**The significance of plants in human environment**

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**Abstract**

The plant is one of the most important forms of life on Earth. The biotic elements of nature are made up of animals, plants, and microbes. These are tightly connected to one another and necessitate particular abiotic conditions. In both aquatic and terrestrial ecosystems, plants of all sizes and shapes were present. Some examples include trees, mosses, ferns, vines, grasses, shrubs, herbs, flowering plants, and green algae. A forest is made up of various species of trees, shrubs, and plants, and each one contributes significantly to the environment's ecological equilibrium. Forests are essential to our environment and maintain ecological equilibrium. In terrestrial and aquatic ecosystems, such as the ocean, reservoirs, forests, grasslands, mountains, and deserts, particular plants and animals have habitats. Additionally, plants supply living things with the three fundamental necessities of food, clothing, and shelter. In addition to providing us with food and clean air on a daily basis, plants play a crucial role in maintaining a healthy ecology. As a result, trees are the primary food source for all living things. In addition, they provide us with oxygen, medicines, fuel, wood, recreation, industrial goods, preservatives, pesticides, and other supplies. Plants make our environment better. This review focuses on the ways in which plants help our environment.

**Keywords**: Air pollution, climate, Environment, forest, habitats, plants, soil.

**Introduction**:

Nature alerts us to its imbalance in a number of ways, including the rise in global temperature, climate change, shifting seasonal patterns, unpredictable rainfall, excessive rain, and drought. Every one of these natural cycles is significantly influenced by trees. It can be seen that all of India's ancient cultures have talked about how great tree wealth is. All living things, including humans, require energy to drive their metabolic processes of growth, development, and reproduction. The process by which green plants make their own food is called photosynthesis, and organisms use it to stay alive. During the process of photosynthesis, photoautotrophs transform carbon dioxide and water into glucose and oxygen. Oxygen and glucose are the two main byproducts of photosynthesis, both of which are essential to the survival of living things. As a result, photosynthesis is required for all organisms to exist on Earth. Medicinal plants have been used as a source of medicine since prehistoric times of human society. Heavy metals were removed from polluted soil and water by some plant species. Because the flora provides the fauna with food, the fauna are unable to produce their own food. Plants are also used to balance gaseous cycles and cut down on air pollution. Plants also play a crucial role in keeping the soil fertile, reducing soil erosion and landslides, and controlling floods. For the purpose of providing food for the growing population, grain crops were grown, which resulted in the development of cultivated varieties with high yields.

Many resources, such as food, fodder, vegetables, spices, and fruits, are extracted from plants and utilized in a variety of ways, including the construction of shelters, animal shelters, house parts, and wild genetic resources for crop plant improvement. As a source of high-quality forage and assistance in crop management such as pesticide, compost, and green manure, these plants are also economically advantageous to farmers (Dangol, 2008). Without plants, we simply cannot exist. The UN Sustainable Development Goals (UN SDG) were established by the General Assembly of the United Nations to improve people's living conditions. Planting trees and protecting them is a good way to help achieve these objectives, particularly in urban areas, where the majority of people live. Trees are really great for wellbeing and social prosperity since they decrease air contamination, lessen pressure, energize more active work, support major areas of strength for a, and can give different assets. By conserving and increasing the number of trees, we can create cities that are sustainable and have inhabitants who are happier and healthier (2019, Turner-Skoff and Cavender).

**Plants for pharmaceutical purpose:** In the past, the majority of food and medicine came from plants and their products, numerous modern pharmaceuticals have been separated and are now utilized for the benefit of living things. In today's developing nations, ensuring the safety, quality, and usefulness of herbal products and medicinal plants has emerged as a major concern. The Vedas, the Quran, and the Bible all make mention of the extensive use of herbal remedies and medical preparations. For a long time, medicinal plants have been used to treat health conditions, preserve food, flavor food, and prevent diseases, including epidemics. Over the course of many centuries, information about their therapeutic properties has been passed down. Plants have been an important source of natural products for human health for a long time, especially in the last ten years, when more intensive research has been done on natural therapies. Herbal medicine is a very safe and effective method for treating cancer when compared to modern Western medicine. The biological properties of plant species that are utilized worldwide for a variety of purposes, including the treatment of infectious diseases, are typically responsible for the active compounds that are produced during secondary metabolism. (Sharma and Moin, 2020).

