

# A STUDY OF ENVIRONMENT IN BENGALURU CITY: LAKES, FLORA AND FAUNA

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## Abstract

Bengaluru which got its name from the kannada word 'Bendakaaluru' (land of boiled beans) is the capital city of the Indian state of Karnataka. It is widely referred to as the 'Silicon Valley of India'. Bengaluru was known for its cool and pleasant weather throughout the year and was popularly called as 'The city of lakes' as it was home to nearly 285 lakes in the year 1960. The lakes of Bengaluru have contributed to the pleasant environment of the city and also a home to a wide variety of migratory birds. 'The garden city of India' with its numerous parks and gardens. For example, Cubbon park, Lalbagh etc. have not only glorified the status of the city but have also played a huge role in the conservation of a large variety of flora and fauna. The 62,127.5 acre Bannerghatta National Park with its zoological garden of around 2500 acre is a home to hundreds of varieties of species and flora. The Indian Institute of Science is also known for housing a large number of exotic and indigenous plants. The Gandhi Krishi Vignana Kendra with 1300 acres of greenery is the hub of experimentation of various species of flora and fauna.

Bengaluru's environment and its comfortable climate has helped it to be the fastest growing city globally and also helped in capturing the attention of the world for being the center of revolution in Information and Bio technology.

The objective of this study is to understand the rich environmental heritage of the city by studying the history of some famous botanical gardens and lakes and their impact in making Bengaluru a globally acknowledged city. This paper also seeks to examine the need to preserve these lakes and gardens for posterity.

**Keywords:** Environment, Flora, Fauna, Botanical Gardens, Lakes, Conservation

## INTRODUCTION

Bengaluru which is currently home for thousands of budding start-ups and popularly called the silicon valley of the Indian sub-continent has a history of thousands of years. The history of the city dates back to the 9<sup>th</sup> century. The earliest mention of the settlement in the region is recorded in the Begur inscription which date backs to 890 AD. Which was found at the Parvathi Nageshwara temple and is written in Halegannada (ancient kannada). The inscription mentions the city name as 'Bendakaaluru' (land of boiled beans). The 'Bendakaaluru' theory behind the origin of the city dates back to the time of Hoysala King Veera Ballala's regime in 1120 AD. However the modern history of the Bengaluru city begins with the regime of Kempe Gowda who was the feudal lord under the Vijayanagara empire who was instrumental in shaping the city's future. It all started with Kempe Gowda building a mud fort for the Yelahanka province in the year 1537 and he was the historical figure responsible for the commercial establishments called "Pete's" such as Chikpete, Balepete etc. Later Kempe Gowda's son's erected the four watch towers to mark the boundaries of Bangalore. After the decline of the Vijayanagara empire it was Sultans of Bijapur who ruled the region for next 50 years and after them Mughal ruled it for 3 years. Then Mughals sold Bangalore province to king Chikkadevaraja Wodeyar of Mysore. For some period of time Hyder Ali and his son Tippu Sultan ruled the region. Then it was the Wodeyar and the British partnership, under the guidance of Diwans like Sir Mirza Ismail, and Sir Vishweshwarayya The city attained its modern look and eventually made it the fastest growing city globally.

The environment of a region always have a direct influence on the urban environment formation and the provision of favorable and safe conditions for the life of the population in a particular region. We tend to think that nature and cities are polar opposites. Yet this is not true for a certain extent in the case of Bengaluru. The city is always known for the pleasant climate throughout the year. When we look back to the history for knowing the reason behind this we come across various rulers from the time of Vijayanagara Empire to British who have directly or indirectly contributed to make the city more beautiful and pleasant.

## GEOGRAPHICAL CONDITIONS

The climatic condition of a place and availability of natural resources in an environment are very important to sustain population growth in and region required for development. In that sense the geographical conditions of Bengaluru have played a major role in attracting the attention of the world towards it.

