GREENBELT DEVELOPMENT PLANT

Greenbelt Development

A green belt or tree plantation around the plant site shall help to arrest the effects of particulate matter, gaseous pollutants and noise pollution in the area besides playing a major role in environmental conservation efforts. Green belt planning has been done as per guidelines laid by CPCB. Taking into consideration ecological perspectives and availability of space and other aspects greenbelt development has been planned for the proposed CBWTF project. This will help in increasing the aesthetic effect of the environment. Greenbelt will be developed along most of the periphery of the project area as well as along roads for avenue plantation. Area under plantation will be 0.35 acre (26 % of the total plot area). The trees planted will be of adequate height. Any tree that does not survive will be replaced. Ornamental trees will also be planted to improve the aesthetic looks of the project area. The following characteristics have been taken into consideration while selecting plant species for green belt development and tree plantation.

- Fast growing
- Thick canopy cover
- Perennial and ever green
- Large leaf area
- Preferably Indigenous
- Resistant to pollutants and should maintain ecological balance for soil and geo-hydrological conditions of the region.
- Abundance of surfaces on bark and foliage through roughness of bark, epidermal outgrowth on petioles, abundance of auxiliary hairs, hairs or scales on laminar surfaces and protected stomata (by wax, arches, rings, hairs, etc.)

Approx. 300 Nos. of plants (including trees and shrubs) are proposed for the greenbelt development. The general guidelines for development of greenbelt will be as follows:

- Trees growing up to 5 m or more will be planted along the plant premises and along the road sides
- Planting of trees will be undertaken in rows.
- Open areas inside the plant boundary will be covered with grass.
- The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees will grow vertically and slightly increase the effective height of the green belt.
- Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion.
- Shrubs and trees will be planted in encircling rows around the project site.

- The small trees (<10 m height) will be planted in the first two rows (towards plant side) of the green belt. The tall trees (>10 m height) will be planted in the outer three rows (away from plant side).
- Trees should be planted along road sides, to arrest auto-exhaust and noise pollution.

Three Tier Plantation Planning

Sr. No.	Tier	Type	Height (m)	Rows
1	First Tier (Towards Boundary)	Tree	10-12	1
2	Second Tier (Middle Layer)	Small Tree	5-10	1
3	Third Tier (Towards treatment unit)	Shrubs including ground flora	1-5	Thick Layer

Total 300 Nos. of Plant species (Tree-200 & Shrubs-100) will be planted in one year plantation programs. Required nutrients/ water/ manure and protection mess shall be provided. Ground flora will also be developed in open area. Survival of plant shall also be monitored. To ensure the effective plantation, a one year plantation programs with number of tree/shrubs species have been proposed and described below:

Plantation planning

Description	End of 2018
Number of Plants	300 Nos. (Tree-200) (Shrubs-100)
Plantation of grasses and ground flora	As per vacant area available in the unit

Around the project boundary of the site

One row of each tree of *Alstonia, Neem, Butea monosperma, Michelia champaca, Aegle marmelos, Alstonia scholaris, Tamarind, Kadamba, Kassod, Pongamia pinnata, Cassia fistula* are proposed with a spacing of 5.0 m x 5.0 m for trees.

Along the road side

Along the access roads, plantation shall be done on both sides wherever feasible. Combination of shrubs and trees will be planted along the road side 5 m x 5 m for trees and 2 m x 2 m for shrubs. Species to be planted along the road side are Ashoka, Spanish cherry, *Cassia fistula, Calliandra hybrid.*

Inner layer of project boundary

Trees like *Acalypha wilkesiana, Melia azedarach, Cassia fistula, Antidesma acidum, Anthocephalus cadamba, Champaka,* and *Bauhunia purpuria* will be planted inner side of the project boundary.

Around the ETP

Trees like *Azadirachta indica, Jasminum sambac, Kunda, Cestrum nocturnum, citrus species, Lagerstroemia* and *Michelia champaca* will be planted around the ETP facility. Plant species are selected for green belt developments are given below:

Plant species for greenbelt development

Sr. No.	Botanical Name	Family	Common Name
1.	*Syzygium cumini*	*Myrtaceae*	Jamun
2.	*Gmelina arborea*	*Lamiaceae*	Gambhari
3.	*Madhuca longifolia*	*Sapotaceae*	Mahua
4.	*Mangifera indica*	*Anacardiaceae*	Mango
5.	*Bamboo*	*Poaceae*	Bamboo
6.	*Aegle marmelos*	*Rutaceae*	Bel
7.	*Albizia stipulata Boiv*	*Leguminosae*	-
8.	*Alstonia scholaris*	*Apocynaceae*	Satvin
9.	*Bauhinia tomentosa*	*Caesalpiniaceae*	Kachnar
10.	*Butea monosperma*	*Fabaceae*	Dhak
11.	*Calliandra emarginata*	*Mimosaceae*	Dwarf Powder Puff
12.	*Cassia Javanica*	*Caesalpiniaceae*	Pink Cassia
13.	*Ficus benghalensis*	*Moraceae*	Bargad
14.	*Michelia champaca*	*Magnoliaceae*	Champa
15.	*Melia azedarach*	*Meliaceae*	Bakain
16.	*Nerium oleander*	*Apocynaceae*	Kaner
17.	*Prosopis spicigera*	*Mimosaceae*	Khejri
18.	*Cassia fistula*	*Caesalpiniaceae*	Amaltas