CHAPTER 1

INTRODUCTION
1. INTRODUCTION

Man's close involvement in nature has been one of the most fundamental features of the development of human society since time immemorial; not only in the sphere of economic needs but also of culture.

Nowadays there has been a growing interest in recreation, conservation, open space, beautification, pollution abatement, and a myriad of other ways to improve the quality of environment. As the exploding population depletes the limited resource base for its needs and activities, the task of providing a satisfying and stimulating living environment clearly becomes a greater and greater challenge. How can these limited resources best serve the population? What role do open spaces and green areas play? The challenge is not caused solely by the sheer increase in the number of people but also by the geometrically multiplying demands of this population. Increasing leisure, shrinking work weeks, greater mobility, higher incomes are only some the factors contributing to this environmental challenge.

Trees and forests are essential to the environmental and social well being of our citizens. High density of population living and working on land that is steadily becoming inadequate, yielding a declining and degrading environment will undoubtedly call for soothing and relieving high quality outdoor experiences in a residential green space. Unfortunately municipal resources will find it rather difficult to respond.

In urban centers, open spaces like parks, zoological gardens, avenue trees, water bodies and quasi forests play a vital role. Normally they are contributing to a better aesthetic environment and relaxation for people. Also they are serving to preserve and improve the overall urban environment. Governments, municipal corporations, private organizations and individuals have to be understanding and cooperating in managing these natural and man made features and be eager to prevent any misuse or improper use that may lead to increased pollution of land and water. In these matters the state of affairs in Indian cities is far from satisfactory. The institution, the laws, the personnel and technical endowments
are rather inadequate to meet the present and future challenges in preserving and prompting the quality of the urban environment (Gowda, K. & Sridhara, M.V. 1999, p.2).

The issues and problems related to these aspects of planning in urban areas are well known to all experienced town planners, architects and landscape designers in the city, despite an inadequacy of quantification and documentation specific to this field. This study has been to highlight the planning strategies and design guidelines for the quantification, management of parks, open space and green areas in Bangalore Metropolitan Area.

1.1 DEFINING PARKS, OPEN SPACES AND GREEN AREAS

i) Park: A park can be defined as ‘an enclosure in town with ornamentally laid out gardens and walkways for public recreation’. Widely dispersed urban parks, fountains and greenbelts consisting of densely raised vegetation serve as passive recreation centers particularly for old people and children.

Parks in Bangalore Metropolitan area are essentially recreational areas with landscape and horticultural design features for passive recreation, implying no damage to plants and trees. Most parks include a jogging track, lawn area and a children’s play area. The parks are also dotted with indigenous flowering plants and trees. In case of large parks, their green cover dual up as lungs of the city. Most Parks are classified on the basis of their size as shown in the table below. However, some parks are exclusive to the institutions maintaining them and variations can be found in them such as heritage parks and theme parks. Most of the parks in the city are lush green as the climate is conducive for horticulture and gardens. Parks in Bangalore are utilized to the maximum as they attract old and young, in the early morning hours and in evenings.

ii) Open Space: Studies on open spaces have shown that there is no single definition for an open space or an open space plan. Books on open space planning referred to provide different definitions of open spaces.
Open space is defined broadly as space which is not used for building or other non-natural structures. The ill effects of the raising of sprawling buildings in urban centers are effectively controlled by well-maintained open spaces. Open space must be seen not just as space remaindered from development or green splotches for parks on land use maps, but as an essential element determining the character and quality of the urban environment. Or open space is land that is not intensively developed for residential, commercial, industrial or institutional use. It serves many purposes, whether it is publicly or privately owned. It includes agricultural and forest land, underdeveloped shorelines, undeveloped scenic lands, public parks and preserves. It also includes water bodies such as lakes and bays. It may include hillocks unhampered by any kind of human activity.

What is defined as open space depends in part on its surroundings. A vacant plot, community garden or small marsh can be open space in a big city. A narrow corridor or pathway for walking or bicycling is open space even though it is surrounded by developed areas. Historical and archeological sites are often associated with significant open spaces and are a part of our common heritage.

Open space is defined in the broadest of terms as space which is not used for buildings or structures; in other words, it is the counterpart of development - it may be air, land, or water- located in the "big city" or in the open countryside, remote from urban development. It may be an active recreation area or just a tree-lined suburban street. It may be publicly or privately owned; it may be owned in full or may be only partially with rights or easements. It may be used for recreation, water supply, the purpose of public recreation,or land which is a disused burial ground. tourism, economic development, resource development, or as an amenity; an economic activity, to restore human dignity, and truly enhance the quality of life. How it is built into the environment and what functions are emphasized is highly relative to the needs and the opportunities presented by the location to the community (Goodman W. I. and Freund E. C. 1968, p. 186-87).