**Habitats for flora and fauna:** Plants and animals naturally reside in habitats. There are specific types of habitats in both, terrestrial and aquatic habitats, which are habitats with regions of land and water. These areas include the areas those are flourished or barren land areas or uncovered or covered by water, such as ponds, rivers, and oceans. Terrestrial habitats include those on the earth's surfaces like forests, grasslands and deserts.

**Balances with gaseous cycles**: The water, carbon, nitrogen, phosphorus, and sulfur cycles are important biogeochemical cycles for living things. Energy moves through a variety of mediums in ecosystems through global cycle processes, including organisms, the atmosphere, rocks, bodies of water, and soil. Essential elements are also available to plants and other species as a result of biogeochemical cycles. Decomposers break down organic materials into simpler compounds with calcium, nitrogen, and phosphorus, as well as water and carbon dioxide. The things that plants require to grow are these.

**Reduction in air pollution**: Air pollution, which is brought on by industrial processes, power plants, home heating, automobile traffic, and other sources, is the primary issue affecting the environment in every Indian city. Growing green plants in and around industrial and urban areas is a suitable biological method for reducing air pollutants.

Kapoor and Chittora, 2016 in his experiment, concluded that *Mangifera indica L*, *Pongamia pinnata (L.),* *Pierre, Dalbergia sissoo Roxb*, and *Holoptelea integrifolia L* is useful for bio-monitoring, the development of green belts around industrial areas and roadside as well as to reduce air pollution from various sources including vehicles and indusstries. Through the stomata, which are located on the surface of the leaf, trees purify the air, remove dust and particulates, and absorb ozone, carbon monoxide, sulfur dioxide, and other pollutants. Plants such as *Mangifera indica, Albeza lebbeck, Magnolia champaca, Psidium guajava, Bouganvillea spectabilis, Thespesia populnea,* and *Terminalia catappa* are categorized as tolerant based on their high air pollution tolerance indices. With low air pollution tolerance indices, the species *Bauhinia varigeta, Tecoma stanus, Tabemaemontana divaricate*, and *Muntinga calabura* are grouped as being more prone to pollution. In order to increase greenery and reduce air pollution, species with a high air pollution tolerance index are given importance and suggested for plantation (Rupa and Venkatachalam, 2018).

**Ecoremediation**: Diverse indigenous and locally adapted plant species are used to clean up contaminants like heavy metals and petroleum hydrocarbons from contaminated soils or ground waters (phytoremediation) and reclaim derelict or deserted lands (ecosystem-restoration) for the purpose of environmental sustainability and biodiversity conservation. It is a technological process that tends to pair phytoremediation with ecosystem restoration. (Mcdonald, 2010 and Wolverton, et al.,1993).

**Climate**: The amount and type of plant cover have an impact on the climate of the region. Local climates can be cooled, for example, by forests and marshes. The destruction of forests and other vital plant communities has been blamed on natural disasters like drought and global warming. Rees are able to control the environment's temperature to some extent because they are effective at removing carbon dioxide from the air and converting it through photosynthesis into oxygen. The sun's light contributes to some of the warming of the atmosphere. The amount of heat reflected into the air around them is reduced by the amount of solar energy that plants on the earth's surface absorb.

**Water Quality**: The water's quality greatly depends on the plants. By holding the soil in place, controlling stream flows, and removing sediments from the water, a diverse plant cover contributes to the health of watersheds, lakes, and streams (Tanner, 2001). Water is naturally cleansed of pollution by trees. The canopies, trunks, roots, related soil, and other natural landscape features that filter polluted particulate matter out of the flow reduce the amount of pollution that is washed into a drainage region. For a long time, forests were thought to be important sources of clean water for drinking. A significant amount of the water required for domestic, agricultural, and industrial purposes is supplied by forested catchments. Through transpiration, trees and forests recycle atmospheric moisture to increase rainfall. The following are examples of the significance of forests and trees to water supply and rainfall: reduction of runoff, improvement of water cycle, enhancement of water table replenishment, pollution filtering, flood control, and storm water regulation (Ekhuemelo, 2016).