The city of Bengaluru lies towards the southeast in the South Indian state of Karnataka. At an elevation of over 900 meters above sea level, making it the highest among India's major cities. With the average rainfall of 880 meters a year. The summer temperature ranges from 18°C to 38°C, while the winter temperature ranges from 12°C to 25°C. Thus, Bengaluru enjoys a favourable climate all-round the year. With green spaces in the heart of the city such as Lalbagh and Cubbon Park in the heart of the city and with hundreds of lakes such as Ulsoor lake, Hebbal lake etc. makes the city unique of all other metropolitan cities in the country.

## LAKES

The availability of water is very important for development of a region. In the absence of river source close by the city was heavily depended on tanks and lakes. Their creation is mainly attributed to the vision of Kempe Gowda and of the Wodeyar dynasty. Their foresight has enabled the city to face several water crisis in various period of time. The sources say that Bangalore was once a city of 1,000 lakes but they were reduced to 280 in 1960's and now there are only 80 left. The earliest record of the lakes dates back to the 16th century when Kempe Gowda constructed these lakes for the purpose of irrigation and to provide drinking water for the people. Kempambudhi lakes situated in Chamrajpet region of Bengaluru is considered to be built around 16<sup>th</sup> century and is spread across 47 acres is considered to be the one of the oldest lake of the city which was once the lifeline of the people of Bengaluru. Spread over 123.6 acres, Ulsoor lake is one of the biggest lakes in the city. Though the lake is dated to Kempegowda's time, its present look was created by Sir Lewin Bentham Bowring, commissioner of Mysuru between 1862 and 1870. It still serves to attract tourists with parks, fountains, boating facilities and children's play area. The Hebbal lake which is One of the three lakes built by Kempe Gowda in 1537, is spread across 150 acres in north of Bengaluru. The Lalbagh lake built by Hyder Ali in the year 1870 and in 1890 James Cameron took measures to provide water to the botanical garden. The man made Sankey Tank at the at the tri-junction between Malleswaram, Vyalikaval and Sadashiva Nagar covers an area of 37 acres is a colonial masterpiece built by visionary Richard Hieram Sankey who joined the East India Company at the age of 16 and was a soldier in the Royal Engineers Army. It was linked to the Miller's tank and Dharmambudhi tank and was built as a safeguard against water shortages, such as that experienced in the Great Famine of 1876–78. The city's central Sampangi lake, which supplied water to many parts of Bangalore in the 19th century was transformed into a sports stadium named Kanteerava Stadium by the 20th century. The city was aptly known as the 'city of Lakes' due to presence of the large number of lakes. These lakes catered the basic needs such as recharging ground water, providing drinking water to surrounding people, habitat for fishes and other aquatic ecosystem. Bangalore also lost many of its lakes, which were converted to bus stands, malls, housing, and other built spaces. Lakes are the important factor in urban ecosystem as they play a major role in providing environmental and economic service. Hence preserving these lakes are need of the hour in Bengaluru. Because these lakes were instrumental in city's development and are integral part of Bengaluru Metropolitan Area.

## FLORA

More than 1.3 million people live in Bengaluru. So it is especially important to understand the biodiversity pattern of the city. In spite of the substantial environmental changes that humans have caused in city, research shows that they still contain many forms of life. Lalbagh Botanical Garden and Cubbon Park are the two most important centres of flora in centre of the city. Lalbagh has been the most important conservatory of herbal heritage in the Deccan Plateau, Lalbagh was laid down by Hyder Ali 1760 but his son, It was inspired by the Mughal gardens which were gaining popularity during that time. But it was developed by his son Tippu Sultan. He developed the garden as a pre-colonial botanic laboratory. He got seeds and saplings of exotic trees from Africa, Europe, the Middle East, Turkey and Iran. After the fall of Tippu Sultan in 1799, Lalbagh was owned by a military botanist, Major Waugh, who in 1819 gave the garden as a gift to the Governor General Marquess of Hasting. When Mark Cubbon became the Commissioner of Mysore he handed over the garden to the government. On the recommendation of Hugh Cleghorn and Jaffrey (Superintendent of the Gardens at Madras) who visited Lalbagh in July 1856, Lalbagh became the Government Horticultural Gardens and William New took charge of the Garden in April 1858 and maintained by many British officials. The British horticulturists, who were superintendents of the garden, were trained at the Royal Kew Gardens in London and the Royal Botanic Gardens at Edinburgh. There are many letters found which were exchanged between the directors of Lalbagh and Kew Garden. It was officially named Lalbagh in 1856. It also played a Major role in growth of coffee cultivation in the State. The earliest experimentation of potato cultivation was carried out in Lalbagh and the garden became the centre for discovering Rickett's potato (kidney potato) in Mysore State. Lalbagh from

