

CHAPTER 1

GENERAL

Gulbarga is not only the headquarters of the district but also the division, comprising the four districts of Bidar, Gulbarga, Raichur and Bellary and both the district and the division are called by its name. The district is situated in the northern part of Karnataka state. Among the three districts of the former Hyderabad Karnataka area, which after reorganization of States in 1956, formed part of Mysore state, Gulbarga occupies a central place with Bidar to its north and Raichur to its south. It lies between east longitudes 76°04' and 77°42' and north latitudes 16°12' and 17°46'. It is bounded on the north by Bidar district of Karnataka State and Sholapur and Osmanabad districts of Maharashtra State, on the east by Medak and Mehabubnagar districts of Andhra Pradesh, on the south by Raichur district and on the west by Bijapur district of Karnataka State and Sholapur of Maharashtra. The river Krishna runs in the southern side of the district and forms the natural boundary between Gulbarga and Raichur districts. The river Bhima, another important river in the district, forms the western boundary between Bijapur and Gulbarga district for some distance.

Origin of Name

Historically in the Chinamulli stone inscription of about 12-13th century, there is a mention of the word 'Kalambarige' which can be related to Kalaburgi and the same word finds a place in an inscription of that period found in Bidar district also. There is also a mention of 'Kalubarage' in Belur (Hassan district) Inscription (1397AD) and 'kalaburige' in Shiravala Inscription(1537 AD). In former days, Gulbarga was known as Kalburgi which means a 'stony land' or 'stone roofing' or a 'heap of stones' in Kannada. In 1445, Abdul Razzak describing the extent of Vijayanagar Empire, stated that it extended up to the extremities of the country of *Kalburgah*. Another version is that Gulbarga was so named to connote a leaf with flower, since 'Gul' means flower and 'Burg' means 'leaf' in persian language. It is also said that Kalburgi,

known later as Kalburgah, came to be pronounced as Gulbarga was originally built by Raja Gulchand and afterwards strengthened by Ala-ud-din Bahmani, but it is not certain if the name of the Raja had anything to do with the name of the town which grew around it. Nothing definite is known about the origin of the name, but this much is certain that it was known as Kalburgi in earlier days and was later changed to Gulbarga. Even now, it is not uncommon to hear people calling the place as Kalburgi.

Area and Population

The total geographical area of the district is 16,224 square kilometres which forms about 8.46 per cent of the state area and occupies second place among the districts in the state in area next only to Bijapur district. Its population according to the 1991 census was 25.82 lakhs of which 13.16 lakhs were males and the remaining 12.66 lakhs were females. Out of the total population of 25.82 lakhs, 19.72 lakh persons were living in rural areas while the remaining 6.1 lakh persons were living in urban areas. The district has the density of 962. The decennial growth rate between 1981-1991 was 28.08 per cent which was higher than the State growth rate of 21.11. In population the district stands seventh among the districts of the State. It had 5.74 per cent of State population. The Scheduled caste population was 6.11 lakhs (23.66 per cent of the State population) while the Scheduled Tribe population was 1.07 lakhs (4.41 per cent of the State population). The district has been divided into three revenue subdivisions.

Administrative History

It is learnt that the northern parts of Karnataka were under the administrative control of the Magadhas as per stone edicts available. The Mauryas who were the successors of the Magadhas were exercising the control over certain areas of Karnataka. During that period the area comprising the district of Gulbarga must have been under their administrative control. This can be surmised by silver coins found in the area. But there is no information available on this through edicts or artefacts. The stone edict available in Sannati indicated that Satavahanas who were the successors of the Mauryas, had ruled over the district. According to the information available, it seems that Sannati was a famous Buddhist Centre. The Satavahanas who were the successors of the Mauryas, followed the same administrative procedure adopted by the Mauryas with some modifications. The scheduled divisions, the names of the position of the officers were continued along the same Mauryan tradition. Kautilya's Arthashastra provided guidelines for the administrators of those days. The village was the smallest administrative unit and the officer by name *Gramika* was appointed to take care of it. There used to be municipalities (just like the present day municipalities). The names of the different levels of officers are as follows - *Amatya, Mahamatya, Bhandagarika, Dravyadhikari, Lekhaka, Parupatyagara, Akkasaliga, Nanyamudraka, Granthapalaka, Dwarapalaka and Rayabhari*.

The course of history of the Karnatak area of the former Bombay and Hyderabad states, now forming the Belgaum and Gulbarga divisions, is closely inter-connected. The earliest reference to the area now comprising the Gulbarga district occurs in an inscription of the reign of Chalukyas in the sixth century. About the year 550 A.D., the Chalukyan ascendancy in the Deccan was a landmark in the history of India. Their first appearance south of the Narmada river was in the 4th century, previous to which they are said to have fifty-nine predecessors, but of these nothing has

been known authoritatively. There was a long drawn-out conflict between the Chalukyas and the Pallavas. In the 6th century, Pulikeshin I occupied Vatapi and made it his capital. By the middle of 8th century, the Chalukyas were displaced by the Rashtrakutas who reigned in this part over two centuries, with their capital at Manyakheta, now called Malkhed in Sedam taluk of Gulbarga district (See Chapter 2 for details). After the Rashtrakutas, the Chalukyas again came to power and ruled for over 200 years with their capital at Kalyana which now forms part of Bidar district.

The Chalukyas were succeeded for a short while by the Kalachuries. They were obviously the feudatories of the Chalukyas and when the strength of the Chalukyas waned, they asserted themselves. Their capital was also Kalyana. About the close of the 12th century, the Yadavas of Devagiri and the Hoysalas of Dwarasamudra destroyed the supremacy of the Chalukyas and Kalachuries. About this time, the Kakatiya kings of Warangal came into prominence and the present Gulbarga and Raichur districts formed part of the dominions of the Raja of Warangal.

Under the Rashtrakutas, the Chalukyas of Kalyana and the Yadavas of Devagiri, the kingdom was divided into separate regions for administrative convenience and the administrative setup of each region differed slightly from the other. The administrative pattern described below relates to the Kannada region to which the present district belonged.

The Rashtrakutas were first feudatories of the early Chalukyas, but later overthrew them and assumed the imperial title and position. The crown prince was next only to the king in dignity. The high offices of the state were generally assigned to the sons of the nobles and bore the titles of *Maha sandhivigrahika* (Minister for foreign affairs), *Bhandagarika* (Treasurer), *Baladhikrita*, *Dandanayaka* and *Maha prachanda dandanayaka* (three grades of military officers.)

The pattern of local government under the Rashtrakutas was of the regional type. A number of villages were grouped into units and each unit had the number of villages comprising the group affixed to its name. There were separate offices known as *Nalgavundas* in charge of smaller groups of 300 and sometimes there was a single office known as *Dharmamaharaja* in charge of two such small groups. The towns were ruled by *Ur-gavundas* and the villages had bodies known as *Mahajanas* which attested gifts by private individuals, received assignments of local taxes and made gift of land for religious purposes.

The Chalukyas, besides their usual imperial titles, added to their names such epithets as *Samastabhuvanashraya* (refuge of the whole world), *Sriprithvivallabha* (favourite of fortune and the earth), *Satyashraya-kulatilaka* (forehead-ornament of the Satyashraya) and *Chalukyabharana* (ornament of the Chalukyas). High officers of the state consisted of *Dandanayaka* (General), the *Mahaprachandadandanayaka* (great august General), the *Dharmadhikarin* (Chief Justice) and the *Tadeyadandanayaka* (General in charge of reserves). There were also separate ministers for each region and the minister for peace and war for the Kannada country was known as *Kannada-Sandhivigrahika*. Some of the officers held combined charge of two or more offices. For purposes of local administration, the area was divided into large and small divisions with numeral endings varying from 32,000, 12,000 etc., through 3,000, 2,000, 1,000 etc., to 500, 300, etc. *Kampanas* (Countries) of 20 and 30 were included in the group of 500. Besides these divisions with numeral endings, there were also a number of *nadus*. Usually, the larger administrative divisions were

governed by princes, high officials and feudatories and often governors of large divisions also held charge of smaller divisions. *Prabhus, Nal-gavundas and Dandanayakas* held charge of smaller divisions. There were also instances of both civil and military officers jointly governing a *nadu*.

The provincial Governors were assisted by subordinate officers called *Mahaprachanda dandanayaka* (great august General), *Sandhivigrahadhikari* (Minister of peace and war) who also often held additional charge of offices like that of *Mahapradhana* (Chief Minister) and steward of the royal household. There have been a number of instances where divisions, both big and small, were being administered by queens and princesses assisted by a council of ministers comprising the *Mane-perggade* (steward of the household), *Tantrapalas* (Councillors), *Pradhana* (Minister) *Aliya* and a secretary to the council. There were also separate officers administering different branches of taxation. Wives of governors were also sometimes associated with the administration of the provinces.

The towns and villages had a corporate constitution and there were assemblies known as *Mahajanas* consisting of several members, who sometimes numbered a thousand. The head of the assembly was known as *Ur-odeya* and there were also the *Gavunda* (sheriff) and *Perggade* (steward). These local bodies were also entrusted with the work of administering the permanent endowments made by queens, high officials and private individuals in favour of temples.

There were also a number of feudatories enjoying limited autonomy. They bore a title of king or *Mahamandaleshvara* and had a staff of officials similar to that of the paramount power. These chiefs also had sub-feudatories under them holding seigniorship (*manneyas*). The wives of these chiefs were also associated with the administration of the area under them either along with their husbands or as subordinates to them. Both the feudatories and the holders of *manneyas* could assign lands on their own authority.

The Yadavas of Devagiri who took over the administration of the Gulbarga area from the later Chalukyas continued the Hindu traditions of governing the country. The king assumed the title of *Maharajadhiraja* together with other titles. His principal officers were the *Mahapradhana* (Chief Minister), the *Senapati* (Commander-in-chief) and the *Dandanayaka* (officer maintaining law and order). The Chalukyan type of administrative divisions with numeral endings was continued.