**Role of plants for driving hydrological**: Transpiration is the process of releasing the water absorbed by the plants through their root system after utilizing the nutrients for building their tissues, in a specified time. The numerous growing plants usually play a significant role in driving the hydrologic cycle in nature. The water absorbed by plants which is drawn into the plants rootlets from the moisture held in soil is owing to osmotic pressure and moves up through the plants via stems and leaves. Moreover, the water is released out as water vapour through the stomatal openings. The amount of such transpiration depends on the density and size of the plant or vegetation existing in that place. The amounts of water used for irrigating the crops get transpired into the air. This transpiration is dominant during the growing season of crops in agricultural lands. Most of this happens during day time, when photosynthesis is active in plants (Balasubramanian and Nagaraju, 2015).

**Maintaining the** **soil** **fertility**: The soil must must supply sufficient amounts of the multiple nutrients for a soil to be fertile that may limit plant growth (Hartemink, 2005, Karlen et al., 2001). In natural ecosystems, plants play a role in the formation of fertile soils by fixing carbon (C) and nitrogen (N), chemically liberating soil minerals from deep to surface soils and through the uptake and retention of nutrients (Jenny, 1958, Zinke,1962 and Aerts and Chapin, 2000)

**Reduce soil erosion and landslides**: Soil erosion is the process by which soil moves from one location to another, either naturally or artificially. Soil that has been transferred might be fertile or not. All plants take in micro- and macronutrients from the soil as they grow on soil media. The below the ground parts of plants make up the root system. Some of the examples of this are Rhizomes, tubers, and roots. Each plant's root binds the soil particles tightly together. Therefore, plantation prevents soil erosion. Soil erosion will be minimal in this location if plantation cover is at its highest. The loss of fertile soil as a result of soil erosion led to lower agricultural yields. Turf captures and slows down the storm water and reduces the erosion of soil with its dense system of roots and shoots. It holds up to as much as 20 times more soil as compared with the traditionally farmed cropland during extremely intense rainstorms (three inches per hour), according to studies (Okunlola et al., 2016).

**Flood** **control**: Urban impervious surfaces convert precipitation to stormwater runoff, which causes water quality and quantity problems. Additional consideration as a stormwater control measure is served by the cultivation of trees and other woody plants. Trees interact with the urban hydrologic cycle by intercepting incoming precipitation, removing water from the soil via transpiration, enhancing infiltration (Berland et al., 2017). , The extensive root systems of higher plants and the networks form by many grasses (e.g *Cynodon dactylon*) on the ground surface reduce flooding and wind-related damage by holding soils in place, and by absorbing through their roots and canopies significant volumes of water.

**Drought** **control**: In general, droughts are extreme hydrologic occurrences that result in acute water shortages and last long enough to have negative consequences on people, plants, animals, and the environment over a wide area (Gautam's and Bana, 2014). The moisture released into the air by trees (during transpiration) stabilizes rainfall thereby decreasing the episodes of drought. Drought is caused by changing weather patterns manifested through the excessive build-up of heat on the earth’s surface which result in greater evaporation rates. Drought, land degradation and desertification are effect on biodiversity. On-site effects include habitat deterioration and species extinction, which result in a general decline in economic and ecological output. Wetlands and water bodies will become depleted and polluted as a result of soil erosion. Communities are compelled to relocate or engage in various coping mechanisms when biological and economic output declines, both of which contribute deterioration of biodiversity (Africa review report, 2008). In addition to protecting the soil, increasing its capacity to store water, reducing runoff, and regulating drainage (both surface- and subterranean), trees and plants help conserve and enhance the soil's productive potential and the fertility of nearby agricultural land (Drought management plan, 2017).

