarked, Chikkamalur, Dholkeda and Mirki in Indi taluk, Devangaon, Kamaleshwar, Mallikarjuna and Shankaralinga of Sindgi taluk are the renowned pilgrim centers that are located on the banks of this river.

### **The Doni River**

The river Doni originates about 7 km south of Jath town in Sangli district, Maharashtra to the west of Bijapur district. It follows an easterly course and enters Bijapur district, turns towards south east and joins the Krishna River near Jamalapur village in Gulbarga district. It flows through Bijapur, Basavana Bagevadi, Sindgi and Muddebihal taluks. While its total length in this State is 176 km, within the district it is about 140 km. Sanna Doninadi joins the Doni river near Hanchinala in Basavana Bagevadi taluk and Sogli nadi joins the Doni River near Hadaginala village in

Muddebihal taluk. Honawada, Sarawada, Ukkali, Yalawara and Talikote are the important places located on the banks of this river. This river crosses Gadag Sollapur railway line and the highways near Honaganahalli, the Jamkhandi - Bijapur road near Sarawada, the Athani-Bijapur road near Honawada; Huvina Hipparagi, Talikote and Muddebihal -Jamkhandi roads.

The Doni has a winding course and due to its salt content, saline layers are formed on the banks of the river during summer. Its valley is rich with fertile alluvial soil. Its catchment area is very fertile. The valley is known for its rich agricultural produce and is called the granary of corn. *'If the Doni swells, the streets are full of grain'*, goes the local saying. Except during rainy season, the Doni river is rich in salt content and a scarcity of drinking water results during summer. During rainy season, due to floods, it is quite common to see small embankments washed away and thick beds of slush accumulate.

### Groundwater and utilization

Different rock types of the district and their water bearing capacity is briefly given in the following table:

Era	Rock Formation	Distinctive feature of rock	Water bearing capacity amount of water available in the wells
Tertiary	Deccan Traps	Flat bedded lava flows, flows may be 30 to 40 ft thick. Between flows, red beds mixed with soil.	The wells dug in the fractured basalt yield one liter water per second. The red beds between the flows are good sources of water. When such beds are encountered in wells, chances of getting good yields increase.
Proterozoic	Bhima Group	Layered Limestone and shale	In such rocks, specially shales, half a liter of water per second may be drawn. If holes and underground chambers are formed due to the solution of limestone, the chances of getting copious amounts of water increase
Proterozoic	Kaladgi Group	Sandstone and limestone. Boulders are common.	Chances of getting ground-water in these rocks are meagre.

From the point of view of availability of ground water, the rock types are divided into two important groups. The first group is the upper layer formed due to the disintegration of rocks and the second one with fractures and joints, lies below. Due to the action of wind and rain, the hard rock undergoes weathering and breaks down and its water absorbing capacity increases. The rock also develops fractures and joints, and such rocks get charged with water. Since such fractures are internally connected, water percolates through these joints and recharges the wells. From the point of view of availability of water, factors like fractures, joints, their prevalence and distribution in the rocks play a very important role. The water levels in the wells are not constant throughout the year. Depending on the season, the water level fluctuates. Where the ground water is used to extensively, the water table gets depleted year after year.

There are more than six lakh wells used for irrigation in the State. In 1989 there were 65,000 wells with pump sets. By 1996 the number had risen to 99,060. From these wells about 116, 269 hectares of land was brought under irrigation. Annually 1,442 million cubic meters of water is being added to the ground water reserves in the district solely from rainfall, of which 171 million cubic m of water is used for drinking, and 970 cu m of water is available for irrigation.

Though there is paucity of rainfall, it is noticed that there has been a steep rise in the use of water. This district alone uses more than 50% of its ground water. In Indi taluk, more than 65% of ground water is being used. The changing pattern of the water table from January to December in some specific wells of Indi taluk of Bijapur district is given in the table below:

(N.A. = Not available )

Month	1980	1990	Month	1980	1990
January	2.25	5.25	July	N.A	4.97
February	3.82	5.38	August	5.00	4.95
March	5.05	5.83	September	4.90	4.96
April	6.10	8.37	October	4.10	6.30
May	6.45	4.40	November	5.40	7.80
June	7.70	3.57	December	7.55	N.A.