Open space is defined in the Town and Country Planning Act, 1990 as land laid out as a public garden, or used for (http://www.opsi.gov.uk/ACTS/acts1990/Ukpga_19900008_en_20.htm). However, in
applying the policies in this guidance, open space should be taken to mean all open space of public value, including not just land, but also areas of water such as rivers, canals, lakes and reservoirs which offer important opportunities for sport and recreation and can also act as a visual amenity.

In more technical terminology, Open Space means any land, whether enclosed or not, on which there are no buildings, or of which not more than 1/20th part is covered with buildings and the whole or remainder of which is laid out as a garden, or is used for purposes of recreation, or lies waste or unoccupied (Sharma, K. Lal, 1997, p.74).

In sum, open space enhances the value of common property resources to the urban community, freed from any restrictions flowing from private ownership.

These are open to sky areas in Bangalore City mainly used for active recreation or other public activities and are mostly devoid of constantly attended vegetation. The Lake systems along with isolated Tanks or keres of Bangalore are major open spaces contributing to recreational and ecological value of the city. Burial grounds, crematoria and quarries also come under this category.

**iii) Green Areas:** Besides parks and open spaces, there are other areas which contribute to the greenery and openness of the city. There are large tracts of defense land with dense green cover cutting across the city from the east to the north-west. Though they are not utilized by citizens of Bangalore, they form a major lung space in the city fabric. They also become very strong barriers and edges of urban development. Public and semi-public zones like universities and other such campuses have large green areas. Other land uses are residential and industrial which occupy large areas of the city and they also contribute to green the city. Tree lined avenues, streets and roads along with green medians and traffic islands are spread all around the city adding to its greenery.

**iv) Avenue Plantations** are trees found along roadsides. Its main function is to provide a canopy and thereby increasing the proportion of greenery and reducing heat island effects.
v) Green Belt: The Green Belt is that which encircles the built-up area around the city. This green belt is designed to restrict and resist the urban encroachment on rural lands and forests together with the preservation of agriculture, land and water bodies. Green belt is defined as an open land used as a buffer zone wedged into urbanized areas. It can be used as forest, as a visual buffer against the often-ungainly industrial or utility areas and as a means to replenish oxygen – mitigation of carbon dioxide and carbon monoxide poisoning and providing scope for minor fauna.

Garden design combines the aesthetic beauty, artistry, some knowledge on growth and development of plants and the principles of garden maintenance at different seasons. A garden may be defined as a place for growing plants, exhibits of various forms of plant life which are consciously directed for ornamental or practical use or both. Arrangement of trees, shrubs, climbers and various other plants together with the building, walking, drives, artificial and natural features for the use of people is termed as ‘landscape gardening’. ‘Landscape architecture’ is the art of arranging land and landscape for human use, convenience and enjoyment. ‘Design’ is the determination of the character of an object to serve a certain purpose known in advance. Design may be of two types – aesthetic and economic. Aesthetic design is purely attractive and pleasing in appearance, while economic design is meant to serve some practical and utilitarian purposes (Lancaster, S. P, 1984, p. 15).

1.2 THE HISTORY OF OPEN SPACE PLANNING

In the beginning, landscape and open space planning evolved in London. Several nineteenth century writers made proposals for open space planning in and around London. The twentieth century saw quite a number of open space plans for London. The city has had great opportunities in planning its open spaces: It is a capital city with a favorable climate, a great river and many undulations. Kings, governments and people have agreed about the importance of open space for centuries. The country has a long democratic tradition and been without the need for dense fortified cities longer than any other European country. The hindrances to open space planning have been reluctance, especially during the twentieth century, to devolve power from central government to municipal councils. A relatively strong town planning profession evolved (after 1947)
which lacked expertise in open space planning. A relatively weak landscape architecture profession failed to take the initiative in open space planning. But, landscape and open space planning required to be treated as a strategic issue, like transport, which needed London-wide plan. The emphasis of open space planning shifted from ‘public parks’ to multipurpose greenways. Open space planning got to be professionally led and democratized. It was gradually realized that expert knowledge and the continuous involvement of open space users was necessary.

The key ideas in this plan are:

1. London has a uneven distribution and deficiencies of open space which should be remedied by aiming for a standard 1.62 hectares/1,000.
2. Open space should be coordinated into a park system to provide ‘an easy flow of open space from garden to park, from park to parkway, from parkway to green wedge and from green wedge to Green Belt.
3. Many private open spaces should be made accessible to the public.