**Carbon** **Sink**: Plants take in carbon dioxide and convert it to carbohydrates (sugars). These sugars provide the plant with energy to grow. As the plant or parts of the plant die, the decomposition of the plant material returns the carbon to both the soil and the atmosphere. The rate and levels at which carbon from decomposition is released into the atmosphere versus the soil continues to be studied ([Idso and Idso](https://hortherbpublisher.com/index.php/ijh/article/html/2409/%22%20%5Cl%20%22ref), 2007, Okunlola et al., 2016). A tree in a forest removes 4.5-11 kg of carbon per year ([Akbari](https://hortherbpublisher.com/index.php/ijh/article/html/2409/#ref), 2002) by simply growing and using carbon dioxide to do so. Plants’ ability to sequester carbon is an important process that can be used to mitigate the increases in carbon dioxide concentrations in the atmosphere that has been occurring since the industrial revolution ([Alley](https://hortherbpublisher.com/index.php/ijh/article/html/2409/#ref) et al., 2007). Carbon dioxide is a “greenhouse gas” and as such is contributing to the increase in the average global temperature. These changes are very likely to cause significant changes in climates around the world ([Alley](https://hortherbpublisher.com/index.php/ijh/article/html/2409/#ref) et al., 2007, Okunlola et al., 2016).

**Aesthetics**: The beauty of the places where we live is enhanced by plants. It’s obvious that Quiet, green areas of aesthetic repose may relate to an increase in psychological stability among urban inhabitants, and possibly to decreased violence. The need to bring the attention of people and governments to the importance of maintaining the biodiversity of planet Earth and also ensuring that the on-coming generations inherit a cleaner, greener, more ecologically sustainable world cannot be overemphasized, and horticulturist have worked towards this goal by enhancing the beauty and quality of our surroundings. The urbanized environment, where 95 % of the world population lives, is a place plagued with excessive traffic, air and water pollution and the lack of open space, have destroyed natural diversity and beauty and thus, demand for massive increase in greenery and beautification for environmental restoration and protection (Okunlola et al., 2016). Environmental aesthetics provides all humans an opportunity to cover aesthetic investigation of our experience of all sorts of environments, human made as well as natural. The natural environment provides distinct senses of colours, shapes, textures and sounds, and these senses vary as a consequence of the change of seasons, weather, or even time of a day (Okunlola et al., 2016).

**Windbreaks** **and** **noise** **amelioration**: The planting of hardy trees to build shelterbelts protect the soils from wind erosion, and encourage the protection of a natural resource. The trees planted in shelterbelts are also carbon sinks ([Akbari](https://hortherbpublisher.com/index.php/ijh/article/html/2409/#ref), 2002). Plants are better at absorbing high-frequency sounds, which are most bothersome to human ears, than they are at absorbing low frequency sounds. Noise is measured in decibels (on a logarithm scale) and is best reduced when plants are placed in two or three rows. For instance, two feet of plant width can decrease the decibel level by four, while increasing the plant width with two or three plants can lower the noise level more than seven decibels (Okunlola et al ., 2016, Akbari 2002).

**Recreation**: In many ways, the quality of life and general welfare of people are improved by the presence of trees in recreational spaces. They are essential natural elements of urban ecosystems and have a variety of positive effects on the environment, biodiversity, and aesthetics, as well as positive effects on the economy, society, and health (Jim and Zhang, 2013). A substantial number of mature trees are found in recreation areas, which help to protect and improve the environment (Farahwaheeda et. al, 2009). Trees provide contributions to the environment by absorbing noise, lowering parking lot temperatures, lowering runoff, and producing cleaner water. Also, the natural landscape at recreation parks will reduce personal stress. Trees offer the general public a variety of advantages while engaging in recreational activities, including environmental services, social advantages, and aesthetic value (Firdaus et al., 2016).

**Phyto**-**fencing**: Plants are the best tools for surrounding our houses, farms and plots of land for they proffer many advantages over cement walls or barbed steel wires. Phyto-fencing is cheaper when compared to other forms of fence and the plants help in cleansing the surrounding air by absorbing many gaseous pollutants from the atmosphere. Bamboo when used, gives us building material and its leaves are a good fodder for cattle and goat. Phyto-fence can act as a wind breaker; in addition to protection against intruders, it serves as a shelter belt. Multipurpose and thorny plants are also preferred.

