



Sadhubella Education Society's  
Minority Institute

## J. Watumull Sadhubella Girls College

Near Government Dispensary, Ulhasnagar – 421 001, Dist – Thane

### GREEN AUDIT

Three expert members appointed for external green audit 1. Dr. Venugopal Chari, Head, Dept. of Botany, R. K. Talreja Arts commerce and Science college, Ulhasnagar-1, 2. Dr. Kuldeep J. Mhatre, Asst. Prof. Department of Zoology, R. K. Talreja Arts commerce and Science college, Ulhasnagar-1 and 3. Mr. Waman Sonawane, Sanitary Inspector, Ulhasnagar Mahanagarpalika corporation of inspection.

#### **History:**

The Governor-general of India, C. Rajagopalachari named the town **Ulhasnagar** (literally 'city of joy'; ulhas=joy; nagar=city) and he also laid the foundation stone for the township. It was called **Ulhasnagar** because of its close proximity to Ulhas Plateau and its valley. A suburban railway station was built in 1955. **Ulhasnagar**, which is located on coast of the West India, is in the Thane district of Maharashtra State. **Ulhasnagar** didn't actually exist during the medieval ages, when India was fighting against British for independence. ... The city was also a military camp and housed about 7,000

#### **History of Sindhunagar/Ulhasnagar**

Sindhunagar (Ulhasnagar) was build as transit military camp during 2nd world war by British Government. After the war, this place became vacant and soon after came the independence of India (15-Aug-1947). India paid a huge cost for independence. This was partition. Sindh state went on the other side of India (now Pakistan) and Sindhis who un-willingly left there homes came on the bank of Bombay (Mumbai now) with no good money in hands. Looking to the situation Indian Government decided to allot the Sindhunagar (Ulhasnagar) camp to Sindhis who came here in Mumbai during Partition.

Most of the Sindhis expected this to be a temporary arrangement and they will go back to their native land. But this hope never came true and they learned to live on this land. Sindhis started re-inventing their lost home and business here on this land. It is said the total population of Sindhunagar (Ulhasnagar) in 1951 was just 80,000.

Sindhis use to get the red wheat (one which is actually given to horses for eating), milk, fuel for cooking food on ration. Having a cup of tea use to be luxury in those days. It was made only when some guest came to house. What house, there use to be Barracks (Big halls with many doors) separated by grain sacks. No proper bathrooms and toilets.

Slowly and gradually Sindhis started learning and Bombay/Mumbai became the place of business and work for them. Luckily during those days qualified Sindhis use to get preference for employment in offices in Bombay/Mumbai. Sindhis are the hard working community and very much business minded, but making something out of nothing at all is a big achievement. Sindhis have made it possible.

This city has seen lots of phases in development. There had been gang wars for the power and dominance.

There had been duplication of goods for earning daily bread of life. This is the phase when Indian people were mad about foreign products and it use to be the trend in communities. This foreign products trend killed local manufacturers. Some of the vendors started putting "Made in USA" on products to survive in that phase. When asked what did it mean? There use to be straight answer USA stands for Ulhasnagar Sindhi Association. This city also lost the reputation because of duplication during 80s and 90s. Although now city have gained heavy strength in manufacturing and exporting quality products in its own name.

There was a Construction phase in Sindhunagar/Ulhasnagar. To earn the fast money few of the local contractors started building illegal constructions. By illegal it means As per the civic rule one can not build an apartment of more than 3 or 4 floors, but there were buildings with 6 to 7 floors spreading in the city.

Overall things have settled now and this is the place commerce starts in the country and spreads in the world. Well! Camps are still there but each camp represents its own taste. One can still find the same respect for God, what use to be there in Sindh. There are many of world famous places of worship here. People come from all over the world at these places. Swami Shanti Prakash Ashram is one such place. Jhulelal Mandir is famous for chaliha (40 day fast Sindhis observe during monsoon season).

The city has grown and its population has touched around 7 to 8 lacs. There is no growth in land and density of people has increased. Sindhunagar city consists of other communities like Maharashtrians (second largest community), Gujuratis, South Indians, Punjabis, each having their own sections and areas.

**Climate:** The Ulhasnagar lies on 20m above sea level The climate here is tropical. There is significant rainfall in most months of the year. The short dry season has little effect on the overall climate. This location is classified as Am by Köppen and Geiger. The average annual temperature in Ulhasnagar is 27.0 °C | 80.6 °F. Precipitation here is about 2958 mm | 116.5 inch per year.

| <i>Months</i> | <i>Temperature</i> |                |                | <i>Precipitation</i> |
|---------------|--------------------|----------------|----------------|----------------------|
|               | <i>Normal</i>      | <i>Warmest</i> | <i>Coldest</i> | <i>Normal</i>        |
| January       | 24.5°C             | 29.6°C         | 19.3°C         | 0                    |
| February      | 24.8°C             | 29.6°C         | 20.0°C         | 0                    |
| March         | 26.9°C             | 31.1°C         | 22.6°C         | 0                    |
| April         | 28.7°C             | 32.3°C         | 25.0°C         | 0                    |
| May           | 30.2°C             | 33.4°C         | 27.0°C         | 0                    |
| June          | 29.2°C             | 32.0°C         | 26.3°C         | 17                   |
| July          | 27.7°C             | 30.1°C         | 25.3°C         | 24                   |
| August        | 27.3°C             | 29.6°C         | 24.9°C         | 25                   |
| September     | 27.7°C             | 30.5°C         | 24.9°C         | 15                   |
| October       | 28.7°C             | 32.5°C         | 24.8°C         | 4                    |
| November      | 28.0°C             | 32.9°C         | 23.0°C         | 1                    |
| December      | 26.3°C             | 31.6°C         | 20.9°C         | 0                    |

***Tabular view for temperature and precipitation per month***

**Rainfall: 2958mm.** The **average annual temperature in Ulhasnagar** is 27.0 °C | 80.6 °F. **Precipitation** here is about 2958 mm | 116.5 inch per year.

**Population: Ulhasnagar.** Ulhasnagar is a city located in the Thane district of Maharashtra state in Konkan division, located about 55 km from Chhatrapati Shivaji Maharaj Terminus railway station. This city is part of Mumbai Metropolitan Region managed by MMRDA. It had an estimated **population** of 506,098 at the 2011 Census.