1.3 FUNCTIONS OF PARKS, OPEN SPACE AND GREEN AREAS

Parks, open spaces and green areas are some of the fundamental elements in any meaningful urban design. There is evidence that properly designed open space can create a better quality of life while providing a platform for long term economic developments. This evidence requires to be discussed in some detail in the thesis. It will create value, civic pride and improved quality of life for residents. The strength of any open space presence is its ability to withstand temporal changes in local economics, political leadership and fashion. The value of green and open spaces for human beings is not restricted to merely recreational functions. They also contribute substantially towards improving the general standards and patterns of life in a city. This contribution ranges from tangibly clean and healthful endowments to sound insulation and environmental purification (Gowda, K. & Sridhara, M. V. 1999, p.3).

There are basically three functions which open space serves:

i. It can meet positive human needs - both physically and psychologically - in recreation amenities;
ii. It can enhance and protect the resource base – the air, water (ground water replenishment), soil, plants – and, in turn, the animals; and

iii. It can affect economic development decisions like tourism, development patterns, employment, real estate values, etc. In addition to that there are mass recreation, residential greens, miscellaneous green areas and also enrichment of natural landscape.

a) Meeting Human Needs: The justification for open spaces has been on health grounds - for fresh air, sunlight, physical exercise and psychological tension release (Goodman, I. William. & Freund, C. Eric 1968). The location and design of open spaces play an important role in bringing people together as in a neighborhood park, an office or apartment courtyard or a clustered subdivision’s open space.

b) Enhancing the Physical Resources: The productivity and efficiency of physical resources – air, water, and soils – as well as their amenities are critical factors in determining open space programs. By protecting and preserving these resources, flood and drought damage can be reduced, water supplies protected, air cleansed, soils nourished, wildlife enhanced, and many economic activities, from faring to lumbering, assisted.

c. Effecting Development Decisions: The size, character, location, and shape of open space can have a profound effect on current and future development, for it is basic to such development. In many built-up areas, the location of parks can influence neighborhood patterns and real estate values as well.

d. Mass Recreation: Green space facilities offer variously grounds for camping, spontaneous games, integrated sport facilities and swimming pools, educative and stimulating flower gardens with fountains and cascades as well as zoos in the vicinity. These facilities are contributing to the quality of urban environment.

e. Residential Green: Private or residential gardens in homestead backyards are a traditional feature of human society. These supplement the role played by public
garden and parks. Private residential gardens have the potential to provoke individual initiative and genius in the choice and arrangement of plants contributing to the overall health of the environment and also development of ecological consciousness and sensitivity.

f. Miscellaneous Green Areas: Miscellaneous green areas are important from the viewpoint of botanical and zoological gardens as cultural and educational facilities and to horticultural shows as events of regional significance. Green areas in and around industrial zones for protective and traffic purposes are to be integrated into the plans for promoting conditions for cleanliness. Urban forests and green belts are massive afforested areas which improve the environment and check pollution in these areas; these also serve as oxygen banks for the neighboring colonies.

g. Philosophy of Landscape: The use of more horticultural species of shrubs and trees in ‘inner areas’ provides a range of color, texture flowers, berries, etc., including a high proportion of evergreen plants exuding pleasantness throughout the year. The maintenance and enrichment of the natural landscape are of the greatest importance in all societies if the endowment of nature are to be retained in an urban environment and if the biological conditions essential to man’s survival and cultural development are to be retained intact (Gowda, K. & Sridhara, M. V. 1999, pp. 3-5).

1.4 BACKGROUND OF THE STUDY AREA

Bangalore City in south India is comparatively better placed in the overall Indian perspective and experience of urban environmental management. Increasing population and industrialization in Bangalore in the latter half of the last century has however spawned waves of haphazard urbanization. This has exacerbated many environmental and social problems leading to high costs and difficulties in taking remedial measures.

Bangalore is known as the Garden City of India due to the large number of parks as well as private gardens, roadside and avenue trees and the magnificent Lalbagh and Cubbon
Park. Bangalore has 705 parks spread across the city in the form of small and medium sized parks as well as large parks. Over the years, urbanization and the fast growth rate of the city have taken their toll on the city and the image is gradually changing from a garden city, to a high tech, 'silicon valley' image. The growth of the city has led to larger investments in technical infrastructure; road widening, housing and transportation infrastructure to match the growing needs of the city. The parks, which were once the pride of Bangalore have been facing neglect and are in serious need of rejuvenation as centre of social activity, places where citizens could relax, enjoy the surroundings and get rid of the stress of urban living.