In 1294 when Jalal-ud-din Firuz Shah was the Sultan of Delhi, his ambitious nephew, Ala-ud-din carried on an unauthorised campaign against the Yadavas and subdued them. He treacherously killed his uncle, the sultan in 1296 and proclaimed himself king. In 1318 the rebellion of the Devagiri ruler led to the final suppression of the Yadava dynasty. Similarly, the Kakatiya power was subdued in 1321 and the entire Deccan including the districts of Gulbarga, Raichur and Bidar, passed to the control of the Muslim Emperors at Delhi. From 1294 to 1347, it remained as a part of the Delhi Empire. The Delhi Empire was divided into a number of provinces and tributary States. With the growth of provincial administration, it became necessary to divide the province into shiqqs which were managed by shiqqdars; these shiqqs were nothing but paraganas, the central authority always having the final say. The paragana to which a larger portion of the Deccan belonged was an important administrative unit. The various officials under

the shiqqdar were a mushrif or munshif, a treasurer, two *karkuns* and a *qanungo*. The *amil* was the chief executive officer and the head of the paragana administration. The *mushrif* was the principal assessment officer. The *karkuns* were the registrars of the paragana. The village was the basic unit of the administration. It was allowed to retain the tradition of self government.

In the middle of the 14th century, the revolt of the Muslim officers appointed from Delhi resulted in the founding of the Bahmani Kingdom in 1347 and the accession of Hassan Gangu to the throne of Daulatabad under the title Abu-i-Muzaffar Ala-ud-din Bahman Shah. Soon after the ceremony at Daulatabad, he selected Gulbarga as his capital. It remained the seat of Bahmani Government till about 1424 when during the reign of Ahmad Shah, the capital was shifted to Bidar. After the conquest of Warangal, Bidar was the most central point and strategically it was a much stronger situation and had a better climate than Gulbarga.

Under the Bahmanis, the kingdom was divided into four divisions and they were called tarafs. The officers in charge of these divisions were known as tarafdars who were supreme in their respective divisions. They collected revenue, raised and commanded the army and made all the appointments, both civil and military, in their provinces. They were liable to be transferred from one division to the other; this was intended to control the powers of the tarafdars and to check them from becoming powerful. Some of them in addition to being tarafdars, were also ministers at the Bahmani court. Each taraf was sub-divided into what was known as sircar which in turn was further divided into paraganas. The village was the smallest unit of administration and a number of villages formed a paragana.

When the Bahmani dynasty came to an end, the kingdom broke up into five independent kingdoms (Sultanates) of (1) the Adil Shahi of Bijapur, (2) the Qutb Shahi of Golconda, (3) the Nizam Shahi of Ahmadnagar, (4) the Barid Shahi of Bidar and (5) the Imam Shahi of Berar. The present Gulbarga district came partly under Bidar and partly under Bijapur. On the conquest of the Deccan by Aurangzeb in the 17th century, when the Moghul empire was in the throes of decline, Asaf Jah, a distinguished General of Aurangzeb, who was appointed as the Subedar of Deccan with the title "Nizam-ul-Mulk", asserted his independence and formed the Hyderabad State in which a major part of the area now forming the Gulbarga district was also included. Surapura (Shorapur), comprising Shorapur, Shahapur and Jevargi, was a separate principality ruled from 1707 to 1857 by Rajas who had their capital at Surapura. The last of the Rajas, Venkatappa Naik, revolted against the British and the principality was made over to the Nizam after the suppression of the revolt.

During the rule of the early Nizams, there was no real administration in the modern sense. A good deal of land was given in the form of grants, jagirs and inams to nobles and others who promised to perform certain services, mainly, the maintenance of troops for use by the ruler. Considerable portions were also given as security for the payment of debts to the people who had advanced money, or to the leaders of mercenary bands which had been recruited for military service and the payments for which could not be made. That portion of the land which remained with the State was farmed out on rent, the farmer being entitled to collect the State's share, deducting a percentage for cost of collection. The ruler's Privy Purse was separated from the State

revenue and he claimed a particular amount from the Government and if the State failed to pay the amount, he took over a portion of the land as his own for his maintenance, but his claim on the Government for a fixed annual sum, however, continued.

The land given to nobles was known as paigah and those given to others for meritorious services rendered to Government were called jagirs. Land taken over by the Nizam from the Government for failure to pay his privy purse was known as Sarf-e-khas and the land that remained under the Government control was called Dewani land. Each had a separate administrative machinery of its own. This position continued till all the jagirs were abolished in 1949 and integrated with the Dewani(Government) areas of the state in May 1950. In Gulbarga district alone, out of the total number of 1,682 villages, 563 villages were jagirs.

In order to grant security to the peasantry and to increase the revenues, the areas directly under the Government were, after the much struggle and experiment, divided into districts. A district was divided into taluks. Government officers were appointed to hold charge of the revenue and judicial administration. Zilla bundi, as the formation of the districts was called, was first done in 1863 and constituted one of the most remarkable reforms of Salar Jung, the then Prime Minister of Hyderabad. The State was divided into subas, each consisting of four districts and sadar taluqdar, as he was termed, was in charge of each district and he had under him a second taluqdar for a sub-division, of which there were two or three in a district. There were two or three tahsils in each sub-division and a tahsildar was in charge of each of them.

The first district to be formed in the area at the time of Zillabundi was the Shorapur district, which originally had only five taluks but within a decade almost doubled itself on account of the annexation to it of several paraganas, and had nine taluks, namely, Shorapur, Gulbarga, Andola, Dehgaon, Chincholi, Seram, Kodangal, Gurmatkal and Mahagaon(Narona). On account of the difficulty experienced by the Sadar taluqdar in supervising the offices of the Shorapur district, which had grown in size, the Prime Minister sanctioned the formation of a separate district by detaching some of the taluks of Shorapur district. The present Gulbarga district was thus first formed in 1873 consisting originally of six taluks i.e., Gulbarga, Chincholi, Seram, Kodangal, Gurmatkal and Mahagaon(Narona), detached from Shorapur district to form the new district. Shorapur district was again broken up in 1883, and Andola taluk was transferred to Gulbarga. At the time of the census of 1901, the division included the four districts of Gulbarga, Lingsugur, Osmanabad and Raichur. Gulbarga district, besides jagirs, had the following seven taluks(Imperial Gazetteer of India, Vol XII, 1908, P:377)

Sl. No.	Taluk	Area in sq miles	Number of Towns	Number of Villages
1	Gulbarga	524	1	108
2	Mahagaon(Narona)	307	0	81
3	Chincholi	277	0	69
4	Kodangal	141	0	60
5	Seram	267	1	72
6	Gurmatkal	304	0	86
7	Andola Jagirs etc.,	1,664	4	509
	Total	4,092	7	1,102

Considerable administrative changes were made during the reconstitution of 1905; Lingsugur district was abolished and divided between Gulbarga and Raichur. Yadgir taluk was transferred from Raichur to Gulbarga district. Gurmatkal and Mahagaon (Narona) taluks were divided among the Seram, Kodangal, Gulbarga and Yadgir taluks. Shahapur and Shorapur from the former Lingsugur district were added to Gulbarga district and 73 villages from Mahabubnagar district were included in the Kodangal and Yadgir taluks. In place of Lingsugur district, which was abolished, Bidar district was added to Gulbarga Suba. After the reconstitution of 1905, the Gulbarga Suba consisted of Gulbarga, Osmanabad, Raichur and Bidar districts. Gulbarga district consisted of eight taluks, Gulbarga, Andola, Chincholi, Kodangal, Seram, Yadgir, Shahapur and Shorapur, five paigah *ilakas* of Aland, Ferozabad, Afzalpur, Kalgi and Chittapur and two jagirs of Tandur and Kosgi.

The district was divided into three sub-divisions, the first comprising the taluks of Seram, Kodangal and Yadgir, the second comprising the taluks of Chincholi and Gulbarga and the third comprising the taluks of Andola, Shahapur and Shorapur. There was a tahsildar in each taluk. In 1921, Gulbarga district had five Diwani taluks and three Sarf-e-khas, and the rest were jagirs. The area, number of towns and villages in the district in 1921 were as under.

SI No.	Taluk	Area in sq miles	Number of Towns	Number of Villages
1	Seram	440	0	97
2	Gulbarga	807	1	246
3	Kodangal	622	2	178
4	Chincholi	823	0	135

Shorapur division

SI No.	Taluk	Area in sq miles	Number of Towns	Number of Villages
1	Shorapur (Surf-e-khas)	527	1	175
2	Shahapur (Surf-e-khas)	546	0	156
3	Andola (Surf-e-khas)	709	0	162
4	Yadgir	507	1	133

Jagir taluks

SI No.	Taluk	Area in sq miles	Number of Towns	Number of Villages
1	Kalyani (Jagir)	272	1	71
2	Chittapur (Jagir)	360	1	50
3	Tandur (Jagir)	211	1	75
4	Shahabad (Paigah)	256	1	26
5	Aland (Paigah)	402	1	68
6	Bashirabad (Paigah)	121	0	42
7	Afzalpur (Paigah)	372	0	56
Total		6,975	10	1,670

There were certain changes in the super structure of the State administration now and then. At first, the Prime Minister bore the entire responsibility of Government, but this was slightly modified and other Ministers were appointed to help him. These were subsequently replaced by Assistant Ministers and much later by a Council of Ministers with the Prime Minister as president of the Council. All the Ministers derived their authority from the ruler. But the administrative set-up of the districts remains unchanged.

After the attainment of Independence by India in 1947, rulers of Indian States acceded to the Indian Union, but the Nizam did not do so and tried to remain independent, with the result that a chaotic condition prevailed in the State and thousands of people were either driven out of their homes or left themselves through fear. The Indian troops marched into Hyderabad in September 1948. The Nizam dismissed his Council of Ministers and handed over the administration to the Military Governor. Thereafter, the state became a part of the Indian Union. The Military Governor and the Chief Civil Administrator replaced the old council of Ministers and a Civil Administrator was appointed for each district. He had under him a Deputy Civil Administrator and an Assistant Civil Administrator on the one side and a first taluqdar, two or more second taluqdars and a number of tahsildars on the other. The State became a Part 'B' State of the Indian Union with the Nizam as the Rajpramukh.