**District:** Thane

**State:** Maharashtra

J. Watumull Sadhubella Girls College is located main city 3 km away from Ulhasnagar railway station. The area of college is about 4 acres, which having very hard strata (old stone mind) and the situation is not favourable for the plant growth. In spite of adverse climatic and geographical condition, the college has developed green lush campus by tree plantation and conservation. The college is located on sandy soil that prevents growth of most of the trees. But by studying the climatic condition and type of soil, we are success full to develop the greenery on that

| <i>Sr. No.</i> | <i>Botanical Name</i>                    | <i>Family</i>   | <i>Local name</i>    | <i>Date of plantation</i> | <i>Height at plantation In Feet</i> | <i>Height of present Feet</i> | <i>Age</i> |
|----------------|--|-----------------|----------------------|---------------------------|-------------------------------------|-------------------------------|------------|
| 1              | Albizia lebbbeck(L.) Willd.              | Mimosaceae      | Shirish              | July 1984                 | 02                                  | 60                            | 35         |
| 2              | Alstonia scholarisR.Br.                  | Apocynaceae     | Saptarni             | June 2016                 | 02 feet                             | 04                            | 04         |
| 3              | Aloe barbadensis Mill.                   | Liliaceae       | Korphad              | July 2019                 | 01                                  | 02                            | 07 month   |
| 4              | Anona reticulata L.                      | Annonaceae      | Sitafal              | Sept. 2019                | ½ feet                              | 01                            | 07 month   |
| 5              | Colocasia esculenta (L) Schott           | Araceae         | Pothas leaves        | January 2020              | 01                                  | 01                            | 02         |
| 6              | Azardirachta indica A.Juss.              | Meliaceae       | Neem                 | June 2016                 | 02 feet                             | 04                            | 10         |
| 7              | Basella alba L.                          | Basallaceae     | Malbarspinac hMayalu | July 2019                 | 01                                  | 06                            | 07 month   |
| 8              | Bauhania varigata                        | Caesalpiniaceae | Kachnar              | October 2017              | 01                                  | 04                            | 03         |
| 9              | Calatropis procera                       | Asclepiadaceae  | Madar                | June 2016                 | 01                                  | 04                            | 3          |
| 10             | Citrus lemon                             | Rutaceae        | Limbu                | June 2016                 | 1.5                                 | 03                            | 10         |
| 11             | Cocos nuciferaLinn                       | Palmae          | Naral, Naryal        | June 2016                 | 02                                  | 3.5                           | 10         |
| 12             | Dioscorea bulbifera Linn                 | Dioscoriaceae   | Dukkarkand           | June 2016 Natural         | rhizome                             | 06                            | 10         |
| 13             | Dianthus chinensis L                     | Caryophyllaceae | Dianthus             | January 2020              | 15 cm.                              | 20 cm                         | 01 month   |
| 14             | Dracaena marginata                       | Asparagaceae    | Dracaena             | January 2017              | 01                                  | 03                            | 03         |
| 15             | Dracaena reflexa                         | Asparagaceae    | Dracaena             | January 2017              | 01                                  | 02                            | 03         |
| 16             | Epipremnum aureum                        | Araceae         | Moneyplant           | September 2016            | 01                                  | 06                            | 06         |
| 17             | Ficus benghalensisLinn.                  | Moraceae        | Vad                  | Naturally grow            | 01                                  | 50                            | 25         |
| 18             | Ficus racemosa Linn. Family-Common name- | Moraceae        | Umbar                | Naturally grow            | 01                                  | 20                            | 25         |
| 19             | Ficus religiosaLinn                      | Moraceae        | Pipal                | Naturally grow            | 01                                  | 70                            | 24         |
| 20             | Mangifera indicaLinn                     | Anacardiaceae   | Aambaa               | July 1980                 | 1.5                                 | 60                            | 38         |
| 21             | Moringa oleiferaLamk.                    | Moringaceae     | Drumstick, Shevga    | June 2016                 | 02                                  | 02                            | 10         |

| <i>Sr. No.</i> | <i>Botanical Name</i>               | <i>Family</i>   | <i>Local name</i>                    | <i>Date of plantation</i> | <i>Height at plantation In Feet</i> | <i>Height of present Feet</i> | <i>Age</i> |
|----------------|-------------------------------------|-----------------|--------------------------------------|---------------------------|-------------------------------------|-------------------------------|------------|
| 22             | Ocimum sanctum Linn.                | Lamiaceae       | Tulas                                | September 2016            | 1                                   | 3                             | 07         |
| 23             | Phoenix sylvestris (L.) Roxb.       | Aracaceae       | Shindi                               | January 2017              | 1                                   | 2                             | 4          |
| 24             | Psidium guajava Linn.               | Myrtaceae       | Peru                                 | June 2013                 | 1                                   | 5                             | 4          |
| 25             | Quisqualis indica L                 | Combretaceae    | Madhu malti                          | July 2019                 | 01                                  | 03                            | 07 month   |
| 26             | Syzygium cumini(L.) Skeel           | Myrtaceae       | Jambhul                              | June 2013                 |                                     | 50                            | 07         |
| 27             | Terminalia catappa L                | Combretaceae    | Deshibadam                           | June 2016                 | 01                                  | 3                             | 04         |
| 28             | Lenonia dysyantha                   | Arecaceae       | Lady palm                            | January 2017              | 1                                   | 1.5                           | 03         |
| 29             | Dypsis lutescens                    | Arecaceae       | Areca palm                           | January 2017              | 2                                   | 04                            | 03         |
| 30             | Roystonea regia (H.B.K.)            | Arecaceae       | Royal palm tree                      | January 2017              | 03                                  | 07                            | 03         |
| 31             | Latania verschaaffeltii             | Aracaceae       | Yellow latan palm                    | January 2017              | 03                                  | 06                            | 03         |
| 32             | Latania lontaroides                 | Arecaceae       | Red latan palm                       | January 2017              | 03                                  | 06                            | 03         |
| 33             | Wodyetia bifurcata                  | Arecaceae       | Fox tail palm                        | January 2017              | 05                                  | 15                            | 03         |
| 34             | Ravenala madagascariensis Sonnerat  | Strelitziaceae  | Traveller's palm of traveller's tree | January 2017              | 03                                  | 20                            | 03         |
| 35             | Polyalthia longifolia (Sonner) Thw. | Annonaceae      | Ashoka                               | August 1980               | 03                                  | 70                            | 39         |
| 36             | Saraca indica Linn                  | Caesalpiniaceae | Sita Ashok                           | June 1984                 | 02                                  | 50                            | 36         |
| 37             | Solanum tuberosum                   | Solanaceae      | Potato, Batata                       |                           |                                     |                               |            |
| 38             | Tamarindus indica Linn              | Caesalpiniaceae | Chinch, Imli                         | June 2015                 | 02                                  | 14                            | 05         |
| 39             | Livstonia rotundifolia              | Arecaceae       | Table palm Foot stool palm           | January 2017              | 1/2                                 | 1                             | 03         |
| 40             | Yucca                               | Agavaceae       |                                      | January 2017              | 02                                  | 14                            | 03         |