The Bangalore Mahanagara Palike (BMP) has envisioned the rejuvenation of the ‘Garden City Image’ of Bangalore, to revitalize the parks, encourage more social activity and enhance the richness of the urban fabric of Bangalore. Despite budgetary constraints and limitations, the BMP has taken up several projects to revitalize Bangalore’s image as a Garden City through the creation of a large park with a bio diversity theme.

In the recent past, Bangalore has been growing phenomenally with a large number of companies operating here, and the inflow of domestic and foreign investment. This has been an association of mutual benefit – the urban economy of Bangalore has been growing, employment has been generated. On the other hand, this growth has taken its toll on infrastructure, urban growth and traffic and pollution have been increasing and public sanitation and solid waste are growing problems. Except for the larger parks, and some isolated efforts by the BMP, many of the smaller parks are getting neglected. Despite this they still serve as centers of recreation. However, the need was there to rejuvenate the parks and the green image of Bangalore. Besides the 705 regular parks, there are around 200 open areas and spaces, which are to be developed as parks and are without any kind of infrastructure and are basically Community Amenity sites earmarked for development of community infrastructure such as parks etc. Many of these do not even have fencing. Of the existing parks, many have infrastructure like fences, play equipment, street furniture, etc which are in need of repair and maintenance. Thus the existing parks too, except for a few exceptions have not meant their full potential.

In spite of laws for protection of trees and public protests, successive civic authorities have turned a blind eye as the green belt is getting encroached upon. Or, when old
bungalows are downed and the trees within felled to accommodate high-rises. Such over exploitation of green resources continues under one pretext or another.

Adequate open space for both recreation and rest is a vital factor in maintaining and improving the health of the people. It is considered a highly important aspect in any urban plan.

A common factor in all successful management of urban growth is government-private sector-citizens partnerships. Shining examples of such shared vision and collaboration is evident when one visits Singapore or Melbourne or Shanghai. In those cities, economic progress has been achieved even while greening them. There is no reason why Bangalore cannot replicate these examples.

A special task force comprising the horticulture and other government departments, and citizens, town planners, landscape architects, corporate bodies, NGOs and voluntary organizations is needed to address the matter. Currently the city is the floricultural capital of India. It accounts for nearly 70 percent of India’s flower exports. With so much in its favor and the availability of hi-tech and bio-tech resources, Bangalore can well become a model clean, green and beautiful city (Roye, Janardhan. 2006, p.2).

For the purpose of this study, a distinction between the three types has been explained along with a classification as shown below in Bangalore Metropolitan Area:

<table>
<thead>
<tr>
<th>Parks</th>
<th>Open Space</th>
<th>Green Areas</th>
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<tbody>
<tr>
<td>Regional Park</td>
<td><em>Maidan</em></td>
<td>Green belt-</td>
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<tr>
<td>District Park</td>
<td>Stadium</td>
<td>a) Agricultural land</td>
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<tr>
<td>Theme park</td>
<td>Playground</td>
<td>b) Protected forests and valleys</td>
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<tr>
<td>Heritage park</td>
<td>Swimming pool</td>
<td>Unclassified/Defense land</td>
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<tr>
<td>Neighborhood</td>
<td>Burial ground /</td>
<td>Institutional green</td>
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<tr>
<td>park</td>
<td>Crematoria</td>
<td>Residential greens</td>
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<tr>
<td>Children Park</td>
<td><em>Dhobi ghat</em></td>
<td>Industrial greens</td>
</tr>
<tr>
<td>Tot-lot</td>
<td>Race Course</td>
<td>Nurseries and horticultural gardens</td>
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<td></td>
<td>Lake and Tank</td>
<td>Plantations</td>
</tr>
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<td></td>
<td>Streams and drains</td>
<td>Traffic Island/Medians</td>
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<td>Quarries</td>
<td>Avenue trees</td>
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1.5 THE OBJECTIVES OF THE STUDY

- to study the historical background of parks, open spaces and green areas in Bangalore Metropolitan Area;

- to identify the existing parks, open space and green areas in Bangalore;

- to study the planning strategies for parks, open spaces and green areas through contemporary design elements;

- to review the planning regulations and guidelines, financial resource mobilization, NGO’s role and case studies in formulation of effective plan for parks, open spaces and green areas; and

- to recommend measures for upgrading and enhancing the quality of urban environment embodied by parks, open space and green areas of the city.