After a year, a military Governor and his assistants were replaced by a new council of Ministers consisting of a Chief Minister assisted by seven ministers, four of whom were non officials nominated by the principal political party in the State. Later, the Revenue Board was reconstituted to exercise supervision over the revenue and general administration side of the district work.

In September 1949, one thousand and five hundred jagirs in Hyderabad comprising 6,500 villages covering about one third of the area of the State were abolished. In Gulbarga district, four more taluks Aland, Chittapur, Afzalpur and Tandur created out of the adjoining jagir areas, were added to the district. The Nizam was granted a compensation of Rs 50 lakhs per annum for all the Sarf-e-khas areas surrendered to the state which then became Government lands. The district before the reorganization of the States in 1956 consisted of 12 taluks namely, Gulbarga, Chincholi, Seram, Kodangal, Shorapur, Shahapur, Andola, Yadgir, Aland, Chittapur, Afzalpur and Tandur, with three administrative sub-divisions at Gulbarga, Tandur and Yadgir.

Public opinion was critical of the classification of the States constituting the Union of India into three categories known as Part 'A', Part 'B' and Part 'C' States. It was argued that it offended the principles of equal rights and opportunities for the people of India. There was also an agitation in the country for formation of States on a linguistic basis. The Government of India therefore considered it desirable to reorganise the State on a rational basis and to do away with the distinctions existing among the States, and the Prime Minister announced in the parliament on 22nd December 1953 that a commission would be appointed to examine the question of reorganization of the States. Accordingly, the States Reorganization Commission with Shri Fazl Ali as Chairman and Shri Hriday Nath Kunzru and Shri Kavalam Madhava Panikkar as members was appointed.

The commission submitted its report on the 30th September 1955. Among other things, the Commission recommended that a Karnataka State comprising the Kannada speaking areas of

the former Bombay, Hyderabad and Madras States, the whole of Mysore State and Coorg should be formed. So far as Gulbarga district was concerned, the recommendation of the commission was that the whole district may be included in the new State. But the States' Reorganization Act of 1956 provided that the two taluks of Kodangal and Tandur should be added to the new state of Andhra Pradesh and that only the rest of the district should go to the new Mysore State. Accordingly, with effect from 1st November 1956 i.e., the date on which the act came into force, the reduced Gulbarga district consisting of the taluks of Gulbarga, Chincholi, Seram, Shorapur, Shahapur, Andola, Yadgir, Aland, Chittapur and Afzalpur became part of Mysore State, and the taluks of Kodangal and Tandur formed part of Andhra Pradesh.

After the formation of the new Mysore State in 1956, Government decided to divide the State into four administrative divisions, each under a Divisional Commissioner; Gulbarga which was Suba (Diwani) in the ex Hyderabad State, was continued as a Division with the three districts of Bidar, Gulbarga and Raichur, since Osmanabad, which was part of Gulbarga Suba in the ex Hyderabad State, was transferred to the new Bombay State, now Maharashtra State. With effect from 1st February 1966, Bellary district which had been included in the Bangalore Division, was transferred Gulbarga Division, which now comprises of the four districts of Gulbarga, Bidar, Raichur and Bellary. Gulbarga district consists of two Revenue Sub-divisions and ten taluks, as given below.

Gulbarga Sub-division

Taluk	Area in sq miles	Number of Towns	Number of inhabited Villages	Number of Towns
Gulbarga	663.7	1719	137	1
Chittapur	691.2	1,790.2	116	2
Afzalpur	503.9	1331	88	0
Aland	678.4	1,757.1	127	1
Seram	365.4	946.4	104	1
Total	2,912.6	7,543.7	572	5

Yadgir Sub-division

Yadgir	665.6	1,723.9	1,299	2
Chincholi	608.6	1,576.2	133	3
Jevargi (Andola)	746.2	1,932.6	147	0
Shahapur	627.2	1,624.5	145	1
Shorapur	711	1,841.5	172	1
Total	3,358.6	8,698.7	726	5
Grand Total	6,271.2	16,242.4	1,298	10

The taluks are sub-divided into revenue circles (corresponding to hoblies in former Mysore State) and there were 32 such circles. With effect from 1st June 1966, these 32 circles were reorganized into 48 circles. The following statement gives the number and names of the previous and present revenue circles under each taluk

Taluk	Previous number of circles	Previous names of circles	Present number of circles	Present names of circles
1	2	3	4	5
1. Gulbarga	3	1. Gulbarga 2. Kamalapur 3. Farhatabad 4. Mahagaon	6	1. Gulbarga 2. Awarad 3. Kamalapur 5. Farhatabad 6. Pattan
2. Chittapur	3	1. Chittapur 2. Nalwar 3. Kalgi	5	1. Chittapur 2. Kalgi 3. Shahabad 4. Nalwar 5. Gundgurthi
3. Aland	3	1. Aland 2. Narona 3. Nimbarga	5	1. Aland 2. Khajuri 3. Nimbarga 4. Madanhiperga 5. Narona
4. Seram	3	1. Seram 2. Mudhol 3. Kodla	4	1. Seram 2. Adki 3. Mudhol 4. Kodla
5. Afzalpur	2	1. Afzalpur 2. Atnoor	3	1. Afzalpur 2. Atnoor 3. Karajagi
6. Yadgir	4	1. Yadgir 2. Balchakkar 3. Saidapur 4. Gurmatkal	6	1. Yadgir 2. Balachakkar 3. Hattikuni 4. Saidapur 5. Konkak 6. Gurmatkal
7. Shahapur	4	1. Hattigudur 2. Doranhalli 3. Gogi 4. Wadgera	5	1. Shahapur 2. Gogi 3. Doranahalli 4. Hayyal - B 5. Wadgera
8. Jevargi	3	1. Jevargi 2. Nelogi 3. Yadrami	5	1. Jevargi 2. Ijeri 3. Nelogi 4. Yadrami 5. Andola
9. Chincholi	3	1. Chincholi 2. Chimanchod 3. Kembhavi	4	1. Chincholi 2. Ainapur 3. Kodli 4. Sulepet
10. Shorapur	4	1. Shorapur 2. Hunasgi 3. Kembhavi 4. Kodekal	5	1. Shorapur 2. Hunasagi 3. Kakkera 4. Kodakal 5. Kembhavi
Total	32		48	

The Divisional Commissioner with his headquarters at Gulbarga is the administrative head of the four districts comprising the division. The Deputy Commissioner is the head of the district. Each revenue sub-division is administered by an Assistant Commissioner and each taluk is administered by a Tahsildar.

The details of sub-divisions of Gulbarga district during 1997 was as follows:

Sub-division	Taluk	Area in sq. km	Population
Yadgir	1. Yadgir	1,709	2,74,082
	2. Shahapur	1,694	2,40,206
	3. Shorapur	1,820	2,81,743
	Total	5,223	7,96,031
Gulbarga	1. Gulbarga	1,730	5,23,944
	2. Aland	1,735	2,60,834
	3. Afzalpur	1,305	1,50,856
	4. Jevargi	1,822	1,88,707
	Total	6,592	11,24,341
Sedam	1. Sedam	1,025	1,63,155
	2. Chittapur	1,765	3,09,481
	3. Chincholi	1,569	1,89,161
	Total	4,359	6,61,797
	Grand Total	16,224	25,82,169

The taluk-wise general particulars of the district is given in the Table 1.1 and 1.2

Natural Divisions

Gulbarga district consists of Deccan traps and sedimentary rock formations. The characteristic rock types found in Gulbarga district are hard, compact black rocks called basalt which present a scenery of undulating plains and groups of flat topped hills and step like terraces.

The general elevation ranges from 1,000 ft(300 m) to 2000 ft(600 m) MSL and is somewhat higher than 2000 ft(600m) in parts of Yadgir and Sedam taluks. In Chincholi and Yadgir taluks there is some forest area while in other taluks, one does not come across much forest area. The land is undulating and uneven in Aland and Yadgir taluks.

Hills

The entire district is situated in what is known as the Deccan plateau. A rang of hills enters the north Gulbarga district on the west and continues in the direction of south east for about sixty miles(96 km). The remaining part of this district is flat. The slope of the district is from north to south and south to east. In Shahapur taluk, there is a small range of hills called Muhammadapur hills and Shahapur town is situated at the foot of these hills. A third range takes its name from Shorapur and is eight miles (13 km) in length. Yet another range of hills in Yadgir taluk takes off from west to east for a length of twenty miles (32 km) and enters Sedam taluk.

Geology

The geology of Gulbarga district has been recorded by Bruce Foote and is to be found forming part of the monograph published as Memoir XII of the Geological Survey of India. Later on the district has been surveyed in closer detail by Sri C Mahadevan of the Hyderabad Survey whose observations are recorded in Volume V, Part I, of the Journal of the Hyderabad Geological Survey.

Table 1.1 : General Particulars of Gulbarga District 1991

Name of the Taluk	Area		East Longitude in degrees and minutes		North Latitude in degrees and minutes		Altitude (MSL) in metres	Names of the rivers
	In sq km	% of the district	From	To	From	To		
Afzalpur	1,305	8.04	76 05	76 44	17 04	18 23	300-400	Bhima
Aland	1,735	10.69	76 21	76 57	12 20	17 46	450-800 300-450	
Chincholi	1,569	9.67	77 04	77 43	17 12	17 38	300-450 450-800	Mullamari
Chittapur	1,765	10.88	76 52	77 17	16 50	17 29	300-450	Kagina Bennetore
Gulbarga	1,730	10.66	76 38	77 10	17 03	17 42	300-450 450-800	Bhima Mullamari Bennetore
Jevargi	1,822	11.23	76 17	76 57	16 43	17 10	300-450	Bhima Kagina
Sedam	1,025	6.32	77 08	77 29	16 52	17 13	300-450	Kagina
Shahapur	1,694	10.44	76 37	77 19	16 23	16 52	300-450	Krishna Bhima
Shorapur	1,820	11.22	76 18	76 54	16 15	16 44	300-450	Krishna
Yadgir	1,709	10.53	76 58	76 28	16 27	16 56	300-800	Bhima
District Total	16,224	100	76 04	77 56	16 15	17 45		

Source : 1. Talukwise Basic Statistics, Minor Irrigation, Bangalore
2. Gulbarga district at a Glance, DES, Gulbarga.