**Industrial** **Products**: Plants are a source of important goods. Many industrial products are made from plants such as shampoos, rubber, paper, boards, oils, gums, resins, poles, clothing, fuel products like ethanol and soy diesel, tannin (utilized by the leather industry), dyes (including mycological stains) (Abubakar *et al.,* 2012), pharmaceuticals and botanical pesticides. Honey production (beekeeping) takes place from the pollens of many trees and shrubs. Forests have long served as a resource for fuel, shelter, weaponry, tools, food, water, medicine, and spiritual contemplation for human society. Bio-ethanol, bio-oil, and other liquid fuels can also be produced by utilizing grasses, agricultural residues, wood, and wood wastes as feed stocks. Forests and the natural resources that go with them meet a lot of human society's needs and wants now and in the future (Grebner et al. 2022).

**Pesticides**: Farms with native plants attract native animals that are excellent pollinators, resulting in more productive crops and pastures. While many native birds and insects consume pests on the crops and pastures, native plants on farms aid in pest management. As a result, less toxic chemicals will reach the environment and less money will be spent on pesticides. Plants secondary metabolites represent a large reservoir of chemical structures with biological activities including pesticidal (herbicidal, insecticidal, fungicidal, bactericidal, nematicidal, rodenticides and molluscicidal) potentials that can be exploited for the development of natural plant-based pesticides. Many plants produce secondary compounds that are phytotoxic to some degree (allelopathy). This phenomenon forms the basis for using plants natural products for the production of plant-based natural herbicides for controlling weeds for agricultural and other purposes. Compounds that inhibit the establishment and growth of plant pathogens are termed phytoalexins. Proof is developing that these compounds have such a role in plant disease prevention and control (Doyle, 2007).