## *Number of plants in campus*

| <b>Sr. No.</b> | <b>Botanical Name</b>                  | <b>Family</b>   | <b>Local name</b>                      | <b>No. Plants</b> |
|----------------|--|-----------------|--|-------------------|
| 1              | Albizzia lebbeck(L.) Willd.            | Mimosaceae      | Shirish                                | 01                |
| 2              | Alstonia scholarisR.Br.                | Apocynaceae     | Saptparni                              | 01                |
| 3              | Aloe barbadensis Mill.                 | Liliaceae       | Korpad                                 | 05                |
| 4              | Anona reticulata L.                    | Annonaceae      | Sitafal                                | 01                |
| 5              | Colocasia esculenta (L) Schott         | Araecae         | Pothas leaves                          | 05                |
| 6              | Azardirachta indica A.Juss.            | Meliaceae       | Neem                                   | 03                |
| 7              | Basella alba L.                        | Basellaceae     | Malbar spinach                         | 04                |
| 8              | Bauhania varigata L.                   | Caesalpiniaceae | Kachnar                                | 01                |
| 9              | Calatropis procera (Ait) R. Br.        | Asclepiadaceae  | Madar                                  | 02                |
| 10             | Citrus medica L.                       | Rutaceae        | Limbu                                  | 02                |
| 11             | Cocos nuciferaLinn                     | Palmae          | Naral, Naryal                          |                   |
| 12             | Dioscorea bulbifera Linn               | Dioscoriaceae   | Dukkarkand                             | 01                |
| 13             | Dianthus chinensis L.                  | Caryophyllaceae |  | 01                |
| 14             | Dracaena marginata                     | Asparagaceae    | Dracaena                               | 02                |
| 15             | Dracaena reflexa                       | Asparagaceae    | Dracaena                               | 02                |
| 16             | Epipremnum aureum                      | Araceae         | Money plant                            | 03                |
| 17             | Ficus benghalensisLinn.                | Moraceae        | Vad                                    | 01                |
| 18             | Ficus racemosa Linn.                   | Moraceae        | Umbar                                  | 02                |
| 19             | Ficus religiosaLinn                    | Moraceae        | Pipal                                  | 03                |
| 20             | Mangifera indicaLinn                   | Anacardiaceae   | Aambaa                                 | 04                |
| 21             | Moringa oleiferaLamk.                  | Moringaceae     | Drumstick, Shevga                      | 02                |
| 22             | Ocimum sanctum Linn.                   | Lamiaceae       | Tulas                                  | 10                |
| 23             | Phoenix sylvestris (L.) Roxb.          | Aracaceae       | Shindi                                 | 01                |
| 24             | Psidium guajava Linn.                  | Myrtaceae       | Peru                                   | 01                |
| 25             | Quisqualis indica L                    | Combretaceae    | Madhumalti                             |                   |
| 26             | Syzygium cumini(L.) Skeel              | Myrtaceae       | Jambhul                                | 02                |
| 27             | Terminalia catappa L                   | Combretaceae    | Deshibadam                             | 02                |
| 28             | Lenonia dysyantha                      | Arecaceae       | Lady palm                              | 03                |
| 29             | Dypsis lutescens                       | Arecaceae       | Areca palm                             | 06                |
| 30             | Roystonea regia (H.B.K.)               | Arecaceae       | Royal palm tree                        | 02                |
| 31             | Latania verschaffeltii                 | Aracaceae       | Yellow latan palm                      | 01                |
| 32             | Latania lontaroides                    | Arecaceae       | Red latan palm                         | 01                |
| 33             | Wodyetia bifurcata                     | Arecaceae       | Fox tail palm                          | 02                |
| 34             | Ravenala madagascariensis<br>Sonnerat  | Strelitziaceae  | Traveller's palm<br>ortraveller's tree | 01                |
| 35             | Polyalthia longifolia (Sonner)<br>Thw. | Annonaceae      | Ashoka                                 |                   |
| 36             | Saraca indicaLinn                      | Caesalpiniaceae | Sita Ashok                             | 01                |
| 37             | Solanum tuberosum                      | Solanaceae      | Batata, potato                         | 02                |
| 38             | Tamarindus indicaLinn                  | Caesalpiniaceae | Chinch, Imli                           | 01                |
| 39             | Livstona rotundifolia                  | Arecaceae       | Table palm<br>Foot stool palm          | 02                |
| 40             | Yucca                                  | Asparagaceae    |  | 02                |

## Ornamental Plants

In addition to above we are success to developed variety of ornamentals that grown luxurantly and adds the beauty in college campus. Even they flurished and creates the clean healthy and charming atmosphere of college campus.

Ornamental are growing in college campus are listed below.



**B. N.: *Quisqualis indica* L.**

**Family : Comretaceae**

**Common name:**

**Rangoon Vel, Madhumalati**

Large traggling shrubs, stems often twining to the left; old stem often spinous, leaves opposite subopposite or in fast growing new shoots, alternate , elliptic oblong. Flower in terminal, corymbose spike. Petals white, turning pink to deep red pleasantly fragrant



**B. N. :*B. N. Raphisexcelsa***

**Family : Arecaceae**

**Common name: Lady palm**

This Lady is by no means as timid as her name for the Lady palm is a tough, sturdy indoor plant, immune to most of the insect attacks. Sharing a purification index of 8.5 with the Areca palm, the Lady palm is ideal for use in both dry and humid climates and can withstand a temperature up to 20 degree Celsius.

Characteristics. A native plant in warm forests of Southeast China, the lady palm is called a fan palm because it has thin, individual stalks originating from its base that end in fan-shaped leaves. Its stalks are similar to bamboo, with prominent nodes and dark rings at each node.

### Uses:

An indoor air purifying plant. The appearance of Lady palm is very unique the stalk of lady palm is bamboo-like with dense broad fan-like leaves on the top. The stalk of Lady palm is used in making walking sticks and umbrella handles.



**B. N. : Dypsis lutescens**

**Family : Arecaceae**

**Common name: Areca palm**

Areca palms work during the daytime to convert carbon dioxide to oxygen. They also remove chemicals from the air. This type of palm tolerates normal household temperatures and prefers higher humidity. Indirect bright light is best, and water when the soil is dry to the touch, making

sure to water completely around the plant. Remove excess water within a few hours to reduce the risk of root rot. Four plants of shoulder height per person, per household can provide enough oxygen to survive in a sealed environment.