With the increasing use of ground water, the water table falls. Rains in the month of June, causes the water level in the wells to rise. Research has been carried out to determine the availability of water in the catchment area of Satalgaon in the district and the result is as follows:

The total catchment area is 1,624 sq km; the average annual rainfall is 617 mm. Run off: 162 mm. Water evaporated: 364 mm. Water stored on the surface: 57 mm. Water added to the groundwater reserve: 37 mm.

The characteristic feature of Satalgaon in the district, drained by a small stream, is its black cotton soil and basaltic flows. Black cotton soil allows only 5% of water to percolate to replenish the ground water reserves. Usually, when it rains about 57.64 million cu m of water percolates in a year and adds to the ground water reserve which is used for irrigation, of which 47.92 million cu m of water is drawn through dug wells. It is reported that in some of the low-lying areas, the salt content in the water has increased. The details of the ground water reserves of the district are given in Table 1.6. The details of old tanks that have supported irrigation in the district are given in Table 1.7

Name	Place	Taluk	Area irrigated in	
			Acre	Hectare
Banashankari kere	Cholachagudda	Badami	40-17	16.37
Saraswathi Halla	Cholachagudda	Badami	32-00	12.96
Ganjikere	Khanapura	Badami	136-20	55.28
Kendurakere	Kendura	Badami	188-34	76.48
Hirekere	Parvathi	Badami	87-00	35.24
Chikkakere	Parvathi	Badami	50-00	20.25
Hirekere	Thimma Sagar	Badami	100-00	40.50
Chikkakere	Thimma Sagar	Badami	62-00	25.11
Hirekere	Kelavadi	Badami	10-10	4.15
Halla	Palathi	Hungund	14-07	5.74
Halla	Konnur	Hungund	6-21	2.64
Doddakere	Mamadapura	Bijapur	402-14	162.95
Sannakere	Mamadapura	Bijapur	220-26	89.36
Kumatagi kere	Kumatagi	Vijapur	56-00	22.68
Muchakadi kere	Muchakandi	Bagalkot	3117-00	1,262.39
Makhanapura	Makhanapura	Vijapur	1072-00	434.16
Nandrigi	Nandaraigi	Indi	866-00	350.73
Asangi kere	Asangi	Bagevadi	450-00	182.25
Kudagi kere	Kudagi	Indi	254-00	102.87

Table 1.6 : Taluk-wise ground water utilisation

Taluk	Gross annual recharge ham	Net annual recharge ham	Total annual usage as on 1.1.83 ham	Percentage level of usage as on 1.1.83	Total annual usage as on 1.1.87 ham	% of Level of usage as on 1.1.87	Total annual usage as on 1.1.91	% of level of usage as on 1.1.91	Classification of taluk
Badami	8,239	7,003	923	13	1,483	21	3,198	46	White
Bagalkot	5,138	4,367	973	22	1,322	30	2,542	58	White
Basavana Bagevadi	11,811	10,046	3,961	39	4,765	47	5,156	51	White
Bijapur	15,481	12,349	4,855	39	5,846	47	7,602	61	White
Bilgi	6,808	5,787	542	9	1,005	17	2,287	40	White
Hungund	8,523	7,245	468	6	1,047	14	2,171	30	White
Indi	14,866	12,636	6,109	48	7,120	56	9,441	75	Ash
Jamakhandi	9,863	8,383	2,310	28	2,981	36	7,143	85	Black
Muddebihal	8,377	7,120	1,066	15	1,636	23	2,160	30	White
Mudhol	9,568	8,133	2,121	26	2,772	34	5,700	70	Ash
Sindgi	12,304	10,458	4,000	38	4,837	46	5,363	51	White
<b>Total</b>	<b>1,10,078</b>	<b>93,572</b>	<b>23,328</b>	<b>29</b>	<b>34,814</b>	<b>37</b>	<b>54,419</b>	<b>58</b>	<b>White</b>

Source : Ground water utilisation in Karnataka state as per the studies of Ground water Division of Department of Mines and Geology, Bangalore.



## CLIMATE

The climate of the district is generally dry and salubrious like other areas in and around Deccan plateau. The changing pattern in rainfall is the primary cause for annual drought and famine in the district. The summer season extends from mid-February to the end of May and in some years prolongs to the first week of June. The rainy season extends from June to the end of September. During this period the climate is quite cool. After the monsoon rains, the period extending from October to November and December to February, marks the winter period.