**Table: 1 List of life giving tree suggested by Environmentalist Maruti B. Chitampalli**

| **Sr. No.** | **Worksheet** | **Botanical name of the plant (Common Indian name)** |
| --- | --- | --- |
| 01 | Life-giving tree | *Ficus bengalensis* (Wad), *Ficus glomerata* (Umbar), *Acacia nilotica* (Pakhar), *Ficus* |
| 02 | Plants suitable for planting around the temple | *Ficus bengalensis* (Wad), *Ficus glomerata* (Umbar), *Acacia nilotica* (Pakhar), *Ficus religiosa* (Pimpal), *Aegle marmelos* (Bel), *Neolamarckia cadamba* (Cadamb), *Prosopis cineraria* (Shami), *Bauhinia racemosa* (Apta), *Tamarindus indica* (Chinch), *Plumeria* (Chafa), *Azadirachta indica* (Kadulimb), *Bauhinia variegata* (Kanchan) |
| 03 | Roadside trees | *Azadirachta* *indica* (Kadulimb), *Alstonia scholaris* (Saptaprani), *Millettia pinnata* (Karanja), *Lagerstroemia speciosa* (Jarul), *Cassia fistula* (Amaltas), *Ficus bengalensis* (Wad), *Ficus glomerata* (Umbar), *Acacia nilotica* (Pakhar), *Tradescantia albiflora* (Nanduk), *Ficus religiosa* (Pimpal), *Tamarindus indica* (Chinch), *Dalbergia sissoo* (Shisav), *Albizia lebbeck* (Shirish) |
| 04 | Plants suitable for planting in the garden | *Nyctanthes arbor-tristis* (Parijatak), *Mimusops elengi* (Bakul), *Phyllanthus emblica* (Avala), *Ficus glomerata* (Umbar), *Cassia Fistula* (Amaltas), *Bambusa Vulgaris* (Bambu), *Lagerstroemia speciosa* (Jarul), *Plumeria* (Chafa), *Pterocarpus santalinus* (Rakta Chandan), *Grevillea robusta* (Silver oak), *Mangifera indica* (Aamba), *Schleichera* (Kusumb), *Alstonia scholaris* (Saptparni), *Prunus dulcis* (Badam), *Saraca asoca* (Sitaashok), *Neolamarckia cadamba* (Kadamb) |
| 05 | Fast growing trees | *Melia* *azedarach* (Bakana), *Okra* (Bhendi), *Erythrina* *variegate* (Pangara), *Millingtonia* (Aakashnimb), *Ailanthus* *excelsa* (Maharukh), *Bombax* *ceiba* (Shalmali), *Neolamarckia* *cadamba* (Kadamb) |
| 06 | Fruit trees | *Ziziphus* *mauritiana* (Bor), *Tamarindus* *indica* (Chinch), *Phyllanthus emblica* (Aavala), *Madhuca* *longifolia* (Mahua), *Diospyros* *melanoxylon* (Temburini), *Manilkara* *hexandra* ( Khirni), *Gmelina* *arborea* (Shivan), *Syzygium* *cumini* (Jambhul), *Cocos* *nucifera* (Naral), *Phoenix* *sylvestris* (Shindi), *Borassus* *flabellifer* *L* (Tadphal), *Annona* *squamosal* (Sitaphal), *Annona* *reticulate* (Ramphal), *Limonia* *acidissima* (Kavath), *Artocarpus heterophyllus* (Phanus), *Citrus* *limon* (Limbu), *Psidium* *Guajava* (Peru), *Buchanania cochinchinensis*  (Charoli), *Mangifera* *indica* (Aamba) |
| 07 | Useful plants on field bunds | *Phoenix sylvestris* (Shindi), *Borassus flabellifer L* (Tadphal), *Bambusa Vulgaris* (Bambu), *Sesbania Grandiflora and Agati Grandiflora* (Hadaga), *Moringa* *oleifera* (Shevaga), *Sesbania sesban* (Shevari), *Morus* *alba* (Tuti), *Okra* (Bhendi), *Ocimum* *tenuiflorum* (Tulas), *Azadirachta* *indica* (Kadhilimb) |
| 08 | Plants suitable for agricultural fencing | *Caesalpinia* *bonduc* (Sagargota), *Caesalpinia* *decapetala* (Chilhar), *Acacia* *concinna* (Shikekai), *Ferula* *assa*-*foetida* (Hingani), *Agave Americana*, (Ghaypat), *Jatropha* *curcas* (Jetropha). |
| 09 | Plants suitable for firewood | *Achellia nilotica* (Devbabhul), *Senegalia* *catechu* (Khair), *Vachellia* *nilotica* (Babhul), *Vachellia* *leucophloea* (Hivar), *Anogeissus latifolia* (Dhavada), *Bambusa* *Vulgaris* (Bambu), *Casuarina* *equisetifolia* (Suru) |
