

# A Short Review on Plants and Trees for Urban City Planning

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**ABSTRACT:** Plants and trees are important for our survival in the ecosystem. Without trees, life would not have been possible. Plants take in carbon dioxide and give us life supporting oxygen. Plants provide immense value to life and prosperity of human beings. Vegetation not only help human beings with food and material benefits, but also other animals, birds, reptiles and microbes. Compared with most other plants, trees are long-lived. Root architecture plays an important role in providing a secure supply of nutrients and water as well as anchorage and support. Plant act as scavengers for air pollution as they act as initial acceptors. They play an important part in designing the Urban landscape in today's modern world.

**Keywords:** Landscape, Pollution, Roots, Trees, Urban

## I. INTRODUCTION

Plants and trees are regarded as most essential living component in nature. Trees play an important part in the human life. They are responsible for making the environment look pleasant and green, supplying cool air to the surrounding. Plants and Trees are considered as treasures to man by nature. They help to support life activities of all organisms. Plants provide the necessary oxygen to all living organisms. Ecologist study relationship between living things and their environment. Landscape ecology is a further development of ecology. Trees are significant in world's mythologies and religions and have been given deep and sacred meanings throughout the ages. Tree's stability depends heavily on both root system architecture and the anchorage of roots in the soil [1]. Root resistance gives rise to the characteristic mass of roots and soil seen on uprooted trees.

A tree is regarded as perennial woody plant. It has secondary branches supported on a single main stem or trunk with clear apical dominance. A tree is a plant form that occur in many different orders and families of plants. Trees show a wide variety of growth forms, leaf size and

shape, bark characteristics, and reproductive organs. Being around a tree reduce stress [2]. The need of the tree is widely identified in cleaning the waste gases and dust prevailing in the urban environment. The requirement of growth of the trees have been identified as a best solution for a plenty of urban issues. A wide background knowledge of tree plantation and its preference in particular location adds more aesthetic beauty to urban areas.

An arboretum is a place where a wide variety of trees and shrubs are cultivated. The trees may also be organized in a way to aid their study or growth. Green scape is preferred by city dwellers. Earth's land biomass is mainly represented by plants and trees. The biosphere is dependent on metabolism, death and recycling of nutrients, especially trees. They have vast trunk and good root system to store carbon dioxide, take up water and further release the oxygen produced into the atmosphere. Plants utilize the moisture in the soil to replenish the water lost through transpiration. Rainwater frees the nutrients and minerals in the soil for plant growth. Plants are termed autotrophs. Rain water play an important role in its function.

The increase in environmental pollution has initiated the approach of urban landscaping. Proper planning and plantation depend on the prevailing environmental conditions and a pilot study already conducted in the surrounding area. This help in designing the urban landscape and practice of its maintenance. They are entirely very different from the natural environment to which the trees are normally adapted. Color is a fundamental characteristic of the environment. Trees are the main natural sources of solar energy vital for our existence that bring flowers, fruits, wood and medicines.

Trees provide shade, flowers, fruits, leaves and cool air. They provide valuable goods, timber, fuel and rubber. Material goods, raw material for industries are provided by trees and plants. Trees helps to prevent soil erosion, drought and floods. Trees provide beautiful canopy. They act by

breaking wind during stormy days. Plants and suitable tree species with suitable landforms and design appear to be the best system for reducing noise in urban regions. Trees with thick and fleshy leaves have higher capacity to withstand sound vibration.

Urban areas are considered as right places for green belt development. Environmental factors prevailing in cities affect the plant growth by water, nutrient content, temperature and soil. In turn these factors affect the tree growth. Choosing right species of trees are regarded as tolerant species in urban environment. Parks and greenways should be designed to facilitate those processes of surface water detention and infiltration, waste management, air cooling and cleansing, practicing urban agriculture etc. Right selection of plants is found to minimize the noise in the noise due to human activities.

All components of the root architecture are regulated through a complex interaction between genetic responses and responses due to environmental stimuli. Trees and plant bring rains due to high rate of transpiration and precipitation. The absence of rainfall result in land with minimum fertility. Large areas of seminatural habitat, maintained by adaptations of natural processes, provide a good environment for man. Urban areas today possess very high concentration of air pollutants from numerous sources [3]. The urban plantation with suitable plants are used to bio filter noxious pollutants from discharged sources [4]. Table 1 depicts the suitable list of trees for Urban Planning.

**BENEFITS OF TREES:**

- Trees are a home of hundreds of species of spiders and insects. Furthermore, trees are the natural shelter of many animals.
- Trees help to maintain ecological balance and also acts as a valuable source of many resources such as timber, medicine, shelter, raw materials and more.
- Trees provide us with two of life’s most crucial components such as oxygen and food.
- Trees are integral to the environment. Trees are considered as natural carbon sinks; they

have the ability to soak up carbon dioxide from the environment and store it within themselves. This not only reduces the amount of carbon dioxide in our environment but also have an impact of the greenhouse effect.