1.6 SCOPE AND LIMITATIONS OF THE STUDY

Urban areas need breathing space where the residents of the city can relax, and can enjoy the bounties of nature. Always, parks, open spaces and green areas have been an integral part of the urban fabric. Potential of public open space will depend on easy accessibility and close proximity to high-density residential and commercial structures. The range of recreational facilities caters to all age and social groups. The backbone of the open space system consists of tracks and trails for jogging and walking, which would serve to link and unify the various areas and activities. And also plant species that bear edible berries, fruits and nectar will be raised for attracting and providing the birds with suitable habitat.

Trees and shrubs humanize the city. They are also important as visual elements in the townscape. Even a single, mature and healthy tree can soften the uncompromising angular and grotesque shapes of modern buildings. Trees absorb noise and make the cities more habitable.

Budgetary and other constraints had forced the neglect of many parks, especially the smaller neighborhood parks in residential areas. Therefore there was an urgent need to rejuvenate these parks as neighborhood centers for recreation, in order to provide facilities for citizens. This would also improve living standards for citizens and provide active and passive recreation centers within easy traveling distance. In addition, due to various development works, the tree cover in Bangalore is getting reduced, and hence the
idea was to plant a tree for every tree cut. Tree planting was also taken up as a drive under various programs.

The study is limited to parks, open spaces and green areas and has been carried out in the city of Bangalore. The information is based generally on secondary sources and also efforts have been made to visit many places to understand the various issues about parks, open spaces and green areas. The subject is very vast and only a few examples are considered in the thesis. The focus of this research has been to highlight the historical background and assessment of the existing situation and to recommends and suggests ways for the future development of parks, open spaces and green areas. It reveals planning strategies and design guidelines for conservation of parks, open space and green areas to ensure aesthetic quality of Bangalore Metropolitan Area.

1.7 METHODOLOGY

The study is primarily with a view to obtaining an environmental planning strategy and guidelines for structuring of parks, open space and green areas in Bangalore Metropolitan Area. For this study the data are mainly from secondary sources and observations. Primary sources consist of personal visits through field survey and observations which can be useful to know the ground reality of the study area. Secondary information is obtained from various sources including technical papers, reports, website articles, planning documents and other written and printed materials to focus on norms for green management. This information is helpful to understand the classification and also hierarchy of parks, open spaces and green areas with respect to urban fabric. Appropriate techniques and design guidelines are adopted in the preparation of this thesis to analyze and suggest strategies and guidelines for open space management.

1.8 ORGANIZATION OF THE THESIS

Chapter One provides a background account of the functions and need for parks, open space and green areas in development planning. It states the goals and objectives of the thesis and briefly explains the approach adopted. It also establishes the scope and mentions about the limitations of this thesis.
Chapter Two reviews literature most relevant to parks, open spaces and green areas from the planning strategies and design guidelines point of view. This chapter explains the approaches used by various planners, landscape ecologists, horticulturists, corporation authorities to analyze the importance of vegetation and discusses the use of ecological planning principles for parks, open spaces and green areas.

Chapter Three deals with the background of the study area as related to parks, open spaces and green areas. In order to understand this, it provides a reference to the status of growth and development of Bangalore with topographical features and climatic conditions perspective which is necessary to the growth of vegetation and lung space of the city. Regarding land use, the chapter discusses how the city embodies a harmonious relationship between areas to be devoted to residential, commercial, industrial, institutional, recreational green and other purposes. It also highlights that in order to promote health, safety and general social welfare of the community, it is necessary to enforce reasonable norms on the use of land for buildings through zoning regulations. It emphasizes the problems related to civic amenities and degradation of natural ecosystems.

Chapter Four explains how Bangalore evolved and the problems were created by urbanization and industrialization in relation to parks, open spaces and green areas. The existing problems are identified and discussed from mud fort to sprawling metropolis.

Chapter Five presents planning strategies for parks, open spaces and green areas for Bangalore Metropolitan Area. Aspects such as strategies for greening Bangalore, development of new parks, rejuvenation of old parks, development of playgrounds and improvement of road junctions have been elaborated. Various issues like heritage conservation, sustainability and rain water harvesting have been reviewed.

Chapter Six gives a brief idea about enhancing the quality of urban environment through the use of visual contemporary design elements of parks, open spaces and green areas; it also reviews the planning regulations, budgeting and guidelines, and involvement of different institutions and NGOs for promoting urban environment.

Chapter Seven briefly explains the conclusions of this thesis. The suggestions and recommendations on parks, open spaces and green areas of BMA have been made.