| 10 | Medicinal plants | *Terminalia* *Chebula* (Hirada), *Terminalia bellirica* (Behada), *Phyllanthus emblica* (Aavala), *Terminalia* *arjuna* (Arjun), *Azadirachta indica* (Kadunimb), *Millettia* *pinnata* (chandan), *Sapindus* *mukorossi* (Ritha), *Vitex* *negundo* *Linn* (Nirgudi), *Verbenaceae* (Shivan), *Oroxylum* *indicum* (Tentu) |
| 11 | Plants suitable for forest farming | *Phyllanthus emblica* (Aavala), *Ficus* *carica* (Anjir), *Artocarpus heterophyllus* (Phanus), *Tamarindus indica* (Chinch), *Manilkara* *hexandra* (Khirani), *Phoenix sylvestris* (Shindi), *Morus alba* (Tuti), Karvand |
| 12 | Plants that increase the fertility of farmland | *Ficus glomerata* (Umbar), *Millettia pinnata* (Karanja), *Gliricidia* *sepium* (Glirisidia), *Sesbania sesban* (Shevari) |
| 13 | Plants suitable for planting around the house | *Pterocarpus santalinus* (Raktachandan), *Millettia* *pinnata* (Chandan), *Ficus glomerata* (Umbar), *Mimusops elengi* (Bakul), *Nyctanthes arbor-tristis* (Parijatak), *Aegle marmelos* (Bel), *Schleichera* (Kusumb) |
| 14 | Suitable trees for planting along canal banks | Valuj, *Borassus flabellifer* L (Tadphad) |
| 15 | Plants that give oxygen for more than twelve hours | *Ficus bengalensis* (Wad), Pimpal, *Ficus glomerata* (Umbar), *Tradescantia albiflora* (Nanduk), *Azadirachta indica* (Kadulimb), *Neolamarckia cadamba* (Kadamb) |
| 16 | Plants useful for pollution prevention in industrial areas | *Ficus* *religiosa* (Pimpal), *Peltophorum, Putranjiva roxburghii. (*Putrajeevak), *Ficus* *glomerata* (Umbar), *Saraca* *asoca* (Ashok), *Albizia* *lebbeck* (Shirish), *Albizia* *lebbeck* (Shirish), *Annona* *squamosal* (Sitaphal), *Syzygium* *cumini* (Jambhul), *Alstonia* *scholaris* (Saptaprani), *Cassia* *fistula* (Amaltas), *Psidium* *Guajava* (Peru), *Ziziphus* *mauritiana* (Bor), *Azadirachta* *indica* (Kadulimb), *Phyllanthus* *emblica* (Aavala), *Tamarindus* *indica* (Chinch), *Neolamarckia* *cadamba* (Kadamb), *Aegle marmelos* (Bel), |
| 17 | Plants useful for repelling dust and toxic gases | *Ficus bengalensis* (Wad), *Ficus glomerata* (Umbar), *Acacia* *nilotica* (Pakhar), *Ficus* , *Mangifera* *indica* (Aamba), *Acacia nilotica* (Pakhar), *Ficus*, *Mangifera* *indica* (Aamba), *Mimusops elengi* (Bakul), *Samanea* *saman* (Rain tree), Hibiscus *rosa*-*sinensis* (Jaswand ), *Nyctanthes arbor-tristis* (Parijatak), *Cestrum* *nocturnum* (Ratrani), *Lawsonia* *inermis* (Mehandi), *Ocimum* *tenuiflorum* (Tulas) |
| 18 | Plants that keep the weather clean | *Ficus bengalensis* (Wad), *Ficus glomerata* (Umbar), *Acacia nilotica* (Pakhar), *Ficus, Thuja*, *Butea monosperma* (Palas), *Bombax ceiba* (Shalmali), *Neolamarckia cadamba* (Kadamb), *Delonix regia* (Gulmohar), *Cassia fistula* (Amaltas) |
| 19 | Plants showing air pollution |  [*Curcuma aromatica L, Butea monosperma L, Buchanania lanzan*](https://en.wikipedia.org/wiki/Curcuma_aromatica) *L.* If the pollution in the air goes beyond the limit, the leaves, flowers, bark and fruits of the above trees are deformed. |
| 20 | Plants suitable for planting in the middle of the road | *Aloe vera, Euphorbia tirucalli L., Calotropis gigantean L., Jatropha curcas L., Withania somnifera L., Cactaceae L.* these plants keep the area clean by absorbing the gases produced by the vehicle. |