### Rainfall

A total of 12 rain gauge centers are operating in the district and data for more than 70 years are available from these centers. The data of 12 rain gauge centers of the district is given in the table 1.9. The district receives both early monsoon and late monsoon showers, but there has been no increase in the amount of annual rainfall. The early monsoon showers in the district start during the first week of June. During the months of June, July and August the rainfall is almost uniform, while in September, it tends to increase. The month of September itself accounts for 20% of the annual rainfall and 68% of the total annual rainfall is received during the period June to September. In October and November, the later rains are very intense and accounts for 21% of the annual rainfall.

There has not been much change in the amount of rainfall received from one year to another. During the years 1901, 1950 and 1916 the amount of rainfall was twice the annual average. In 1905, 1920, 1923 and 1943, it was two thirds the average. In the first 50 years of the last century, in 13 years it has rained less than 80% of the average annual rainfall. In the same period, the average rainfall for 37 years varies from 400 to 700 mm. The rainfall recorded on September 7, 1895 for 24 hours, in Indi was 215.9 mm and has been the rainiest day of the district so far. There are more than 37 annual rainy days with 2.5 mm rain per day in the district. The average rainfall between the period 1901 and 1970 for the district is given taluk-wise and season-wise in the table 1.7 and the details of the highest and the lowest rainfall in the district is given in Table 1.8 and 1.9. The average rainfall for the period 1970-1997 and the details of rainfall recorded at the rain gauge centers are also given.

### Temperature

Facilities to record the temperature exist only at Bijapur. The temperatures recorded at Bijapur town reflect the general temperature that prevails in different parts of the district. The details of the temperature of the district are given in Table 1.11. December is the coldest month of the year and the lowest temperature recorded is 15.2° C. After the latter half of February the temperature gradually increases. The average annual temperature recorded in the month of May

is 38.5° C. The weather cools after the first rains. The highest temperature recorded so far in the district was on 10<sup>th</sup> May, 1972 when it touched 44.9° C. The lowest temperature recorded so far was on December 18, 1897 which was 6.7° C. Compared to other parts of the district, Bagalkot and Badami regions enjoy a relatively salubrious climate.

### **Humidity**

Generally dry climate prevails in the district. From December to May the atmosphere is bright and during this period the humidity is around 30% while some days it may fall to 10%.

### **Cloudiness**

The sky is generally very clear from December to March and is occasionally slightly overcast. From April onwards skies become cloudy and the cloud cover is quite pronounced during the first rains.

### **Winds**

Most part of the district enjoys high-speed winds throughout the year. After October, the winds cool down and blow from the north east direction. From November to January winds are dry and blow from the north east and the south east directions. After February, winds become intense and blow from the north. The details of the wind speed are given in the table 1.12.

### **Special Weather phenomena**

Because of rare barometric depressions in the Bay of Bengal, heavy rains occur in the district during October and November. During this period, stormy weather accompanied by rains is very common. Details of other information on weather of the district are given in table 1.13.

Table 1.7 : Talukwise and season wise rainfall in mm(average from 1910 to 1970) in Bijapur district.

Taluk	Jan.	Feb	Mar	Apr	May	P.M	Jun	Jul	Aug	Sep	Monsoon	Oct	Nov	Dec	Po.M	Annual
Basavana Bagevadi	2	5	8	19	41	74	76	72	74	153	374	95	28	12	136	584
Bijapur	4	3	6	22	36	71	77	75	74	146	372	87	30	7	122	565
Indi	2	5	7	17	26	57	83	84	81	176	425	77	27	7	114	595
Muddebihal	2	4	5	21	43	74	72	79	76	159	387	82	27	6	115	577
Sindgi	4	4	5	14	31	59	83	85	78	153	399	77	26	9	111	569
Badami	1	3	4	23	53	83	65	71	73	144	353	95	39	8	142	578
Bagalkot	1	4	5	22	48	79	70	79	65	145	358	95	32	9	137	575
Bilgi	2	3	7	22	44	78	60	66	63	137	326	90	29	7	126	530
Hungund	3	4	5	27	48	86	65	80	81	149	375	90	34	8	132	594
Jamkhandi	4	2	5	25	44	81	67	72	58	139	336	99	28	7	134	551
Mudhol	2	2	5	24	51	84	64	67	65	130	325	88	38	7	133	542