- Trees have been given cultural significance. Many trees are considered sacred because of their usefulness to ancient Indian mythologies.
- Trees make the environment look clean and beautiful.
- Trees are also an important source of medicine.
- Trees are used to make furniture and other commercial products. Trees and its branches are used as a source of fuel.
- Trees help in reducing noise pollution as the density of the trees does not allow the noise to spread.
- Trees minimize erosion of the land, hence the acidification of the land decreases. Organic manure obtained from the dry leaves of trees, makes the land fertile.
- Trees provide us cool shade in summer.
- Plants provide flowers, fruits, rubber, lacquer, silk, paper, matchmaking, wood, herbs and other mineral substances.
- Trees prevent floods by stopping excessive water flow.
- Due to trees, every place gets the right amount of rain, due to which we get more potable sweet water for the crop.
- Trees prevent excess evaporation of moisture from soil and keep wind in check.
- Trees can filter the air that flow through them removing dust and bacteria.
- Tree provide shade that help a nitrogen-fixing leguminous plant thrive which in turn benefit another species that attracts insects that are beneficial for pollination.
- Trees absorb toxic gases and help in keep the air pure.
- Trees support huge biomass and enormous biological and biochemical diversity support energy flow.
- The tree is considered a valuable asset. They are the protectors of the whole nature, as long as it is present on earth for life to exist on earth.

**Table 1: Trees for Urban Planning**

S.No.	Common Name	Botanical Name	Family	Flower colour
1	Agar Tree	Aquilaria malaccensis	Thymelaeaceae	Yellow, Green
2	Amla Tree	Phyllanthus emblica	Phyllanthaceae	Greenish Yellow
3	Ankol Tree	Alangium salviifolium	Cornaceae	White

4	Apple Tree	Malus pumila	Rosaceae	White and Pink
5	Ashoka Tree	Saracaasoca	Fabaceae	Orange-Yellow
6	Babool Tree	Vachellianilotica	Fabaceae	Small Yellow or Golden-Yellow
7	Bael Tree	Aegle marmelos	Rutaceae	Yellowish Green
8	Bakul Tree	Mimusopselengi	Sapotaceae	Yellowish White
9	Banyan Tree	Ficusbenghalensis	Moraceae	Yellow
10	Bhurja Tree	Betula utilis	Betulaceae	Yellow
11	Bigtooth Aspen Tree	Populusgrandidentata	Salicaceae	Gray to Red-Brown
12	Black Ash Tree	Fraxinus nigra	Oleaceae	Whitish-Green
13	Champakam	Micheliachampaca	Magnoliaceae	Orange
14	Chandan Tree	Santalum album	Santalaceae	Purplish-Brown
15	Chikko Tree	Manilkara zapota	Sapotaceae	Cream
16	Chironji Tree	Buchanalianalzan	Anacardiaceae	Greenish-White
17	Cork Tree	Quercussuber	Fagaceae	Greenish Yellow
18	Dhup Tree	Canariumresiniferum	Burseraceae	Pale Yellow
19	Eucalyptus Tree	Eucalyptus globulus	Myrtaceae	White
20	Fig Tree	Ficuscarica	Moraceae	Yellow
21	Gamhar Tree	Gmelina arborea	Lamiaceae	Brownish Yellow
22	Guava Tree	Psidium guajava	Myrtaceae	White
23	Guggul Tree	Commiphorawightii	Burseraceae	Red to Pink
24	Gummy Gardenia Tree	Gardenia gummifera	Rubiaceae	White or Pale Yellow
25	Hingan Tree	Balanitesaegyptiaca	Zygophyllaceae	Green
26	Indian Gooseberry tree	Phyllanthusemblica	Phyllanthaceae	Greenish-yellow
27	Indian Kamla Tree	Mallotusphilippensis	Euphorbiaceae	White
28	Indian laburnum Tree	Cassia fistula	Fabaceae	Yellow
29	Indian Rosewood Tree	Dalbergia sissoo	Fabaceae	Yellow
30	Jamaica cherry	Muntingiacalabura	Muntingiaceae	White
31	Khair Tree	Celtis australis	Fabaceae	Pale Yellow To Cream
32	Kokum Tree	Garcinia indica	Clusiaceae	Pink
33	Mahagony Tree	Swieteniamahagoni	Meliaceae	White
34	Mahua Tree	Madhucalongifolia	Sapotaceae	Succulent Creamy-White
35	Malabar Plum	Syzygiumcumini	Myrtaceae	White
36	Mango Tree	Mangifera indica	Anacardiaceae	Yellowish or Reddish
37	Neem Tree	Azadirachtaindica	mahogany	White
38	Palesh Tree	Butea monosperma	Fabaceae	Orange-Red
39	Peach Tree	Prunus persica	Rosaceae	Pale Pink
40	Pear Tree	Pyrus	Rosaceae	White
41	Pine Tree	Pinus	Pinaceae	Yellow
42	Portia tree	Thespesiapopulnea	Malvaceae	Yellow
43	Rosewood Tree	Dalbergia sissoo	Fabaceae	White
44	Sal Tree	Shorearobusta	Dipterocarpaceae	Light Yellow
45	Saptaparni Tree	Alstoniascholaris	Apocynaceae	Greenish-White Or Greyish-Yellow
46	Shigham Tree	Dalbergia sissoo	Fabaceae	White

47	SugarApple Tree	Annona reticulata	Annonaceae	Greenish-yellow
48	Tamarind Tree	Tamarindus indica	Fabaceae	Red and Yellow
49	Teak Tree	Tectona grandis	Lamiaceae	White
50	Tulip Tree	Liriodendron	Magnoliaceae	Orange and Green
51	White Ash Tree	Fraxinus americana	Oleaceae	Light Green to Purple

## II. CONCLUSION

Trees provide multiples benefits to organisms and human beings. Forests are shrinking as trees are cleared to increase the amount of land available for agriculture. Trees help to maintain a balance in the ecosystem. They are regarded significant elements in landscaping and agriculture, both for their aesthetic appeal and food crops. Wood from trees is a common building material. In addition to benefits they are found to act as scavengers to air borne particulates in the atmosphere by controlling their concentration. The growth of plants are thus considered an effective strategy for minimizing the environment damages to the forth coming generations.

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