Table 1.2 : General Particulars of Gulbarga district 1991

Name of the taluk	Population		Den sity per sq km	Decadal growth 1981-1991	No. of revenue	Villages		Municipalities/ Corporation	Notified areas
	Population	% of district				Inhabited	Un-inhabited		
Afzalpur	150856	5.84	116	20.61	3	87	3	0	0
Aland	260834	10.1	150	20.69	5	128	10	1	1
Chincholi	189161	7.33	121	19.57	4	131	14	0	0
Chitapur	309481	11.99	175	20.01	5	118	3	5	4
Gulbarga	523944	20.29	303	30.17	6	135	80	1	1
Jevargi	188707	7.31	104	23.3	5	146	12	0	0
Sedam	163155	6.32	159	26.05	4	102	8	3	1
Shahapur	240206	9.3	142	25.33	5	143	11	2	2
Shorapur	281743	10.91	155	26.05	5	175	10	4	1
Yadgir	274082	10.61	160	22.79	6	130	13	2	2
District Total	2582169	100	159	24.1	48	1295	83	18	12

Source: Gulbarga district at a Glance, DES, Gulbarga.

The southern portion of the district is covered entirely by the Deccan trap, while spreads of limestone and shale belonging to the Bhima series are seen in the middle of the district. The Bhima's represent a younger formation, younger to the Kaladgi rocks (Cuddapah) and are stated to show affinities to the young Kurnool formation of the Cuddapah basin. The archaen rocks, composed of the Peninsular gneisses with lenses and patches of still older Dharwar rocks, are confined to the southern and eastern part of the district.

The main geological formations met with in this area are:

1. Pleistocene and Recent: consisting of soil and laterite, alluvium and recent conglomerates;
2. Tertiary: Composed of Deccan traps and inter-trappeans and intra-trappeans;
3. Puranas (Precambrian): composed of Upper Bhima shales and sandstones, middle Bhima limestones and Lower Bhima shales and sandstones; and
4. Archaen: comprising Peninsular gneiss with associated younger granites and Dharwar schists.

Dharwars

The Dharwars occur merely as small patches amidst the gneiss and are of negligible size. Among these, the Kellur-Gogi and the Mangalur bands are of some importance.

The Kellur-Gogi patch of Dharwars consists of schists outcropping on the Krishna near Kellur and runs with intervals *via* Sharadalli, north of Sagar and extends up to Gogi. These schists are presumably a continuation of the prominent schist band traced as a continuous belt for a distance of over 30 miles(48km) in the Raichur. In Gulbarga district, the band has been broken

up and only remnant patches occur. They are free from auriferous quartz veins and are economically unimportant.

The Mangalur band forms a belt of hornblende schists extending from Bonal to Naganur for a length of about 16 miles (26km) having an average width of about three miles (5km). The Mangalur gold mines, partly developed by the Hyderabad Deccan Mining Company, are situated in this belt. The schists of this belt are similar to the epidiorites of Wandalli and Topaldoddi of the Maski band of schists. Typical hornblende schists occur to the north and north-east of Parsanahalli and are well exposed over the Kembhavi-Naganur track. Outliers of Dharwar rocks have been noted at Gogira and west and north of Malgatti.

There are numerous old workings for gold along the eastern margin of the belt from Mavinmatti to the north of Kardhalli along the zone of blue quartz reefs. The Hyderabad Deccan Company carried out prospecting in detail south of Mangalur and at a place called 'Makan-gavi'. Other prominent old workings are seen to the south of Mavinmatti, to the north-east of Janapur and to the west of the road to Kardahalli from Naganur.

Peninsular Gneissic Complex

The major portion of the area in Shahapur, Shorapur and Yadgir taluks is covered by peninsular gneisses which bear an intrusive relationship with the Dharwars. Two types, a grey and a pink series with their own respective pegmatites have been recognised. The grey gneiss is conspicuously banded and developed in force on the hilly tracks north of Shorapur and Shahapur. Pink, finegrained gneisses occur extensively to the north of Sagar and Rastapur. The granites and gneisses of the complex are traversed by a number of doleritic dykes.

Purana formations

Overlying the steeply dipping granites and gneisses are seen horizontal beds of sandstone, shale and limestone in the valleys of the rivers Bhima and Kagna, which are designated as the Bhimas. These resemble the Kurnools, though they are nowhere seen in contact. There is little doubt, however, that they are one and the same. The Bhimas attain their greatest development in Gulbarga district and occupy an area of nearly 2,000 sq. miles. The rock types, characteristic of this series, are a series of shales and limestones.

Bruce Foote divided the Bhima series into two stages, a lower consisting of conglomerates, sand stones and shales and an upper of limestone, sandstone and shales. More detailed work on these formations has been carried out by Mahadevan who has recognised three distinct stages, a lower of sandstone passing upwards into shales, a middle of limestone and an upper of shales and local sand stones.

The Bhimas are covered by the Deccan traps to the west, north and north-east and therefore, the exact limits of these sedimentary rocks cannot be determined or surmised. The rocks of the Bhima series do not show any metamorphism. They are for the most part horizontal. Though

conditions were favorable for the preservation of organic remains, the whole formation is devoid of any recognizable fossils.

The lower Bhima series consists of several basal conglomerates and grits and are succeeded by sandstones, and green and purple shales of a good thickness. They are best seen in the Kagna basin and in Shorapur, Shahapur and Yadgir taluks of the district.

The middle Bhima series consists almost exclusively of limestone and occupies an area of nearly 1,500 square miles in the district. The limestones consist of horizontal beds varying from six inches to two or three feet in thickness with intercalated layers of limestone flags. The limestones analyze 80 to 95 per cent CaCO_3 and contain magnesium carbonate varying from one to three per cent. The Shahabad Cement Company uses the limestones from near Bankur for the manufacture of cement at Shahabad. The flaggy limestones near Chittapur, Tandur and Wadi are extensively quarried. Shahabad stone is famous for its light blue colour and the polish it takes, and finds a wide market.

The Bhima group is now divided into five different formations as indicated hereunder.

Bhima Group

Harwal Formation	:	Purple shales
Katamadevarahalli Formation	:	Bedded and flaggy dark grey, limestone.
Halkal Formation	:	Greenish yellow to buff coloured shales with local sandstone conglomerate.
Shahabad Formation	:	Limestones
Rabanahalli Formation	:	Greenish yellow and purple shales with thin conglomerate grit at bottom.

To the north, the rocks of this group are covered by flows of Deccan Trap. The lime stones of Shahabad Formation are economically most important containing very large reserves of cement-grade limestone. There are three large cement-producing units at Shahabad, Wadi and Sedam. A few more are contemplated. The lower section of the Shahabad Formation shows flaggy beds of limestone, which are extensively quarried supporting a flourishing stone industry in this region.

The lime stones of the top-most stage are overlain by purple shales which are calcareous immediately above the limestone, but grade upwards to ordinary mud shales. These shales which form the upper Bhima series are well developed in the Jevargi taluk. The upper Bhima shales are covered over by Deccan traps and almost invariably, the shales immediately below the Deccan traps are coloured by iron oxide. Layers of unconsolidated mud and grit, reddish or whitish in colour, are described as occurring as beds varying in thickness from two to nine feet underlying the upper Bhimas and below the Deccan trap.

The Deccan Traps

The Deccan traps cover an area of nearly 1,500 square miles in the northern portion of the Gulbarga district. The taluks of Aland, Afzalpur and part of Chincholi are covered by trap flows. These rocks are composed of soft and hard lava flows whose weathering has produced flat-

topped hills and terrace-like features. The traps, being the youngest formation in this area, cover all the earlier formations. Towards the west of the district, they cover the shales or lime stones of the upper and middle Bhima series and in the north, the lime stones of the middle Bhima series and towards north-east, they overlie the granites.

Except for some minor baking effects, the traps do not show any major contact phenomena with the underlying formations. The traps are found confined between 1,400 feet and 1,500 feet contours and attain maximum development in Bidar and the western parts of Gulbarga district. The rocks are highly jointed and exfoliate, leaving massive hard cores. The softer layers in the traps consist of two varieties (1) an amygdaloidal variety with abundant zeolites and (2) a friable murram-like layer which is derived from the disintegration and decomposition of the traps. These softer layers are found to be water-bearing on account of their porous nature. Kankar is of common occurrence along the joints and exfoliation planes of the trap. Crypto crystalline silica in the form of agate, chalcedony, opal and jasperoid chert is commonly seen in association with the traps.

Large blocks of chert are occasionally strewn over the traps. They are usually a foot in thickness but are very irregular and nodular in shape. They weather yellow brown, but when broken, are pale grey, sometimes appearing mottled, as if they were re-cemented breccia but are always dense. Such chert accumulations are found at three levels of 1,900 feet, 1,500 and 1,570 feet. Between Chincholi and Sulepet there is a great deal of chert in large blocks. It does not form a regular bed but occurs as a series of nodular lenticels about a foot thick, lying close together.

During the period of volcanic activity in which a large tract of the area was flooded with Deccan lava flows, there were times in which the volcanic activity was interrupted by a period of quietude. These periods were long enough for shallow lakes to form on the unequal surface of the trap and for life to appear in them before they were covered by the subsequent lava flows. Consolidated sediments formed in these lakes in between layers of trap are known as inter-trappeans and they carry impressions of organic remains. In the neighbourhood of Chincholi, chert beds with a top layer of clay are found lying between the flows. Best examples are seen near Kudhalli, Korvi, Sulepet, Dastapur and Chima Idlai. The clayey material in these horizons has properties of Fuller's earth. North of Gurmatkal in Yadgir taluk, inter-trappean cherts with associated marls are well seen. Both the cherts and marls contain fossil remains of lacustrine origin, whose age ranges from upper Cretaceous to lower Tertiary.