General

Source : Report of Drought Monitoring Cell, 9<sup>th</sup> floor, Cauvery Bhavan, BWSSB Building, Bangalore

P.M. : Pre Monsoon; Po.M. : Post Monsoon

Table 1.8 : Taluk-wise rainfall in Bijapur district in mm - annual average from 1971 to 1984

Taluk	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Basavana Bagevadi	685.9	391.6	658.5	905.1	923.2	462.2	851.3	1058.7	802.1	446.2	1110.2	742.2	531.6	666.2
Bijapur	795.4	292	824	798.8	954	810	692.4	892.9	823.4	11654.8	819.7	731.4	586.6	533.7
Indi	366.5	239.2	861.3	463.5	1186.1	325.2	374.2	733.7	979.4	607.9	961.9	537.1	576.2	588.8
Muddebihal	701	265.3	440.3	638	857.2	299	561	636.6	685.3	624.2	770	663.5	571.2	459.3
Sindgi	525.2	303	742.5	637.2	1175.5	471.4	856.2	855.2	790.8	528	710.3	435	524.4	548
Badami	538	395.6	639.9	703.2	617.9	617.9	670.3	525	607.1	348.1	576.9	634.8	519.8	433.6
Bagalkot	843.8	499.6	578.6	696	256	293	930	970	635	305.9	818.1	588.4	543.8	261.4
Bilgi	525.3	362.2	687.1	732.7	728.6	414.1	618.5	726	717.6	459.6	816.9	675.3	429.3	630.6
Hungund	634.8	325.5	717.8	896.4	1103	550.4	677.4	673.1	722.4	477.5	1029.7	421.3	724.7	442.8
Jamkhandi	641	402.5	491.7	639.1	681.6	180.7	667.2	706	438.9	735.2	747.2	694.7	435.1	404
Mudhol	581.5	299	503.3	762.4	802.12	292.7	690.8	609	698.5	533.3	914	396.9	445.3	477.9

Source : Report of Drought monitoring cell, 9<sup>th</sup> floor, Cauvery Bhavan, BWSSB Building, Bangalore

Table 1.8 : Taluk-wise rainfall in Bijapur district in mm - annual average from 1985 to 1997

Taluk	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Basavana Bagevadi	403.8	454.0	776.2	870.4	641.5	648.8	607.7	486.9	760.0	635.8	721.3	850.2	353.6
Bijapur	594.9	494.5	694.4	984.8	655.1	691.4	669.8	563.9	853.2	718.0	377.0	1035.8	369.7
Indi	553	484.2	794.0	647.5	908.6	676.5	683.0	525.6	701.0	329.0	623.5	715.6	281.0
Muddebihal	447.7	487.1	855.9	635.3	758.5	662.0	607.7	575.2	784.0	685.8	740.7	779.9	122.6
Sindgi	760.5	359.5	735.1	803	885.3	494.2	749.6	607.6	715.6	229.9	574.0	735.2	421.8
Badami	354.7	717.4	588.7	554.2	4448.5	316.3	649.4	394.3	797.7	488.0	660.2	770.5	216.5
Bagalkot	306.2	442.4	679	432.0	547.0	375.2	587.0	565.0	784.0	411.0	640.5	836.0	495.4
Bilgi	2422.9	432.9	942	470.6	468.5	329.2	604.4	413.5	640.0	640.3	597.5	790.9	425.4
Hungund	302.7	575.1	776.9	658.3	566.7	572.7	667.6	619.7	834.7	715.4	733.0	790.0	303.8
Jamkhandi	301.8	727.6	869.2	444.2	533.5	386.3	566.1	412.5	541.5	357.7	560.4	614.1	368.0
Mudhol	377.4	494.9	691.6	546.8	576.9	275.1	763.8	375.6	469.7	333.2	495.5	727.7	350.7

Source : Report of Drought monitoring cell, 9<sup>th</sup> floor, Cauvery Bhavan, BWSSB Building, Bangalore

Table 1.9 : Normal rainfall and normal rainy days for the raingauge stations of the district from 1901 to 1950