**Uses:**

The areca palm is also used as an interior landscaping species. It is often used in large indoor areas such as malls and hotels. It will not fruit or reach full size if grown in this way. Indoors, it is a slow growing, low **water**, high light plant that is sensitive to spider mites and occasionally mealybugs.



**B. N. Roystonea regia (H.B.K.)**

**Family : Aracaceae**

**Common name: Royal palm tree**

The fast-growing **royal palm** features a long, smooth trunk that tapers as it reaches upward. Mature **palm** attains heights of about 50 to 100 feet, with canopies that spread up to 25 feet. These **trees** sport 8-inch long leaflets on 10-foot lengths of glossy pinnate leaves.

**Uses:**

**Royal palm trees** are popular in many warm, coastal landscapes, particularly in southern ... Planting in soils with a pH of 7.5 or less promotes the best growth. Royal palm trees are popular in many warm, coastal landscapes, particularly in ... stalks in summer, followed by purple to black, half-inch fruits that aren't edible.





**B. N. : Latania lontaroides**

**Family : Arecaceae**

**Common name: Red latan palm**

Like the Bismarck **Palm**, the **Red Latan Palm** has stiff blue to blue-silver cost palmate fan shaped leaves, giving them a unique appearance. Young leaves of the **Red Latan Palm** have distinguishing reddish colour to the stems. The **red palm latan** can reach 12 m height but grows quite slowly.

The mature trunk is gray, smooth and slightly swollen at the base. It measures up to 25 cm in diameter and exhibits rings which are the scars of fallen leaves. The leaves are fan haped, **red** with **red** petiole the first years, later green. **RedLatan Palm** Latania lontaroides. The endangered and rare Red Latan Palm (Latania lontaroides) slowly grows up to 40 feet and up to 16 feet in diameter.



**B. N. : Latania verschaffeltii**

**Family : Arecaceae**

**Common name: Yellow latan palm**

**Latania verschaffeltii (Yellow Latan Palm)** is Small to medium-sized **palm** with **yellow**-margined, light green leaf-blades, to 1.2m across, deeply divided into many slender lobes. Bears greenish white to cream flowers, usually in summer; male panicles are up to 3m long, females to 1.7m long.

Size: Slowly up to 40 feet (12 m) to 16 feet in diameter (5 m). Leaf: Palmate, 8 to 24 Petiole and veins yellow.

**Uses:**

Cultivated for ornamental plant in garden.



**B. N. : Ravenala  
madagascariensis**  
**Family : Strelitziaceae**  
**Common name: Traveller's  
palm ortraveller's tree**

Traveler's **tree**, (species *Ravenala madagascariensis*), plant of the family *Strelitziaceae*, so named because the water it accumulates in its leaf bases has been used in emergencies for drinking. The leaves are 4 to 5m long, and each

leaf base, shaped like a huge cup, holds about 1 litre (about a quart) of rainwater.

**Uses:**

It is widely planted as an ornamental **tree** throughout the tropics. The **traveller's** palm is very commonly planted for ornamental purposes.

It provides a roof over the **traveller's** head when it rains – even today many huts in Madagascar are covered with *Ravenala* leaves and built from the stems of the plant.



**B. N. Caryota urens**  
**Family: Arecaceae**  
**Common name: Fish tail palm**

**Fishtail palm** is a fast-growing feather **palm** that makes a beautiful addition to the landscape. It has a gray trunk (grows to about 30') that is covered by regularly spaced leaf scar rings. Toddy **palm** has a leaf shape that resembles the lower fin of a fish.

*Caryota urens* is a species of flowering plant in the palm family from the Indian Subcontinent and Southeast Asia where they grow in fields and rainforest clearings. The epithet *urens* is Latin for "stinging" alluding to the chemicals in the fruit. They are commonly called solitary **fishtail palm**, toddy palm, wine palm.

**Uses of fish tail palm:**

Fishtail palms have other uses, too. Leaf sheath fibers make good thatch and rope, and in some places, people cut the trunks of certain species for construction. The spongy pith of stems yields a food starch called sago, which is similar to tapioca.



**B. N. :Wodyetia bifurcata**

**Family : Arecaceae**

**Common name: Fox tail palm**

Easy maintenance is associated with the foxtail palm tree, as it is a self-cleaning specimen; meaning that spent leaves will die and drop from the tree as needed to facilitate new growth. While the foxtail palm tree is somewhat drought resistant, regular watering

encourages optimum growth and a lush, exotic appearance. This is a thin trunked, crown shafted, medium height pinnate palm that is very attractive in appearance. Anticipate a mature height above twenty feet but almost always below thirty feet. The It got this name because of the very fluffy leaves of this species. They resemble the tail or a fox. In our area a mature height under twenty-five feet could be expected. They can get taller in the tropics. It likes heat and full sun. Read below to learn about this rather recent introduction to plant nurseries around the world.

**Uses:**

The Foxtail palm tree is the most used landscape palm tree in the world.



**B. N.: Livostonia rotundifolia**

**Family: Arecaceae**

**Common name Table palm, round leaf palm, footstool palm**

**Table Palm.** Also known as Chinese Fan, this perennial indoor-outdoor plant has a slow growth. Has fan shaped leaves and hook shaped thorns, good for slightly more open spaces.

It has bold rounded evergreen leaves, medium-sized, single-trunked fan-palm. Young palm has relatively shallow-lobed leaves. Older palm has more deeply divided leaves with long lance-shaped segments that radiate like the spokes of an umbrella.

Typical uses of table palm: Special features: Attractive leaf shape

**Ornamental use:**

This plant is used as the ornamental purpose.



**Phoenix sylvestris (L.) Roxb.**

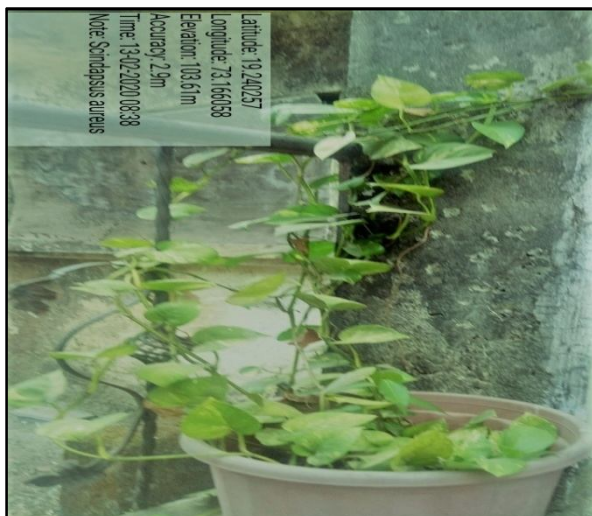
**Family – Araceae**

**Common name- Tad (Shindi)**

Tall tree, trunk clothed with persistent bases of petioles. Leaves crowned at the top of the trunks, pinnatisect, Flower numerous, angular, oblique. Outer Perianth segments united into a cup with 3, rounded teeth; inner ones 3-4 times longer than the outer, concave.