Laterite

Deccan trap hills to the west of Chincholi are frequently capped by laterite. In these are found local pockets of limonite and hematite which have been used in the past as ores for smelting iron at Somalingadhalli, there are slag heaps testifying to the work of the ancients.

Soil

Overlying the Deccan traps and the Bhimas, there are thick spreads of black soil, some of which are as much as 30 feet thick as seen at Akandhalli, Yetnal, Kachapur and Wadi. In the area occupied by granites, the soil varies from loamy to sandy. Frequently pebbles of chert, limestone,

shale and granites are embedded in the soils. The soil in the area between Allapur, Tandur and Kodangal is coarse gravelly with spreads of quartz and felspar.

Mineral Wealth

Gold

Numerous old workings for gold scattered in the western parts of Shorapur taluk near Mangalur indicate that this area was systematically explored, prospected and mined for gold by ancient miners who were skilled in mining and metallurgy. In 1905, a gold mining company known as Hyderabad Deccan Company came into existence to examine all the old workings left untouched by the previous prospecting operations.

This company prospected in detail many old working sites in Shorapur area. One is to the south of Mangalur and the other at a place called 'Makan-gavi'. No encouraging report is known of the pit they sunk south of Mangalur, but 'Makan-gavi' appears to have been proved to be a promising field. Due to outbreak of war in 1914, mining was suspended. This was the only mine after Hutti on which hope had been entertained. Besides the two explored by the Hyderabad Deccan Company, there are other sites of old workings of which the following may be mentioned (1) to the south of Mavinmatti. (2) to the north of Janapur and (3) to the west of the road to Kardhalli from Naganur. Gold quartz fragments from these areas show traces of gold on panning. A run of old workings was noted just north of the Acharyara Bhavi (a well) south of Mangalur road and this was prospected by pits and trenches. The ore recovered from these working is stated to have given encouraging results. A shaft had been sunk in the well itself to a depth of 220 feet.

In the Makan-gavi area, two shafts were sunk, one known as the "Mandik Shaft" on the eastern old workings and the other, the "Holman Shaft", further south. It appears from the prospecting work that a promising lode had been discovered in this field. A survey conducted by the Hyderabad Geological Survey has disclosed a few more old workings on the eastern flank of Mangalur hill and some of the quartz obtained from these showed indications of gold after panning.

Copper

The debris lying around Tintini village contains chalcopyrite and other copper minerals. The trappoid schists and the greyish quartz veins cutting through them show copper mineralisation.

Quartz

Large quantities of pure quartz are available in the Yadgir taluk. There are indications in some places that there was indigenous glass smelting centres in the area. In Shorapur taluk, at a place called Jamalpur, furnaces and glass slags are still in evidence though at present glass is not smelted here. The quartz available in the locality is free from iron and forms an excellent raw material for the glass industry. Some of the areas are under mining leases and the material is being made use of in the manufacture of glass by some of the reputed glass works of Bombay. Important localities are (1) between Ark era and Ramasamudram villages along Yadgir-Narayanapet road, (2) between Toldini and Rajan-kollur, (3) about four furlongs west and north-west of Siddapur

and (4) in the Krishna river, south-east of Gadalmari in an island called Burchigudda. The sandstones of Kodekal plateau which are traceable for a distance of nearly ten miles have been found to be white and pure inside, though stained at the surface with iron oxides. This material is likely to be of use in the glass industry. Sand useful for moulding and stowing purposes is found all along the *nala* courses near Yadgir town. The sand is white in colour and occurs as a thin covering varying from two to eight inches in thickness in *nala* beds.

Agates

Agates of grey colour with fine banding are found to the north of Yanegundi and at Burgapally in Yadgir taluk in the form of a thin bed of about two to three feet thickness below the Deccan trap. They are capable of being cut and polished into ornamental wares. Cherts of variegated colour occur at Maralbhavi and Hagaratgi of Shorapur taluk, sometimes as massive beds. They are very useful for inlay work on account of their pleasing shades. Good crystals of tourmaline occur associated with pegmatite veins running in north-south direction on the eastern margin of the Mangalur schist patch in Shorapur taluk. Loose crystals detached from the main mass are found strewn all over the field. The crystals range in size from half an inch to six inches in length.

Gypsum

Gypsum useful for the cement industry is found to the south of Gungurthi, 16 miles east of Gulbarga along the Gulbarga-Seram road. The mineral occurs in black cotton soil in the form of small crystals and nodules. The nodules contain a thin layer of kankar showing a kernel of glistening plates of gypsum. Small crystals are found distributed in black soil near Kembhavi in the Shorapur taluk. Calcareous powder rich in lime occurs between Hebbal Buzurg and Wajjal, in Shorapur taluk. The deposit occurs at the junction between the Peninsular gneisses and the limestones of the Bhima series. The calcareous spread is about a mile and a half in length with an average width of 400 feet and is about five feet in thickness.

Deposits of Fuller's earth occur at Korvi, Sulepet, Chima Idlai, Dastapur, Navandgi, Kodli, Gunhalli and other villages in Chincholi taluk and at Sugoor in the Chittapur taluk. This earth has the unique property of bleaching vegetable and mineral oils. The main use of this material is in the petroleum-refining industry for filtering and clarifying lubricants. It is also used in water purification and in removing odours from oily waste material. Trials on bleaching of raw lubricating oil have shown that Korvi earth is similar to imported earth, at present being used in the country for the bleaching of lubricating oils. It has been found to be the best in the sense that it can be used for various purposes in the natural condition unlike other earths which require processing. The greenish shales which cap sandstones near Tirth in Shorapur taluk are used locally by the potters for the preparation of artistic pottery and the clay is in great demand on account of its excellent quality.

Limestone

Extensive deposits of limestone suitable for the manufacture of cement are found in Gulbarga district, notably at the following places: Chittapur, Jevargi, Chincholi, Shahapur, Shorapur, Nalwar,

Wadi, Shahabad, Seram and Malkhed, covering an area of 1,500 sq. miles. At present, the Associated Cement Company which has established a big cement plant at Shahabad is exploiting, on a large scale, the limestone occurrences near Bankur; 2,500 tons of limestone are quarried per day and utilised in the manufacture of cement.

Soapstone

A small outcrop of soapstone extending about half a mile in length and 200 yards in width is found about two miles to the north of Malkapalli in Yadgir taluk. The rock forms a suitable material for soapstone utensils, and the broken and half-made pieces strewn here point to the former existence of such an industry. A large number of salt pans are found scattered in different parts of the district. Both edible and tanning salt can be produced by lixiviation process. The important site is Bichabal village in Shorapur taluk.

Building Stone

The limestones, the Deccan traps and granites and sandstones in the area form excellent building material. Old temples, *dargahs*, forts and other edifices testify to their excellence and durability. In the limestone areas, even the poorest dwellings are built with dressed massive limestones and roofed with limestone slabs in an attractive and neat manner. There is a large number of quarries all over the limestone area. Polished limestone slabs of various sizes are in great demand for flooring, roofing and other constructional purposes.

Revenue from the sale of Minerals

Among the districts the district occupied the second place in respect of income derived from the sale of Major minerals. The total revenue for the year 1994-95 was Rs 785.7 lakhs from major minerals while the revenue from minor minerals accounted only Rs 21 lakhs.

The details of Revenue obtained from minerals during 1993-94 and 1994-95 is given here

Particulars	Production during 1993-94	Production during 1994-95	Worth in Rs Lakhs
Major minerals			
Gold in kg	0	12.65	63.75
Silver in kg	0	993.78	0.69
Moulding Sand	11942	18416	3.68
Red Ochre	12173	18416	68.12
Minor minerals			
Building stones	13333	11067	11.07
Fullers Earth	5022	5405	5.41
Shahabad stone	76.62 lakh sq ft	56.71 lakh sq ft	11343
Sand	55753	32303	37.14

Source: Annual Administration report of Mines and Geology Department for the year 1994-95, Bangalore 1996.

Earthquakes

Gulbarga district, which is a part of Deccan Plateau, is comparatively peaceful in respect of earthquakes when compared with the Himalayan range which is known for destructive earthquakes and the extensive plain that is associated with it. The district has not been subjected to earthquakes of higher intensity. As the Indian Peninsula is made up of hard crystalline rocks it can be said that the region is free of destructive earthquakes. According to one opinion, the Deccan Plateau is not disturbed by geological changes as it has remained as one solid group. Some of the recent geological and geographical evidences have shown that this region has different types of shaking and vibrations at the surface of the earth when compared with the other regions outside the plateau. These vibrations that encompass the plateau are slow motions in the perpendicular and horizontal directions. It is thought that the entire peninsula has been raised to the height of 1,000 metres due to which the plateau has been formed. The Indian Peninsula has been regarded as the remnant of the eastern part of a great continent that existed in the past. It is also believed that Great Continents got separated and submerged under the Arabian Sea. As a result of this there was a great change in the distribution of land and water masses.

The Killari earthquake that occurred on September 30, 1993 resulted in the death of several thousand people. Lakhs of people became homeless. The effect of this earthquake was also felt strongly in the Gulbarga district which is very close to Khillari of Maharashtra. Aland, Jevargi and Gulbarga taluks suffered from the earthquake. Cracks appeared in a number of houses and people became sleepless. After this earthquake, several minor earthquakes have occurred a number of times in Gulbarga district.