1912 hosts two flower shows a year. Earlier called the Summer and the Winter show, the thematic flower shows have been commemorating national festivals such as Republic and Independence Day from 1951. The glass house is the centre of attraction of the 240-acre garden, with more than 3,500 species of flora and flowering plants. Lalbagh is an ideal place for being international botanic research station in future.

It is also important to mention about the king of Mysore Nalwadi Krishnaraja Wodeyar who appointed German botanist Gustav Hermann Krumbiegel in 1908, who not only developed Lalbagh but also came up with the idea of serial blooming, which means that different trees would bloom in the city at different times. He obtained seeds from other countries and sent collections in return to Kew and the United States of America. He was the key person responsible for making Bengaluru a "Garden city". Russian sunflower, soya bean and American maize were some of the varieties of plants he introduced to not only to the city but also to the Sub-continent.

Cubbon Park was laid out in 1870 soon after the completion of Attara Kacheri, the present high court building. The original area of the Park was 100 acres in 1870. It was increased in the later years and stood at around 260 acres by the 1950s. Currently, Cubbon Park has an area of 197 acres 31.50 guntas. Back then, it was called Meade's Park in honour of Sir John Meade, the Acting Commissioner of Mysore State, who commissioned its construction. Later, it was renamed Cubbon Park after Sir Mark Cubbon, one of the most notable British administrators in the region. The park was designed by Major Gen. Richard Heiram Sankey, a royal engineer under the British rule. After independence it is officially called as the Sri. Chamarajendra Park. Currently Cubbon Park is under the control of the Department of Horticulture, Karnataka. There are many Indigenous and exotic botanical species found in the park. There are about 68 genera and 96 species with a total of around 6000 plants/trees. The Grevillea Robusta or the Silver Oak found in large numbers in the park is the first oaks introduced to Bangalore from Australia. The marble statues in honour of Queen Victoria, King Edward VII, Major General Sir Mark Cubbon installed in the park gives it an international importance. The park is an all-time and old-time favourite of Bangaloreans. These botanical gardens are the major tourist attraction of the city and are need to be preserved for future as they are the major greenbelts in the city. In order to preserve them The Preservation Act, 1979 was passed by the Government of Karnataka to preserve the uniqueness of these park under the provision of Karnataka Government Park (Preservation) Act, 1975.

Other major centres for preserving flora in the city include The Indian Institute of Science which is also known for housing a large number of exotic and indigenous plants and The Gandhi Krishi Vignana Kendra with 1300 acres of greenery is the hub of experimentation of various species of flora and fauna.

## FAUNA

Bannerghatta National Park is located in the Bengaluru is one of the important National parks of the country. The park is part of a wildlife corridor for elephants which connects the BR hills and the Sathyamangalam forest and the Park is also a relocation centre for lions and tigers rescued. The 62,127.5 acre Bannerghatta National Park with its zoological garden of around 2500 acre with annual rain fall of 700 mm is home to many endangered animal species. It is a natural forest and has one of the largest collections of carnivores in any bio-park in the state. The inhabitants of the forest include Elephants, gaur, hares, porcupines, pangolins, slender barking deers, spotted deers, lorises, sambars, bonnet macaques, wild boars, Leo sloth bears, jackals, pards, Monitor lizards, cobras, pythons, kraits and Russell's vipers. The Park is also home for a variety of birds such as cormorants, Paradise flycatcher, white ibis, grey heron, Tickell's Blue Flycatcher, common grey hornbill, white bellied Drongo, Eurasian Eagle Owl, Brown Fish Owl, spotted owlet, Collared Scop's owl, Mottled Wood owl, etc., to name a few. The Park is predominantly a dry deciduous forest area with thorny scrub and patches of moist deciduous forests and is contiguous with Talli reserve forest in the southeast and Bilikal forest in the south. Conservation of flora and fauna is important to protect the endangered plants and animal species along with their natural habitat. The main concern is to preserve the rich natural heritage so that the future generations can enjoy our natural world and the incredible species that live within it.