Taluk	Annual	Figures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Annual														
1	-2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bijapur	50 A	5.8	2.3	7.1	19.6	29.5	76.3	58.7	65.8	141.5	76.7	30.7	6.6	520.5
	B	0.3	0.2	0.7	1.7...	2.5	4.5	4.2	8	4.7	1.9	0.6	34.4	
Indi	50 A	3.3	4.1	6.9	15.5	21.8	74.7	74.9	72.1	173.2	73.2	36.6	7.6	564.4
	B	0.3	0.4	0.7	1.5	2.2	5.2	5.6	5.2	8.8	4.6	2	0.6	37.1
Sindgi	50 A	5.1	4.1	6.3	14.7	27.9	82.8	72.4	75.2	150.1	74.2	29	9.7	551.5
	B	0.2	0.4	0.7	1.4	2.5	5.4	5.5	5	8.1	4.2	1.9	0.5	36
B. Bagevadi	50 A	3.1	5.3	7.4	16.3	36.3	75.9	63.3	69.9	151.6	89.7	32.5	9.7	561
	B	0.2	0.4	0.5	1.8	2.9	5.5	5.3	4.9	8.8	5.1	2	0.7	38.1
Muddebihal	50 A	2.8	4.1	4.8	20.3	34.3	71.1	68.1	73.9	165.1	75.7	28.7	4.6	553.5
	B	0.2	0.3	0.4	1.8	3.2	5.2	5.8	6.7	8.4	4.8	1.8	0.5	38.1
Bagevikote	50 A	1.3	4.6	5.6	19.8	41.7	57.8	71.1	62.5	153.8	84.1	33.8	8.4	544.5
	B	0.2	0.3	0.5	1.8	3.5	4.9	6.2	5.2	7.9	5	2.2	0.4	38
Bilgi	50 A	2.5	2.8	5.1	19.3	39.1	63.7	59.9	60.5	137.9	84.1	33.8	8.4	544.5
	B	0.2	0.3	0.4	1.7	2.7	4.1	5.2	4.4	7.5	5	2	0.5	34
Badami	50 A	1.3	2.8	4.3	22.1	49.5	60.5	64.5	71.1	145.5	91.7	45	7.9	566.2
	B	0.2	0.3	0.3	1.8	3.6	5	5.9	5.5	7.5	4.8	2.1	0.6	37.6
Hungund	50 A	4.1	4.3	5.3	24.6	41.9	64	68.6	80.5	148.1	86.6	38.3	7.1	573.4
	B	0.3	0.3	0.4	1.9	3.5	4.8	6.1	5.8	8.2	5.1	2	0.5	38.9
Ilkal	50 A	2.8	3.3	4.3	27.2	46	60.5	69.3	81.3	150.6	87.1	40.6	7.6	580.6
	B	0.2	0.3	0.4	2	3.5	4.5	5.8	6.2	8.1	5.4	2.3	0.5	39.2
Jamkhandi	50A	6.1	1.3	6.1	24.6	40.6	69.9	67.3	59.9	142.5	90.4	3.2	8.1	548.8
	B	0.2	0.1	0.5	2.1	3.2	5.2	6.3	4.7	7.7	5.6	2.1	0.6	38.3
Mudhol	49A	2.8	2	7.1	22.6	41.9	71.4	65	62	134.1	78	35.3	8.15	30.3
	B	0.2	0.2	0.6	2	3.2	4.9	5.7	4.7	7.4	5.4	1.8	0.5	36.6
District	A	3.4	3.4	5.9	20.5	37.5	69.9	66.9	69.6	148.7	81.8	34.7	7.8	550.1
	B	0.2	0.3	0.5	1.8	3.1	5	5.7	5.1	8	5	2	0.5	37.2

A : Normal rains in mm. B: Average rainy days with rain more than 2.5 mm per day

Table 1.10 : Normal and Extreme rainfall of Bijapur district (based on all available data upto 1970)

Taluks	Normal rain	Percentage of annual rain	Year of the highest rain	Percentage of annual rain	Year of lowest rain	Heaviest rainfall in 24 hours	Date of rainfall
Bijapur	520.5	190	1916	47	1918	176	1964, July, 30
Indi	564.4	229	1916	42	1942	215.9	1895, Sept. 7
Sindgi	551.5	168	1916	55	1936	148.6	1924, Sept.26
Basavana Bagevadi	561	184	1933	45	1920	184.1	1964, Sept. 30
Muddebihal	553.5	172	1916	62	1923	145.8	1949, Sept. 22
Bagalakot	544.5	225	1916	42	1945	172.7	1969 Oct. 25
Bilgi	506.9	231	1916	38	1905	172.2	1969 Oct. 25
Badami	566.2	241	1916	42	1908	160	1969 Oct. 25
Hunagund	573.4	181	1916	56	1923	182.9	1916 July 16
Ilkal	58.06	196	1916	42	1923	190	1937 April,18
Jamkhandi	548.8	192	1916	50	1942	160	1965 Sept. 7
Mudhol	530.3	231	1916	52	1922	152.6	1960 Sept. 7
District	550.1	201	1916	64	1905	—	1933 Sept. 6