There can not be a solution for these Natural disasters. Even then precautionary measures are necessary. With this view the Government formulated a permanent programme in the year 1994. As per the programme, the first task was to identify the areas which are prone to earthquakes. Seismographic centres were established for the purpose in Gulbarga, Afzalpur, Aland and Jevargi. A permanent seismographic centre was sought to be established in Sirsangi village near Gulbarga to collect the information from all the other centres. The main aim of this plan is to collect the information regarding the intensity of seismic activity from all taluks and to take precautionary measures in respective villages. The district administration has submitted a proposal to grant 10 hectares of land to establish a Seismographic centre in Sirsangi. The Government has appointed a committee under the chairmanship of Prof Gaur to prepare a detailed report regarding the establishment of Seismographic centres. This Committee has submitted a detailed plan to the Government but this plan is yet to come into effect.

Groundwater

The district is a part of Deccan plateau and has an average altitude of 700 metres MSL. It is made up of hard crystalline rocks. The climate in most parts of the district is dry and the annual average rainfall is only about 600 mm. As a result of this the existence and flow of underground water is at a very low level. As the hard rocks are not sufficiently porous, they don't retain water in large quantities just like in places where hard rocks are absent. The upper layer of the rocks which are continuously exposed to incessant rain and influence of water get gradually eroded and become porous and hence have the ability to retain underground water in moderate quantity.

Rainwater falling on the soil percolates into soil layers, flows deep down and gets collected in the crevices, breaks, faults and cracks and comes out when they are full. Groundwater is available largely in igneous and metamorphic rocks and also in the cracks and openings of other types of rocks. Top soil of the Delta region that helps in the storage of underground water is very less in the district. In places where basaltic flow is closed and in places where weathering of rocks has taken place, underground water is available. The quantity of underground water depends on the structure, type and extent of rocks and is available in plenty where soft rocks are located and available in less quantity where rocks are hard. Underground water can be traced by geological and geophysical surveys. After independence enough importance has been given to well irrigation methods and the Department of Mines and Geology has been helping the farmers to obtain groundwater by wells. For this purpose co-operative and banking sectors have been advancing loans. In recent years however traditional water lifting methods and diesel pumpsets and dig wells are losing their importance and electrically operated irrigation pumpsets are gaining prominence. The State Department of Mines and Geology has undertaken a number of surveys to unearth groundwater and has been publishing reports about the availability of water. Based on the present quantum of water already exploited, taluks have been classified into white area (less than 65 per cent usage), grey area (between 65% to 85% usage) and black area (More than 85% usage). Table 1.3 indicates details of total annual water recharge (ham), net annual water recharge (ham) and level of utilisation.

Table 1.3 : Groundwater resources and utilisation in Gulbarga district.

Name of the Taluk	Total annual recharge (ham)	Net annual recharge (ham) 1.1.1983	Net annual utilisation as on level	% utilisation on level	Net annual utilisation as on 1.1.1987	% utilisation level	Net annual utilisation on 1-1-1991	% utilisation level
Afzalpur	12,599	10,709	1737	16	2594	14	4082	38
Aland	8,669	7,369	1572	21	2161	29	3227	44
Chincholi	1,141	9,470	495	5	1253	13	1364	14
Chitapur	16,895	14,361	229	2	1378	10	535	4
Gulbarga	16,124	13,706	874	6	1970	14	3144	23
Jevargi	11,903	10,118	530	5	1339	13	581	6
Sedam	11,160	9,486	315	3	1074	11	436	5
Shahapur	3,794	6,285	474	8	977	16	470	7
Shorapur	9,920	8,432	578	7	1253	15	285	3
Yadgir	9,600	1,860	920	11	1573	19	791	43
District Total	1,05,485	93,096	7724	8	15572	16	19172	21

In Mudanur of Shorapur taluk, two artesian wells are found namely Ramatirtha (Rameshwara tirtha) and Laxmanatirtha (Lakshmaneshwara tirtha). Researchers have indicated that apart from these wells, there must have been five similar wells that have been dug during 11th century. Presently these two wells provide irrigation facilities to about 200 acres of land. The limestone deposits available in this region have disturbed stratification and can store enormous amount of underground water.

Water Resources

The main rivers of the district are the Krishna and the Bhima and the other rivers flowing in the district are the tributaries of the river Bhima. The Bhima itself is a tributary of the Krishna, which runs in the south of the district, forming a natural boundary between Gulbarga and Raichur districts. Therefore, the entire river system in the district is that of the Krishna.

Krishna

The river Krishna is venerated by the Hindus and a bath in the river is considered purificatory. In the *puranas*, the river goes by the name of Krishnavenya or Krishnavena. The river Krishna rises in the Sahyadris (Western Ghats) at an altitude of 1,336.5 m just north of Mahabaleshwar, about 64 km from the Arabian Sea, and flows across the whole width of the Deccan Peninsula, from west to east, for a length of about 1,400 km through the states of Maharashtra, Karnataka and Andhra Pradesh. The river enters the Karantaka State near Ainapur village in the Belgaum district, after flowing for about 300 miles (480km) through the Maharashtra State. It flows for about 182 miles (292km) in the Mysore State before entering Andhra Pradesh near Deosugur village in Raichur district. The length of the river in Gulbarga district is about a hundred miles (160km). The river cascades down a fall of about 200 feet (60 metres), about one and a half to two miles down-stream of Narayanapur village in Shorapur taluk and this fall is known as the Jaldurg Falls. There is an old temple and also a fort at the Jaldurg Falls.

There have been ample references to the Krishna in the *puranas*. According to the *Skanda Purana*, which contains a section called '*Krishna Mahatmya*' devoted to the glorification of the Krishna, this river was brought to the earth from the heavens. A legend has it that in the early part of the *Kaliyuga*, the sages were greatly depressed by the decrease of righteousness and increase of evil deeds among the people. They approached Narada for a remedy to help the good and the saintly. Narada, in his turn, conveyed their grievances to his father, Brahma. The latter, while creating a number of *teerthas* suggested to Vishnu to go to the assistance of the sages. Then, Vishnu created the Krishna out of his own body and invested it with 'marvellous' powers. Since Vishnu, *i.e.*, Lord Krishna, created the river, it came to be known as the Krishna after its creator.

The high rainfall zone along the Western Ghats forms the western boundary of the river Krishna basin for a distance of about 528 km. The width of this high rainfall zone, with an annual rainfall from about 300 cm to about 100 cm within the Krishna basin varies from almost nil to a maximum of about 56 km. At the east of the Western Ghats the annual rainfall decreases rapidly until it is less than 60 cm in the Bijapur, Gulbarga and Raichur districts.

Bhima

The river Bhima rises in the Western Ghats near Bhima Shankar and flows south-east through Maharashtra and Karnataka States for a length of 535 miles (856km) before joining the river Krishna near Sangam village. The river enters the Karnataka State near the northern border of Bijapur district close to Sesgeri village in Gulbarga district and flows south-eastwards for a length of about 50 miles (80km) along the Bijapur district boundary and then enters the Gulbarga district. It then flows for about 136 miles (218 km) entirely in Gulbarga district, till its confluence

with the river Krishna. The Bhima river has a drainage area of 27,264 square miles (70,614 sq km out of which 18,315 sq km lies in Karnataka) Rainfall in the major part of the basin in Karnataka is between 60cm and 80 cm.. There is an important religious shrine at Ghangapur where the river Amerja joins the Bhima, wherein is situated the famous Dattatraya temple attracting a large number of pilgrims every year.

The Bhima has figured in the *Matsya*, *Brahma* and *Vamana Puranas* and also in the *Mahabharata*. It is, considered a sacred river and is spoken of as a Maha Nadi, a great river. Near the source of this river in the Western Ghats, there is the *jjyotirlinga* of Bhimashankar, one of the twelve *jjyotirlingas* highly venerated by the Hindus.

One of the legends says that Lord Shiva after defeating Tripurasura came down to the Sahyadri mountain for taking rest, At that time, a legendary king of Ayodhya called Bhimaka went there to perform penance and propitiate Lord Shiva, for the sin of killing two sages who had assumed the form of deer. Shiva was pleased with his penance and told him to ask for some boon. King Bhimaka saw that Shiva was full of fatigue and there were drops of perspiration on his forehead. He therefore requested Shiva to turn the drops of perspiration on his forehead into a river. This is the explanation given for the rise of the river which is called Bhima after the king Bhimaka.

There are two bridges across this river, one on the Gulbarga-Jevargi road near Ferozabad and the other on the Yadgir-Shorapur road very near to Yadgir town. One bridge was under construction across this river, on the Gulbarga-Bijapur road, near Sonna village in Afzalpur taluk. No dams or anicuts have been constructed so far across this river in Gulbarga district. Most of the areas on either banks of the river in this district consist of black cotton soil with patches of murrum and sandy soils at the ridge points. Several streams and rivers like the Bori, Amerja and Kagna join this river through its course in the district.

The Amerja river rises near Alur village in Maharashtra State Amerja and flows south to join the river Bhima just upstream of the holy town of Ghangapur, The river enters Gulbarga district near Nirgundi village of Aland taluk. The total length of this river in Gulbarga district is about 55 miles(88km). The river flows through the Aland and Afzalpur taluks and crosses the Bombay-Madras section of the Central Railway near Ghangapur Railway Station. There is a bridge across this river on Aland-Hiroli road near Shakapur village in Aland taluk. The soil in this area is mainly of the black type.

Bennithora

The Bennithora river rises on the ridges near the village of Malegaon in Maharashtra State and enters Gulbarga district near Hipperga village in Aland taluk. It forms the boundary between Gulbarga and Bidar districts for about four or five miles and flows generally in the north-easterly direction to join the kagina river on its right bank near Malkhed. The total length of the river in Gulbarga district is about sixty miles (96km). The river flows in Aland , Gulbarga and Chittapur taluks. There is a bridge across this river on the Gulbarga-Humnabad road near Kurikotta village in Gulbarga taluk. Another bridge across this river on the Mahagaon-Kadaganchi road, near Kamalanagar village in Aland taluk, was under construction.