Filament short. Female flowers rather distinct, roundish, in nodding. Fruit oblong, orange yellow. Seeds oblong, single, pale brown.

## BEST OXYGEN PRODUCING PLANTS IN COLLEGE



**B. N. *Epipremnum aureum* syn.**

***Scindapsus aureus***

**Family:**

**Common name: Money plant**

Money plant is a delicate houseplant that is often sold with a braided stem and hand-shaped leaves. Rumored to be good luck, new evidence supporting the plant's efficacy at removing harmful chemicals from the air might lend credence to that

popular belief of the plants utilized in Kamal Meattle's study, money plant showed the most promise in removing formaldehyde and other volatile organic compounds (VOCs) from the air.



**Botanical Name : *Ocimum sanctum***

**Family : Lamiaceae**

**Common name: Tulsi**

Tulsi gives out oxygen for 20 hours and ozone for four hours a day along with the formation of nascent oxygen which absorbs harmful gases like carbon monoxide, carbon dioxide and sulphur dioxide from the environment," said Shyamkant Padoley, an eminent botanist.

**B.N.: *Sansevieria trifasciata***

The snake plant, also known as the mother-in-law's tongue, has very good oxygen-producing capabilities. The vertically growing plant generally doesn't extend outside of the perimeter of the container. Humidity levels inside the home are not an issue, and the plant does well in any light. Water when the top 1/3 of the soil is dry and do bi-monthly feedings. This plant converts carbon dioxide into oxygen during the night time hours. Having several snake plants in the bedroom can help provide better sleep. The plants also clean the air by removing chemicals such as formaldehyde.

**: Botanical Name :**  
***Areca spp***



Areca palms work during the daytime to convert carbon dioxide to oxygen. They also remove chemicals from the air. This type of palm tolerates normal household temperatures and prefers higher humidity. Indirect bright light is best, and water when the soil is dry to the touch, making sure to water completely around the plant. Remove excess water within a few hours to reduce the risk of root rot.

Four plants of shoulder height per person, per household can provide enough oxygen to survive in a sealed environment.

**: Botanical Name :**  
***Rhapis excels***



This Lady is by no means as timid as her name for the Lady palm is a tough, sturdy indoor plant, immune to most of the insect attacks. Sharing a purification index of 8.5 with the Areca palm, the Lady palm is ideal for use in both dry and humid climates and can withstand a temperature up to 20 degree Celsius. Exquisite in beauty, elegant and graceful, the Lady Palm was a symbol of nobility in ancient China.

The Lady Palm is available in dwarf varieties as Koban, Daruma and Tenzan and mini-dwarf varieties called Kodaruma and Gyokuho.

**Botanical Name: *Ficus religiosa***  
**Family: *Moraceae***  
**Common name: *Pipal***



The Pipal tree also known as Bo or Bodhi tree is considered sacred in India. The founder of Buddhism Siddhartha Gautama sat underneath a papal when he was enlightened. Papal also plays a big role in Hindu weddings and is widely depicted in the ancient art and architecture of India. The leaves of pipal tree are known to emit a lot of oxygen into the environment. The amazing thing is that unlike other plants and trees, that emit oxygen through photosynthesis during daylight, the pipal continues to give oxygen even in the night.

**: Botanical Name: *Azadirachta Indica***  
**Family: *Meliaceae***  
**Common Name : *Neem***



Neem (*Azadirachta Indica*) the legendary medicinal tree of India is gaining repute as the most useful tree in the world.

The Vedas called Neem 'sarvaroganivarini', which means 'one that cures all ailments and ills'. So much so that merely sleeping under the shade of a neem tree is therapeutic. Just the breeze from the neem tree is said to keep homes free from bacteria. Neem has been used as a health and beauty aid in India for over 5000 years.

Unlike most modern day chemical products, neem products are completely safe and cause no harm or side-effects. Neem trees act as highly efficient air filters that trap dust particles and absorb gaseous pollutants. They help reduce greenhouse gases by absorbing large quantities of carbon dioxide and producing oxygen. Neem trees give more oxygen than other trees.

## **FRUITS PLANTS IN COLLEGE CAMPUS**

**B. N. :*Terminalia catappa* L**

**Family- Combretaceae**

**Common name- Deshibadam**



Deciduous trees, branches in horizontal whorls; young parts dense silky pubescent. Leaves chartaceous or papyraceous, crowded at the ends of branches. rounded or shortly acuminate at apex, glabrous above, pubescent especially on the nerves beneath; Flowers sessile in axillary

**B. N. :*Caricapapya* Linn.**

**Family- Caricaceae**

**Common name- Papai**



Perennial dioecious tree upto 6 m tall. Leaves 7-9 lobed, glabrous; petiole long, fistular, swollen at base, Male flower white, in long drooping lax panicles from the axils of upper leaves; corolla white; stamen 10 in two series. Female flower yellow, subsessile, solitary or in few-flowered corymbs in leaf axils.



**B. N. : *Cocos nucifera* Linn**  
**Family-Palmae**  
**Common name- Naral, Narial**



Monoecious trees, trunk thickened at base with a mass of rootlets. Leaves forming crown at apex of the trunk, pinnatisect, segment linear; petiole stout, sheathing at base. Spadices stout, paniced; spathes 60-90 cm long, hard, splitting lengthwise. Male flower unsymmetrical; outer perianth segments small. Fruits fibrous drupe.