General

Table 1.11 : Normal temperature and relative humidity at Bijapur

Month	Mean Daily temp. C		Highest max. ever recorded		Lowest min. ever recorded		Date	Percentage of relative humidity	
	Max	Min	C		Date	C		8.30a.m.	5.30p.m.
January	30.2	16.2	39.4	16 <sup>th</sup> 1948	7.2	7 <sup>th</sup> 1945,	56	31	
February	32.9	18.1	41.1	28 <sup>th</sup> 1943	8.9	15 <sup>th</sup> 1930	47	26	
March	36.0	21.3	41.1	31 <sup>st</sup> 1910	13.3	6 <sup>th</sup> 1910	45	24	
April	38.0	23.8	42.6	14 <sup>th</sup> 1964	16.1	3 <sup>rd</sup> 1905	50	25	
May	38.5	23.9	44.9	10 <sup>th</sup> 1972	17.8	8 <sup>th</sup> 1940	58	26	
June	33.3	22.4	42.2	1 <sup>st</sup> 1923	17.2	5 <sup>th</sup> 1903	75	52	
July	30.1	21.7	36.8	7 <sup>th</sup> 1966	16.1	15 <sup>th</sup> 1902	80	62	
August	30.1	21.3	36.5	19 <sup>th</sup> 1969	16.7	21 <sup>st</sup> 1906	80	60	
September	30.6	21.1	36.7	22 <sup>nd</sup> 1896	16.1	26 <sup>th</sup> 1901	80	59	
October	31.0	20.6	37.3	10 <sup>th</sup> , 1965	12.2	31 <sup>st</sup> 1897	70	49	
November	29.7	17.4	35.0	4 <sup>th</sup> 1896	8.3	23 <sup>rd</sup> 1904	60	40	
December	29.0	15.2	34.6	26 <sup>th</sup> 1976	6.7	18 <sup>th</sup> 1792	58	34	



Table 1.12 : Mean wind speed in km/hr (Bijapur)

	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Wind speed	5.0	5.4	6.1	7.4	10.5	13.5	15.0	13.5	10.0	5.5	4.0	4.1	8.3

Table 1.13 Special weather phenomena

mean no. of days with	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Thunder	0.1	0.2	0.8	3	3	1.7	0.4	0.9	0.2	1.7	0.2	0.2	0.2
Hail	0	0	0	0	0	0	0	0	0	0	0	0	0
Dusty storm	0	0.2	0.4	0.4	0.4	0.9	0.1	0	0.1	0.1	0	0	2.4
Squall	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0.1
Fog	0.1	0.1	0	0	0	0	0	0	0	0	0.2	0.2	0.7

\*Number of days two and above are given in whole numbers

Source : Indian Meteorological Department, Bangalore

## FLORA

Out of the total geographical area of the district, 4.83% of the area amounting to 82,758 hectares has been classified as forest area. This constitutes less than 20% of the percentage-wise forest area that exists in the entire land of the State. The reserve forest of the district amounts to 82,491 hectares and the remaining forest area is divided into 11 hectares of protected forest and 328 hectares of unclassified forests. Only the southern and the western parts of the districts have forest areas. The details of forest area as it existed in 1963-64 and 1994-95 are given in the following table

Taluk	Geographical area in hectares	1963-64	Forest area in Hectares 1994-95
Badami	1,39,420	77,253	31,263
Bagalkot	93,697	11,647	11,611
Basavana Bagevadi	1,97,865	1,145	1,143
Bijapur	2,65,769	2,060	834
Bilgi	78,169	11,771	11,716
Hungund	1,35,358	9,790	9,792
Indi	2,22,462	-	-
Jamkhandi	1,16,853	10,708	11,410
Muddebihal	1,49,744	-	-
Mudhol	95,450	5,293	-
Sindgi	2,17,601	-	5,289
District's Total	17,12,348	82,476	83,103

Badami, Bagalkot, Hungund, Mudhol, Jamkhandi and Bilgi taluks have 90% of the total forest area of the district while Basavana Bagevadi and Bijapur taluks have less forest areas. The remaining taluks namely Indi, Muddebihal and Sindgi taluks have no forest area at all. Since rain is very scanty, the forests are not dense. Hilly areas and forests on riverbanks have caused trees like *kakke*, *dindalu* and sandalwood to flourish. Acacia is quite common in the plain areas. Rarely one can see trees like neem, tamarind, neeral (jumbosa) and banyan.