Mullamari

The river Mullamari rises near the village of Matala in Humnabad taluk of Bidar district. After flowing in a south-eastern direction for about thirty miles (48km), it enters the Gulbarga district near the village of Kinni, forming the boundary between Gulbarga and Bidar districts up to Gobarwadi village. After running for about eight miles in Gulbarga district it again forms the boundary of the above two districts up to Kotgi village and continue to run completely in Gulbarga district in the same direction up to Chincholi town. The total length of the river from where it enters Gulbarga district up to Chincholi town is about 40 miles (64km). From Chincholi onwards it runs south and flows for about 15 miles (24km) before joining the Kagna river on the right flank near the village of Jattur. Chincholi, the headquarters of Chincholi taluk, is situated on the left bank of Mullamari river. The river brings a lot of water during the monsoon. The lands along the river mainly consist of black cotton soil. Many streams like Sarnalla and Karinalla join this river at various places during its course in this district.

Kagna

The river Kagna rises near Kohir in Andhra Pradesh and enters Gulbarga district near Habal village in Seram taluk. The river has a serpentine course, almost parallel to the Hyderabad-Wadi Railway line. The length of the river from where it enters the Gulbarga district to its confluence with the Bhima river near Hungunta village in Chittapur taluk, is about 40 miles (64km). The main tributaries to this river are the Mullamari, Bennithora and Kamalavathi streams. The river passes through Seram and Chittapur taluks. This river is not harnessed so far in this State for irrigation purposes. The Madras-Bombay section of the Central Railway crosses the river near Shahabad Railway Station. Seram, Malkhed and Chittapur are some of the important towns on the river bank. Malkhed is famous as a holy place, where the mortal remains of Shri Tikacharya are interred. To obviate difficulties in the lines of communication, the State Public Works Department decided to have a road bridge across the river Kagna to open up a road from Gulbarga town to Shahabad and then on to Wadi. This new bridge was opened for traffic in December 1965. Before the construction of this bridge vehicles had to take a detour to reach Shahabad.

Bori

Rising from the confluence of two big streams in Sholapur district of Maharashtra State, the Bori river, after flowing for a major portion in Maharashtra, enters the Gulbarga district near Jodki Khurd village in Afzalpur taluk and traverses in a zig-zag manner for about 15 miles (24km) before joining the Bhima river to the west of Afzalpur. The river brings in a lot of water during the monsoon and dwindles down considerably during summer.

FLORA

The situation of Gulbarga district within the Deccan Plateau with its moderate elevation gives it a dry climate. Its almost complete absence of lofty mountain ranges is a special feature which contributes to the formation of two types of forests, deciduous in the north-east zone with a fairly dense tree growth and the scrub type fit for firewood only in the south-east. The forests of

the district, which yield some revenue, are situated in the Chmcholi taluk where timber of appreciable girth is got from well-grown trees. The north-east zone has a large tree growth in patches on the hill slopes. The chief trees grown are Teak: (*Tectona grandis*), Rosewood (*Dalbergia latifolia*), Nallamaddi (*Terminalia tomentosa*) and Satin (*Chloroxylon sweitenia*). The forest area of Gulbarga district is 267.20 square miles which is about 4 per cent of the geographical area of the district.

The distribution of forest area (in acres) taluk-wise in 1964-1965 was as under; Gulbarga-12,256, Chittapur- 6,623, Yadgir-57,549, Shahapur- 4,799, Shorapur-13,430, Aland-4,326, Chincholi-70,087, Seram- 1,936 and whole districts-1,71,006. From the above, it will be seen that Chincholi taluk has nearly half the entire forest area of the district, with Yadgir taluk coming next. During 1993-94, about seven per cent of the total geographical area of the district *i.e.* 1,138 sq km was classified as forest area in the district out of which reserved forest area constituted 346 sq km. As per Annual Season and Crop Reports, the distribution of forest area taluk-wise in hectares during 1993-94 was as follows: Afzalpur - 78 ha, Aland- 2,854 ha, Chincholi - 19,622 ha, Chittapur - 6,150 ha, Gulbarga - 4,121 ha, Jevargi - 310 ha, Sedam - 1,851, Shahapur - 4,995, Shorapur - 4,897 ha, Yadgir - 23,831 ha and the total area for the district was 68,159 ha.

The forests in the area are being exploited according to the prescriptions of a working plan. In the areas which are devoid of vegetation, attempts to take up contour trenching followed by afforestation are being made. The policy of the Government is to carefully preserve the forests as far as possible and to add to the total acreage by taking up fresh areas for afforestation. There are no evergreen forests in the district.

During the First and Second Five-Year Plan periods, advance trenching, sowing, establishment and maintenance of nurseries were carried out under the Soil Conservation and Afforestation Scheme, quarters were constructed for the staff, agave hedges were planted, a dry teak nursery consisting of 100 beds and one unit nursery were established, and a teak plantation was raised over 110 acres. Two thousand eight hundred and nineteen acres of plantations were raised during the Second Five-Year Plan,

During the Third Five-Year Plan, schemes were taken up for providing housing facilities to the departmental subordinates living in the interior parts of the forests, improving grazing areas, raising cashew plantations, securing excess gairana areas (gomal areas) from the Revenue Department and also the old jagir areas and bringing them under proper management to protect and rehabilitate them wherever necessary. The schemes include raising of plants along road sides, railway sides and canal sides, raising of village wood lots under Farm Forestry, to create fuel reserves with a view to helping the agricultural population from shortage of fuel, meeting the requirements of agricultural implements, and providing fodder and grazing grounds for the village cattle. A scheme under soil conservation and afforestation has also been taken up covering approximately 1,000 acres annually. The main items of revenue are from timber, firewood, Gule Rosa (*Cymbopogon martini*), beedi leaves, tanning bark and seeta-phal.

The species found in the north-east zone are Teak, Rosewood, Bijasal (*Pterocarpus marsupium*), Satin, Tirman (*Anogiessus latifolia*), Siris (*Albizzia lebbak*), Narlinga (*Albizzia*

amara), Amaltas (*Cassia fistula*), Chanangi (*Lagerstroemia parviflora*), Gumpana (*Lennia grandis*), Anduk (*Boswellia serrata*), Nalla-maddi, Ermaddi (*Terminalia arjuna*), Ebony (*Diospyros melanoxylon*), Mohwa (*Bassia latifolia*), Tada (*Grewia taliaefolia*), Bhilawa (*Sernecarpus anacardium*), Halda (*Terminalia chebula*), Tari (*Terminalia belerica*), Sundra (*Acacia sundra*), Billphal (*Aegle marmelos*), Gumartek (*Gmelina arborea*), Sandal (*Santalum album*), Chironji (*Buchanania latifolia*) and Somi (*Soymida febrifuga*).

In the south-east zone, consisting of the dry mixed deciduous type, Narlinga, Siris, Eppa (*Hardwickia binata*), Babul, Satin, Tirman, Neem (*Melia indica*), Palekodsha (*Wrightia tinctoria*), Palas (*Butea frondosa*), Bhilawa, Jamoon (*Eugenia jambolana*), Gumpana, Bamboo (*Dendrocalamus striatus*), Tarwad (*Acacia auriculata*), Mango (*Mangifera indica*), Peddaman (*Ailantus excelsa*), Jungle-anar (*Dodonaea viscosa*), Sharifa (*Anona squamosa*), Karanj (*Pongamia glabra*), Danti (*Celastrus semgolensis*), Challe (*Zizyphus xylopyrus*), Chanangi, Ritha (*Sapindus emarginatus*), Nakkeru (*Ximenia americana*) and Lantana (*Lantana camara*) are found. Most of these species have a stunted growth.

The minor forest produce consists of honey and wax, barks, fruits, saps and gums, tanning barks (bark of *Cassia fistula* and *Cassia auriculata*), Myrobalans and Rosa (flowers of *Cymbologon martini*), Tamarind (fruit of *Tamarindus indica*), Sharifa (fruit of *Anona squamosa*), Soapnut (fruit of *Sapindus emarginatus*) and Chironji (fruit and seeds of *Buchanania latifolia*).

The flora of the district is on the whole not of the rich type. Nevertheless, there is some timber wealth. The teak grown in the district is well-known for its strength and durability. This is due to the resinous matter in the pores which resist the action of water. Nallamaddi is a wood which has a dark brown colour, and is hard and durable. This is a good fuel tree. Babul is used for poles and spokes and wheels of carts. Horne (*Pterocarpus marsupium*) is occasionally grown for use in making furniture. The wood is widely used for cart wheels, window frames, agricultural implements and the like. Anduk is an interior wood and is used as firewood or for preparation of charcoal. The gum resin is used for medicinal purposes. *Acacia sundra* has branches of dark brown colour and the wood is heavier and more durable. Some of the more important wood species have been described as of economic value. The chief tree growths are *Tectona grandis*, *Dalbergia latifolia*, *Terminalia tomentosa*, *Pterocarpus marsupium*, *Chloroxylon sweitenia*, *Lagerstroemia parviflora*, *Acacia sundra*, *Anogeisus latifolia*, *Boswellia serrata*, *Melia indica*, *Eugenia jambolana*, *Dendrocalamus striatus*, *Buchanania latifolia*, *Bassia latifolia* and *Phoenix sylvestris*.

In the past, the deciduous forests were fully exploited, with the result that forests of old have become barren. The Forest Department has a number of plans to regenerate the lost forests and work in this connection has been in progress for some time. The forest flora is scattered in small bits except in Chincholi taluk where trees grow to pole size. The other taluks have patches of forests mostly of the scrub type, yielding no timber at all. Sandal is strictly preserved.

FAUNA

In the absence of thick evergreen forests in the district, wild life, as such, is not abundant. Some portions situated in the north-east (Chincholi taluk) have deciduous forests. The rest are only scrub forests merging into thorny species providing little cover to animals. From the reports received from the Divisional Forest Officer, one can easily assess that the fauna of the region is not

rich. The deciduous forests have a few varieties of langoors and monkeys. Beasts of prey belonging to the carnivora class are seen only very occasionally. A few panthers (*Felis pardus*) are found in the semi-jungle areas and they come to villages to lift cattle, dogs and donkeys. The tiger is almost extinct and the few that may have been seen in recent years most probably came from the neighbouring areas in search of prey. Bears are found in some areas in the Chincholi forest range. They do much harm to the cultivated fields. The hyena is common in all forest areas and can be seen prowling round the village homesteads at night. It takes off goats and sheep. Generally, this animal lives on carrion. Wolves are found in the open scrub jungles. Wild dogs are also seen in packs, attacking cattle and spotted deer and even challenging the bigger carnivora to a fight.