**B. N. : *Mangifera indica* Linn**  
**Family-Anacardiaceae**  
**Common name-Aambaa**

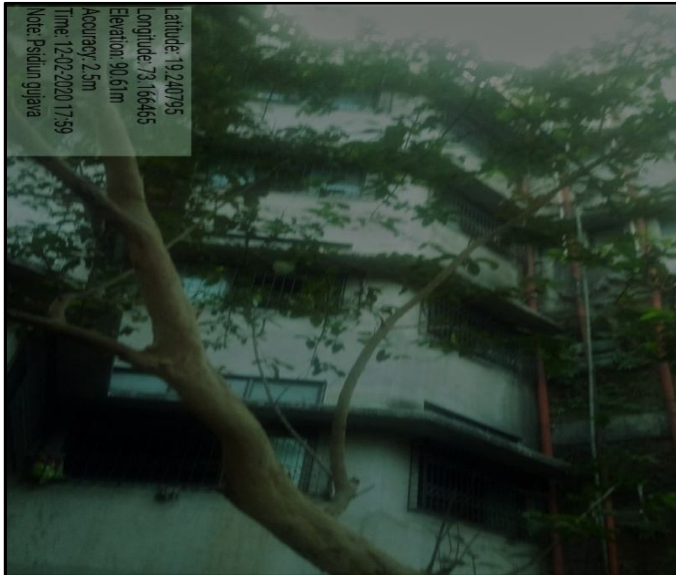


Tall evergreen trees with dense crown of spreading branches, leaves simple oblong lanceolate, flower in large terminal panicles, calyx deeply lobed, sepals ovate, petals dull white deflexed, with 3 strong orange coloured ridges on the inner face. Disk fleshy 5 lobed ovary glabrous fruit drupes often obliquely pyriform.

**B. N. : *Psidium guajava* Linn.**

**Family- Myrtaceae**

**Common name- Peru**

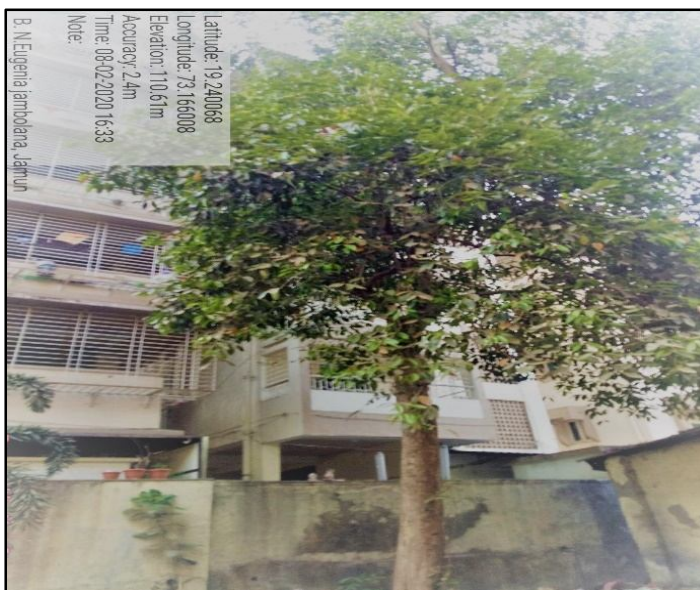


Small glabrous tree. Leaves opposite, elliptic-oblong, cordate at base, obtuse. Softly pubescent beneath especially when young. Flower solitary, axillary clusters. Petals four, white. Stamen exerted

**B. N. : *Syzygium cumini*(L.) Skeel**

**Family-Moraceae**

**Common name- Jambhul**



Trees reaching 20m in height; bark ash white, glabrous. Leaves opposite, Flowers in paniculata cymes arising from old leaf scars. Calyx cup shaped limb, truncate or obscurely 4-toothed. Petals white, calyptrate. Stamen exerted. Fruits dark violet, globose or ellipsoid, smooth, variable in size, crowned with truncate calyx limb. Seed solitary, globose or oblong, grayish brown.

***B. N. Citrus medica* Linn.**  
**Family-Rutaceae**  
**Common name-Kaaghzilimbu.**



Perennial shrubs young shoot with spine. Leaf compound unifoliolate, gland dotted. Flower axillary, white, scented. Calyx 5 .Corolla 5 scented with gland dotted. Stamen many polyadelphous. Disc is present below ovary. Fruit hesperidium.

***Terminalia chebula*Retz.**  
**Family-Combretaceae**  
**Common name-Hirda, Harda**



A large trees ; branches many, spreading. Leaves mostly sub opposite, ovate-oblong ovate or cordate at base, sometimes silvery hairs. Flower dull white or yellow, with strong offensive smell, hermaphrodite, in terminal, often paniced spikes; bracteoles exceeding the flowers, calyx campanulate, glabrous outside, hairy within, lobes short obscure. Fruit drupes obovoid or ellipsoidal, brown, glabrous, more or less 5- ribbed when dry.

***B. N. Phyllanthus emblica*Linn.**

**Family-Euphorbiaceae**

**Common name- Awla.**



Middle-sized, deciduous trees. Leaves distichous, subsessile, linear oblong. Flower in axillary fascicles on leaf bearing branchlets; bracts fimbriate. Male flower numerous, on short, slender pedicels. Perianth segments 6. Female flowers few, subsessile; segments as in the males. Disk copular. Ovary trilocular.

***B. N. : Moringa oleifera*Lamk.**

**Family-Moringaceae**

**Common name- Shevga**



Middle sized trees with corky bark. Leaves 3-4 pinnate. Flower large, lax terminal puberulous panicles. Calyx cup-shaped, 5 lobed, segments, unequal petaloid. Petal white, unequal, spatulate. Perfect stamen 5, alternating with 5-7 staminodes. Ovary oblong; style cylindrical. Pods linear, up to 50 cm long obtusely triangular, 9 ribbed. Seeds 3 angled and winged on angles.

## **ANOTHER PLANTS**

**B. N. : *Hibiscus rosa -sinesis* Linn.**

**Family: Malvaceae**

**Common name: Jaswand**



Evergreen nearly glabrous shrub. Leaves ovate, irregularly serrate dentate, shining green above; stipule lanceolate-subulate. Flower red coloured, solitary, axillary, bracteoles 5-7, linear lanceolate. Calyx tubular; lobes lanceolate; petals red. Staminal tube exerted far beyond the petals.

**B. N. *Bauhania variegata* L.**

**Family: Caesalpiaceae**

**Common: Kanchan, Kachnar**



Middle sized tree, branched glabrous. Leaves broadly ovate, cordate at base divided for 1/3 way down into two rounded lobes, glabrous above, pubescent especially on the nerve beneath. Flower in axillary short, few-flowered, corymbose racemes; . Corolla pink-purple. Petals oblanceolate, the upper variegated with white and broader than the rest.

**B. N. : *Jasminum sambac*(Linn.) Ait.**

**Family-Oleaceae**

**Common name-Bat-mogra**



A sub erect shrub, scarcely climbing; young branches pubescent. Leaves opposite , broadly ovate or elliptic. Flower white, very fragrant, solitary or 3-flowered , calyx hairy , teeth 5-9, linear subulate. Corolla tube half inch long; lobes as long as the tube, narrowly oblong, acute or obtuse. Carpel 1-2, subglobose.