## BENGALURU: THE GLOBALLY ACKNOWLEDGED CITY

Bangalore is currently the fastest growing city globally and the most liveable city in the country. It is called the Silicon Valley of India because of the large number of information technology companies located in the city and it has always been the hub of innovation. This city provides around 22% of jobs in the I.T. sector in India and is home to more than 3 million people working for software companies. This city has many companies like ISRO, Infosys, Wipro, and HAL, which have their headquarters here. When we go back to history Bengaluru was the first city to get electricity in Asia and it is always been the centre for education in science and Technology. The city's contribution to science and technology started with the establishment of Indian Institute Of Science in 1909 by Jamsetji Nusserwanji Tata in collaboration with Wodeyars of Mysuru Kingdom. During World War II, Indian Institute Of Science contributed towards the war by training personnel, manufacturing military and industrial goods, and collaborating with Hindustan Aircraft Limited which was established in 1940's by Walchand Hirachand the Indian Institute Of Science played an important role in repairing and maintaining British and American war planes. The path of success for Bengaluru being a IT-BT hub started In 1984, with

US company Texas Instruments (TI) starting its Research and Development centre. After that Bengaluru got the attention of global IT majors like Intel and IBM. Remote software development was invented in Bengaluru which led to the growth of the IT industry, which today is close to 190 billion dollars in size. Major multi national companies like Google, Apple, Accenture, Intel, IBM, Cisco, and Adobe has offices in Bengaluru. More than over 700 Research and Development centres of different MNC's are located in the city. The success of Electronic City in Bengaluru was instrumental in the development of many IT parks across Bangalore. ITPL or International Tech Park was set up as a result of a joint venture between India and Singapore. Electronics City today has a total of 1 lakh employees and houses the offices of Infosys, Wipro, Tech Mahindra, HP, and many other companies. It is well connected with other parts of the city.

The ever welcoming nature of Bengaluru city attracted millions of people across world to work for the IT companies in the city. Easily the most cliched point in any answer that describes Bengaluru and is also one of the most fundamental reasons as to why Bengaluru became the IT capital of the country is that the city easily has the best weather conditions in the country and there is no city in India which has a similar climate. It is not too hot during summer, not too cold during winter, and even the rainfall is perfect most of the time. It is rightly said that "Environment attracts talent", the pleasant climate of the city has attracted millions of youths and thousands of budding entrepreneurs to the city. So people from various parts of India migrated and are migrating to Bengaluru, further enhancing the cosmopolitan culture of the city. Even after many years Bengaluru is the undisputed king in Information and Bio technology. Noble Laureate Rabindranath Tagore in his 'Tapovan' says that the environment ignites young minds, in the same manner the ever pleasant environment of the city has fuelled the young minds of Bengaluru.

## CONCLUSION

According to the reports of "World Health Organization" in next thirty years, most of the world's population growth will occur in cities and towns. So it is important to have sustainable urban development. Sustainable urban development refers to a city which and business continuously endeavour to improve their environments while maintaining the sustainability of ecological systems that support the growth. Bengaluru is partially successful in sustaining the environment along with development. Lakes and gardens are the integral part of our city and they are part of our rich heritage. The future development of the city depends on the sustainable environmental measures we adopt, so it is very important and it's our moral obligation to preserve them for our posterity. The Government and the people of Bengaluru should work together in order to retain the title "Silicon Valley Of India" without losing its prestigious title the "Garden City of India".

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