Among the harmless types, the spotted deer (The Chittal - *Axis axis*) and sambhar live in the semi-forest regions. The black buck is common in the open scrub jungles. The Indian fox is commonly seen all over in the open country. Jackals are also seen prowling, about trying to lift goats and sheep.

Birds

The district has the usual varieties of birds like the parrot, starling, swallow, doves, woodpeckers, peacock, owls, eagle and some humming birds. Pigeons are getting extinct owing to large-scale poaching.

Reptiles

The reptiles found in the district are the cobra, viper, pangolin and the ghodphod. Occasionally, pythons are found in the deciduous regions. Chameleons are also to be found. Scorpions are common in summer.

Game Laws

Under the Hyderabad Game Rules, shooting without a licence is prohibited in reserved forests. There are no shooting blocks in the district. The shooting of the black buck is permitted from 1st December to the end of May. The permit for shooting is valid for one month and shall in no case exceed three months. Fees are charged for big and small game, with a deposit amount. The Wild Life Preservation Act, 1953, has not yet been made applicable in the district. Hence, the Hyderabad Game Rules are in operation throughout the area.

CLIMATE

The climate of the district is generally dry and healthy, and the seasons are on the pattern of those generally in the Deccan. The summer season starts by about the middle of February and continues to about the first week of June. The south-west monsoon season follows thereafter and extends up to the end of September. October and November constitute the post-monsoon season. The period from December to the middle of February is the cold season.

Rainfall

Records of rainfall in the district are available for four rain-gauge stations for periods ranging from 22 to 77 years. The statement of the rainfall at these stations and for the district as

a whole is given in Tables 1 and 2. The average annual rainfall in the district is 715.5 mm (28.17"). The rainfall in the district was 869.7, 1,031.1, 940.3 and 937.5 mms. in 1961, 1962, 1963 and 1964, respectively. The rainfall increases from the south-west towards the north-east. The rainfall in the south-west monsoon season constitutes about 80 per cent of the annual rainfall. September is the rainiest month. The district gets some rain during the latter part of the summer and post-monsoon months mostly as thunder showers. The variation in the rainfall from year to year is large. In the fifty-year period from 1901 to 1950, the highest annual rainfall amounting to 200 per cent of the normal was received in 1903; 1920 was the year with the lowest rainfall which was 51 per cent of the normal. In eleven years out of the fifty, the district received rainfall less than 80 per cent of the normal, two consecutive years of such low rainfall occurring twice. Rainfall less than 80 per cent of the normal in two consecutive years has occurred once or twice at all the stations. Even three consecutive years of such low rainfall occurred once at Gulbarga. The large variations in the rainfall from year to year, both in its amount and in its distribution through the seasons, render the district liable to drought. It will be seen from Table 2 that the rainfall in the district was between 500 and 1,000 mm. (19.69" and 39.37") in 41 years out of 50. On an average, there are 47 rainy days (*i.e.*, days with rainfall of 2.5 mm. or more) in a year in the district.

Temperature

The only meteorological observatory in the district is at Gulbarga. The data of this station may be taken as representative of the condition in the district as a whole. December is the coldest month with the mean daily maximum temperature at 29.7°C (85.5°F) and the mean daily minimum at 14.8°C (58.6°F). From the middle of February, temperature rises rather rapidly till May, which is the hottest month. The mean daily maximum temperature during this month is 40.6°C (105.1°F) and the mean daily minimum temperature is 25.9°C (78.6°F). The day temperatures sometimes go up to 45 °C (113.0°F) in the hot season. The dry heat is sometimes very trying. When the south-west monsoon advances into the district by about the first week of June, temperatures decrease appreciably and the weather becomes milder. The day temperatures increase a little with the withdrawal of the monsoon by about the end of September, but night temperatures decrease. After October, both day and night temperatures decrease gradually, the drop in the night temperatures being more rapid. The highest maximum temperature recorded at Gulbarga was 45.0°C (113.0°F) on 18th May 1912 and on 1st June 1923. The lowest minimum temperature was 5.6°C (431.1°F) on 18th December 1945.

Humidity

The period from December to May is the driest part of the year when the relative humidity in the mornings is between 40 and 60 per cent, and in the afternoons about 20 -to 30 per cent. Humidity increases by about 20 to 30 per cent during the southwest monsoon months.

Cloudiness

Skies are moderately to heavily cloud in the south-west monsoon period. Cloudiness decreases during the post-monsoon season. During the rest of the year, the skies are generally clear or lightly clouded.

Winds

Winds are generally light to moderate with some increase in force in the latter half of summer and the monsoon season. Winds are from directions between south-west and north-west in the monsoon season. In the post-monsoon season, they are north-easterly or easterly. In the cold seasons, winds blow mainly from directions between north-east and south-east. In the summer season, winds are variable in direction, but by May, winds from directions between west and north predominate.

Special Weather Phenomena

The district is seldom affected by full-fledged cyclonic storms. But in the post-monsoon months, some of the depressions from the Bay of Bengal become diffused on crossing the east coast of India. In their passage westwards across the peninsula, these diffused depressions affect the district and its neighbourhood causing wide-spread heavy rain. Thunder-storms occur in April, May and early June and at the close of the monsoon season.

Tables 1.4, 1.5 and 1.6 give the temperature and humidity, mean wind speed and frequency of special weather phenomena, respectively, for Gulbarga.

Table 1.4 : Monthly average annual rainfall (mm) in the district (1901 to 1970).

Taluk	Aug	Sept	Mon soon	Oct	Novem	Decem	Post monsoon	Annual Rainfall
Afzalpur	1.6	4.1	10.3	22.1	37.9	76	102.2	130.2
Aland	2.9	3.9	6.1	20.7	40.3	73.9	104.6	182.3
Chincholi	0.9	3.7	8.5	12.3	25.3	50.7	126.1	209.1
Chittapur	2.3	2.6	16.3	16.5	34.6	72.3	118.4	172.6
Gulbarga	6.3	6.2	9.3	19	35.6	76.4	107.7	146
Jevargi	0	3.8	8.2	20	34.9	66.9	98.2	120.8
Sedam	3.9	4.5	13.7	25.6	43.9	91.6	117	226.8
Shahapur	4.7	2.5	10.7	16.1	29.6	63.6	99.4	141.6
Shorapur	0.3	2.9	5.6	12.6	22.3	43.7	107.8	121.4
Yadgir	4.3	4.7	7.6	20.9	25.1	62.6	101.2	161.7
District average	2.7	3.9	9.6	18.6	33	67.8	108.3	161.3

Table 1.4 : Monthly average annual rainfall (mm) in the district (1901 to 1970) continued

Afzalpur	118.4	189.5	540.3	79.7	77	3.7	91.1	707.4
Aland	157.3	210.6	655	88.7	11.5	4.9	105.1	834
Chincholi	173	225.7	733.9	78	12.5	5.1	95.6	880.2
Chittapur	155.1	190.8	636.9	68.1	13.8	3.1	85	794.2
Gulbarga	136.5	198.6	588.8	69.8	26.1	5.3	101.2	766.4
Jevargi	128	182.7	529.7	80.1	14.5	5.3	99.9	696.5
Sedam	181.6	204.8	730.2	81.4	13.2	4.2	98.8	920.6
Shahapur	116.5	191.7	549.2	89.7	12.8	8.1	110.6	723.4
Shorapur	137.1	172.1	538.4	93.6	25.4	8.6	127.6	709.7
Yadgir	134.1	167.5	564.5	79.1	23.1	3.5	105.7	732.8
District average	143.8	193.4	606.8	80.8	16.1	5.2	102.1	776.5

Table 1.5 : Details of temperature and relative humidity in the district

Mean	Month Daily Temperature		Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	Max	Min	degree Celsius	date	degree Celsius	date	8.30 hrs	5.30 hrs
Jan	30.4	16.0	36.1	31st, 1897	6.7	1st, 1937	54	27
Feb	33.4	18.5	38.4	23rd and 24th 1969	10.4	22nd 1993	43	24
Mar	36.8	21.7	42.8	28 th 1892	12.8	5th 1910	36	20
Apr	39.1	25.0	44.0	27 th 1973	13.3	1st 1902	41	22
May	40.2	26.3	45.4	17 th 1989	18.3	2nd 1892	47	26
Jun	35.0	23.8	45.0	1 st 1923	12.7	28th 1910	71	47
Jul	31.4	22.5	38.4	6 th and 7 th 1992	17.2	11th 1920	81	62
Aug	31.2	22.2	37.8	5 th 1899	18.3	1st 1920	81	59
Sep	31.1	21.9	38.4	16 th 1989	17.8	30th 1954	81	61
Oct	31.9	21.0	38.2	2nd 1965	10.0	27th 1905	48	48
Nov	30.4	17.5	35.6	3 rd 1940	7.8	26th 1945	57	35
Dec	29.5	15.1	34.4	5 th 1920	5.6	18th 1945	56	31
Annual	33.4	21.0					60	39

Table 1.6 : Monthly details of Mean Wind Speed in km/hr

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
9.1	9.9	10.4	11.7	14.8	19.2	20.3	17.5	13	11.2	11.3	9.8	13.2

Table 1.7 : Details of Special Weather Phenomena

Mean No. of days with*	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Thunder	0.1	0.1	0.9	5	6	2	0.6	5	3	3	0.8	0.1	27
Hail	0	0	0	0.1	0.3	0	0	0	0	0	0	0	0.4
Dust-storm	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0.2
Squall	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0.2
Fog	0.1	0.1	0	0	0	0	0	0	0	0.1	0	0	0.3

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