**B. N. *Dianthus chinensis* L.**

**Family: Caryophyllaceae**



Erect glaucous herb branched near the top, glabrous or closely pubescent. Leaves narrow lanceolate or oblanceolate. Flower often pink or variously coloured long clawed and with spreading, fimbriate limb.

**B. N. : *Gymnema sylvestris* (Retz.) R. Br. ex Schult.**

**Family- Asclepiadaceae**

**Common name- Aphumari, Gudmar**



Much branched, twining shrub; bark brown. Leaves opposite, ovate or elliptic-lanceolate. Flower minute, in lateral, subsessile cymes. Calyx copular, pubescent outside, glandular within; teeth ovate. Corolla campanulate, greenish yellow. Corona 5, fleshy, alternating with corolla lobes, inserted on the throat of the tube,. Fruit follicles linear-lanceolate, tapering, glabrous

**B. N. *Basella alba*. L.**

**Family: Basellaceae**

**Common name: Malbar spinach, Mayalu**



Perennial herbs; stem long slender, twining, succulent, glabrous. Leaves alternate, broadly ovate, cordate at base and narrowed into a petiole, entire acute acuminate thick. Flower sessile, in lax pedunculate, long spikes.

**B. N. :*Polyalthia longifolia* (Sonner) Thw.**

**Family : *Annonaceae* ,**

**Common name: *Ashoka***



Middle sized tree with spreading and pendulous branches. Leaves lanceolates shining green above, paler beneath, margin wavy. Flowers yellowish green, in axillary fascicles or shortly peduncled umbels.

**B. N. *Coculus villosus*(L) Diels**

**Family: *Minispermaceae***

**Common name: *Vasanvel***



Perennial twinner, stem and branches hirsute (young parts densely grey hairy). Leaves, hastate, ovate or oblong-ovate, softly pubescent or villous on both surfaces, obtuse and mucronate at apex, truncate or subcordate at base. Flower dull green; male in short axillary racemes. Calyx lobes 6 arranged in two whorls (3+3), free. Corolla lobes 6, free oblong ovate. Female flowers in axillary fascicles or racemes; calyx and corolla as in males. Fruit Drupes laterally compressed, globose.



***B. N. Tamarindus indica L.***

**Family: *Caesapiniaceae***

**Common name: *Chinch***



Large evergreen tree; bark dark grey. Leaflets 10-20 pairs. Flowers in few flowered lax racemes at the ends of the branchlets, rachis and slender pedicels minutely pubescent. Calyx minutely pubescent outside; tube short. Petals yellow, obovate striped with red. Stamens 3, monadelphous. Pods oblong, turgid. Seeds 1-10, ovate-quadrangle, dark brown polished.

***B. N. Solanum tuberosum L.***

**Family: *Solanaceae***

**Common name: *Batata***



Low sub erect herbs with underground tubers; stem ribbed-inged, pubescent. Leaves irregularly pinnate-lobed. Lobe ovates-orbicular; each pair of large lobes alternating with smaller lobes, subcordate at the base, pubescent. Flower in many - flowered lateral and terminal corymbose cymes corolla white.



**Green Audit committee visit to college  
on dated 15/02/2020**



**Green Audit committee visit to college  
on dated 15/02/2020**



**Green Audit committee discuss with Dr. Vasant Mali about plantation on dated 15/02/2020**



**Green Audit committee chairman and members discuss with Dr. Vasant Mali about plantation on dated 15/02/2020**



***Green Audit committee chairman and members visit to Botanical garden with Dr. Vasant Mali on dated 15/02/2020***



***Green Audit committee chairman and members observed compost pit with Dr. Vasant Mali about plantation on dated 15/02/2020***

**Fauna in**  
**J. Watumull Sadhubella Girls College Campus**  
**Ulhasnagar-421 001**

***Mammals: Indian palm squirrel***

**Birds:**

1. Coppersmith barbet
2. Common pigeon
3. Rose-ringed parakeet
4. Alexandrine parakeet
5. Common myna
6. Jungle myna
7. Oriental-magpie Robin
8. Spotted fantail
9. House crow
10. Indian jungle crow
11. Red-vented bulbul
12. Common tailorbird
13. Purple-rumped sunbird
14. Dusky-craig Martin
15. Black kite
16. House sparrow

**Reptiles:**

1. Oriental garden lizard

**Butterflies:**

1. Common tiger
2. Striped tiger
3. Common psyche
4. Common cerulean
5. Common sailor
6. Common grass yellow
7. Tailed jay
8. Red pierrot

**Bees and wasp:**

1. Potted wasp
2. Paper wasp
3. Carpenter bee

**Flies:**

1. House fly
2. Flesh fly
3. Green bottlefly

**Antlion**

Jumping spiders

Bagworm moth

**Total no. of taxa- 35**



Latitude: 19.239818  
Longitude: 73.166122  
Elevation: 29.51m  
Accuracy: 34.9m  
Time: 25-02-2020 09:56  
Note: Salunki birds in college campus