**Conclusion**: Trees are good for the environment in many ways. The importance of plants is not limited to their role in Environment. Plants must be used more frequently to solve environmental and health issues. Trees are very important to the economy, the improvement of air and water, the generation of oxygen, the decarbonization of the atmosphere, the removal of pollutants, the recharging of ground water, the absorption of sound, windbreaks, urban cooling, clean water, medicinal value, sociological benefits, and the support of the lives of numerous wildlife animals. Hence plants make our environment better.

**References**

1. Berland A., Shiflett S. A., Shuster W. D., , Garmestani A. S., Goddard H. C., Goddard H. C., Herrmann D. L. and Hopton M. E., The role of trees in urban storm water management, Landscape and urban planning, 162:167-177, 2017.
2. Africa review report on drought and desertification, United Nations Economic Commission for Africa, Addis Ababa, Ethiopia, 2008.
3. Akbari H., Shade trees reduce building energy use and CO2 emissions from power plants, Environmental Pollution, 116:119-126, 2002.
4. Alley R., Joel L.D., and Jeffrey M., Climate Change 2007: The physical science basis-summary for policymakers, Intergovernmental Panel on Climate Change, 2007. <http://www.ipcc.ch/SPM2feb07.pdf>
5. Balasubramanian A.and Nagaraju D., Centre for advanced studies in earth science, University of Mysore, The hydrologic cycle, Technical report, pp 1-11, 2015.
6. Karlen D. L., Andrews S. S. and Doran J. W., Soil quality: Current concepts and applications in Advances in Agronomy, D. L. Sparks, Ed., 74:1–40, 2021.
7. [Dangol](https://pubmed.ncbi.nlm.nih.gov/?term=Dangol%20D%5BAuthor%5D) D R., Traditional uses of plants of common land habitats in Western Chitwan, Nepal, [j inst agric anim sci., 29: 71–78, 2008.](https://www.ncbi.nlm.nih.gov/entrez/eutils/elink.fcgi?dbfrom=pubmed&retmode=ref&cmd=prlinks&id=22945971)
8. Drought management plan, Government of India, Ministry of agriculture and farmer’s welfare, Department of agriculture, Cooperation & farmer’s welfare, 2017.
9. Ekhuemelo D O., Importance of forest and trees in sustaining water supply and rainfall, Nigeria Journal of Education, Health and Technology Research (NJEHETR), 8:273-280, 2016.
10. Farahwaheeda, S., Noriah, O. &Abdul, H. N., The values of parks to the house residents. 1st National Conference on Environment-Behaviour Studies, Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia, 2012.
11. Firdaus C S, Ramly H and Ely R J., The mature trees in recreation areas and its role in enhancing, Procedia - Social and Behavioral Sciences 234:289 – 298, 2016.
12. Gautam R C and Bana R S., Drought in India: Its impact and mitigation strategies-A review, Indian journal of Agronomy, 59(2):179-190, 2014.
13. Grebner D L, Bettinger P, Siry J K and Boston K., Chapter 4 - Forest products, Introduction to Forestry and Natural Resources, Second Edition, Pages 101-129, 2022.
14. Sharma Gunjan and Moin Sarmad, Medicinal plants: A mini review, Journal of environment, science and technology, *6(1), 14-18, 2020.*
15. Jenny H., Role of the plant factor in the Pedogenic functions. Ecology 39, 5 (1958).
16. Hartemink, “Soil fertility decline: Definitions and assessment” in Encyclopaedia of Soil *Science*, L. Rattan, Ed. (CRC, ed. 2, 2005), vol. 2, pp. 1618–1621.
17. <https://hortherbpublisher.com/index.php/ijh/article/html/2409/#ref>
18. <https://mr.vikaspedia.in>
19. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4844262/>
20. Idso C.D., and. Idso K.E., Elevated CO2 may slow plant decomposition rates, Increasing Soil Carbon Storage, 2007.
21. Jim, C. Y., & Zhang, H. Species diversity and spatial differentiation of old-valuable trees in urban Hong Kong. Urban Forestry & Urban Greening, 12:171-182, 2013.
22. Kapoor CS, Chittora AK., Efficient Control of Air Pollution through Plants a Cost Effective Alternatives. J Climatol Weather Forecasting 4:3,, pp1-5, 2016. doi:10.4172/2332-2594.1000184.
23. List of life giving tree suggested by Environmentalist Maruti B. Chitampalli (www.google.co.in)
24. Okunlola A.I., Adepoju A.O., and Akinpetide E.O., The significant role of horticulture in environmental aesthetics and management, International Journal of Horticulture, 6(17): 1-15, 2016. (doi: [10.5376/ijh.2016.06.0017](http://dx.doi.org/10.5376/ijh.2016.06.0017))
25. Zinke P J., The pattern of influence of individual forest trees on soil properties. Ecology 43, 130–133, 1962.
26. Aerts R and Chapin F S., III, “The mineral nutrition of wild plants revisited: A re-evaluation of processes and patterns” in AdvancesinEcologicalResearch, A. H. Fitter, D. G. Raffaelli, Eds., vol. 30, pp. 1–67, 2000.
27. Rupa P and Venkatachalam T, Studies on Air Pollution Tolerance Index of Native Plant Species to Enhance Greenery in Industrial Area, Indian journal of Ecology, 45(1):1-5, 2018.
28. Turner-Skoff J B and Cavender N., The benefits of trees for livable and sustainable communities, Plants, People, Planet 1(4):323-335, 2019.