The forest area of the district can be grouped under tropical, thorn and scrub forests. On the slopes of the dry land, shrubs and on plains fuel and fodder plants are quite common. Most of the trees are restricted to the riverbanks and areas of irrigation. Jamkhandi, Badami, Mudhol and Bilgi taluks have better forest areas as compared to the rest of the taluks.

### Details of the plants that are found in the hilly areas

Mashwal-*Chloroxylon swietenia*, Tugli-*Albizia amara*, Kakai-*Cassia fistula*, Temburni-*Diospyros melanoxylon*, Halgatti-*Wrightia tinctoria*, Dindal-*Anogeisus latifolia*, Bevu-*Azadirachta Indic*, Khair-*Acacia catechu*, Ballad-*Asasia leucophlaea*, Sandal-*Santalum album*, Bandati-*Mundulea suberosa*, Tarwad-*Cassia auriculata*, Kavali-*Ganthium parviflorum*, Euphorbia spp.

### Details of plants that are found in the Plain areas

Jali-*Acacia arabica*, Hulgai-*Pongamia glabra*, Neeral-*Eugenia jambolana*, Bevu-*Azadirachta India*, Sandal-*Santalum album*, Hunshi-*Tamarandus Indica*, Bor-*Zizipus jujuba*, Alu-*Vangueria spinosa*, Kusall-*Andropogon contertus*, Sophia-*Cymbopogon martini*.

## FAUNA

Since the forest area has shrunk, the faunal density is considerably low. Wild cat, hyena, wolf, fox, Indian red fox, porcupine, deer, wild boar, monkey, peacock, partridge, warblers, green pigeon, stork, swan, wagtail, cobra, viper, python, rat snake are some of the animals and birds that are found in the forest of this district. At present there are no tigers reported from this area. The list of animals in the district (that existed in 1890) is given in the table below:

Tiger-*Felis tigris*, Bear-*Ursus labiatus*, Panther-*Felus pardus*, Wolf-*Canis pallipess*, Hyena-*Hyena striata*, Jackal-*Canes aureus*, Porcupine-*Hystrix leucura*, Fox-*Vulpes benghalensis*, Pig-*Sus indicus*, Large Mangur-*Presbytis johnii*, Small Brown Monkey-*Presbytis innusrhensis*, Antelope-*Antelope bezoartica*, Gazelle-*Gazella bennetti*, Indian Hare-*Lepus nigricollis*,

### Birds

Pea Fowl-*Pavo cristatus*, Painted Partridge-*Francolinus pictus*, Grey Partridge-*Ocygornis ponticerianum*, Rain Quail-*Coturnix coromandelica*, Bustard Quail-*Turnix taigoor*, Bush Quail-*Perdicula argoondah*, Bustard-*Eupotodis edwardisii*, Lesser Florican-*Sypheotides aurita*, Common Sand grouse-*Pterocles exustus*, Painted Sand grouse-*Pterocles fasciatum*, Green pigeon-*Crocopus chlorigaster*, Demoiselle Crane-*Anthropoides virgo*, Painted Snipe-*Gallinago coelastis*, Jack Snipe-*Gallinago gallinula*, Brahmani Duck-*Casarca rutila*, Common Grey Duck-*Chaulelasmus streperus*, Blue winged Teal-*Querquedula crecca*, Shoveller-*Spatula clypeata*, Plovers Curlews, Herons-Bittern, *Botaurus stellaris*, Snakes-Cobra-*Naja tripudians*, Dhaman-*Ptyas mucosus*, Jumping Snake-*Dfipsas gokool*, Indian Rock Snake-*Python molurus*, Common green grass Snake-*Tropidonotus plumbicolor*, Water Snake-*Tropidonotus quincunciatus*, Common Sand Snake-*Eryx johnii*.