***Oriental Magpie Robin***

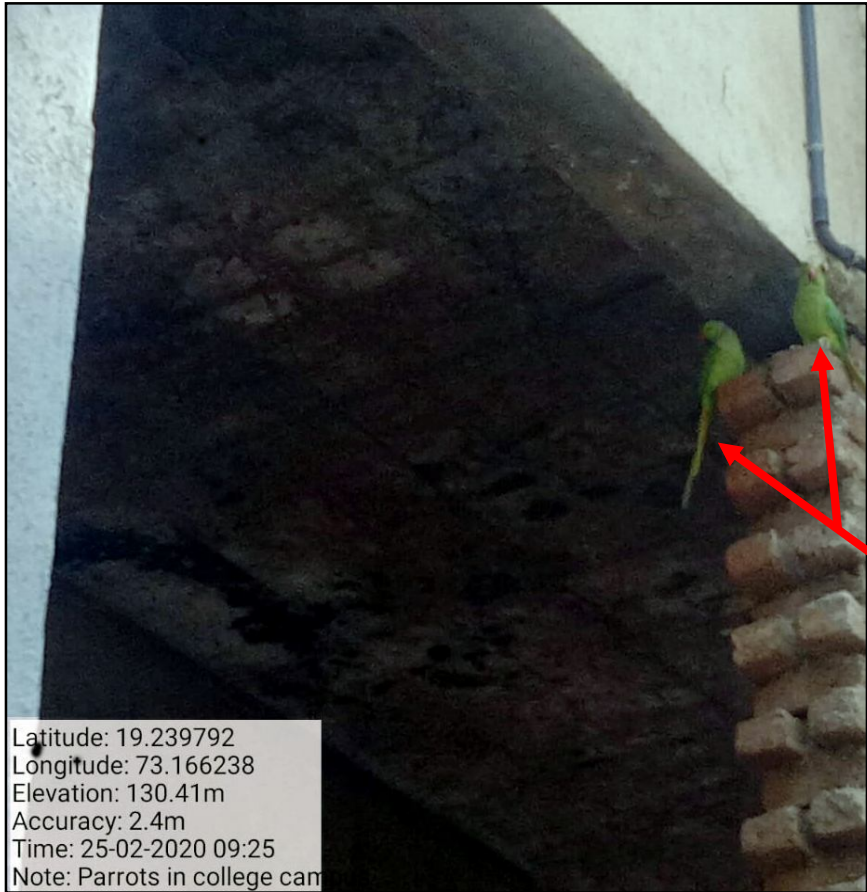


***Jungle Maina***



***Southern Coucal***





Latitude: 19.239792  
Longitude: 73.166238  
Elevation: 130.41m  
Accuracy: 2.4m  
Time: 25-02-2020 09:25  
Note: Parrots in college cam



Latitude: 19.239855  
Longitude: 73.166035  
Elevation: 97.41m  
Accuracy: 2.4m  
Time: 25-02-2020 09:22  
Note: Birds in college campus





## Report of Green Audit J. Watumull Sadhubella Girls college Ulhasnagar

### A) Observations:

Campus is located in the vicinity of many trees (Species) to maintain the biodiversity. Various trees plantation programs are being organised at college campus and surrounding villages through (National Service Scheme) unit. The programme helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation programme includes various type of indigenous species of ornamental and medicinal wild plant species. College established nature club and the students are aware of such club, its importance in the college and society. The college undertakes plantation programme every years. The college campus has enough trees and plants inside and outside the college campus to combat the amount of carbon dioxide released. The college has potted plants at some prominent places in side the college building except corridor. All plants existing inside the campus are regularly watered. Making composite fertilizer from the organic waste inside the campus.

### B) Recommendations:

- 1) Review periodically the list of trees planted in the campus and garden, allot numbers to the trees and keep records.
- 2) Indoor plantation to inculcate interest in students, Bonsai can plant in corridor to bond a relation with nature.
- 3) Feeding and some more host plants to be attract more butterflies.
- 4) Bird feeders to be kept in campus

### C) Conclusions:

Considering the fact, the institute is predominantly a Commerce college is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. Various types of Palm tree plants are cultivated fox tail palm, fish tail palm, red laten palm, yellow laten palm, royal palm, tables palm and areca palm and travellers' tree etc. In college campus animal biodiversity is also in good numbers and it very nice about biodiversity point of view. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of green campus and thus sustainable environment and community development.

As a part of green audit of campus, we carried out the environmental monitoring of campus including illumination and ventilation is adequate considering natural light.

Venue: Ulhasnagar-1

Date: 15/02/2020



Dr. Venugopal Chari

(Chairman of Committee)

HEAD  
Department of Botany  
RKT. College, Ulhasnagar,  
Pin. : 421 003,



Prof. Kuldeep Mhatre

(Member)





Mr. Waman Sonawane

(Member)

आरोग्य निरीक्षक  
उल्हासनगर प्रशासन पालिका  
उल्हासनगर.

  
PRINCIPAL

Sadhubella Education Society's  
Jatumull Sadhubella Girls College  
Ulhasnagar-421 001, Dist. Thane

# Report of Green Audit

## J. Watumull Sadhubella Girls college Ulhasnagar

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**Venue: Ulhasnagar-1**

**Date: 15/02/2020**

**Dr. Venugopal Chari**  
(Chairman of Committee)

**Prof. Kuldeep Mhatre**  
(Member)

**Mr. Waman Sonawane**  
(Member)

## ENERGY AUDIT

2019-2020

### INTRODUCTION

Three expert members appointed for external energy audit 1. Prof. S. T. Mahajan, Head, Dept. of Physics, B. N. College, Bhivandi 2. Prof. Atul Namdeorao Wagh (Dept. of Physics) B. N. College Bhivandi Dist. Thane , and 3. Mr. CharudattaWadnere

#### **01. College History**

A Spiritual Leader, Visionary Figure Acharya Swami Ganeshdasji Maharaj, Founder of Sadhubella Education Society, believed that “The Need of time is to nourish the students for all round personality development much beyond academic excellence.” The weaker female section neglected by society since centuries touched the kind heart of our beloved Swami Ganeshdasji Maharaj. He started education specially for girls which flourished from bottom to top. Our college is the only girls college in Mumbai suburban areas affiliated to University of Mumbai. This step of the Swamiji was not only appreciated but supported from International level.

Due to globalization and active participation of women in every field, our college came forward to start professional courses i.e. Bachelor of Management studies, B.Com. (Banking and Insurance). From last academic year we have started M.Com. (Accountancy).



*W. K. S.*  
**PRINCIPAL**  
J. Watumull Sadhubella Girls College  
Ulhasnagar-421 001

The college has achieved academic excellence in a very short span of time. The students have proved themselves in academic field, sports & cultural activities. The faculty of the college strive hard for development of the students and are great support to them.

We expect all types of support and encouragement from every corner of the society to fulfill the dreams of Swamiji to bring the college on global arena.

**2. Energy Audit:** “An energy audit is an assessment and analysis of energy flows in a process or system, aimed at reducing the amount of energy input into the system without negatively affecting the output (s).

**Energy Audit** is the key to a systematic approach for decision-making in the area of **energy** management. It attempts to balance the total **energy** inputs with its use, and serves to identify all the **energy** streams in a facility. It quantifies **energy** usages according to its discrete **functions**.

As per the Energy Conservation Act, 2001, Energy Audit is defined as “the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption”.

**Aims and objectives of Energy Audit:**

- a. The main objective of an energy audit is to explore various possibilities for energy conservation.
- b. The Energy audit provides the vital information base for overall energy conservation program covering essentially energy utilization analysis and evaluation of energy conservation measures.
- c. Identifying the quality and cost of various energy inputs. relating energy inputs and production output.
- d. The objectives of an energy audit can vary from one plant to another. However, an energy audit is usually conducted to understand how energy is used within the plant and to find opportunities for improvement and energy savings.
- e. Sometimes, energy audit is conducted to evaluate the effectiveness of an energy efficiency project or program.

**Advantage of Energy Audit**

- Through energy audit, you can: Promote awareness in energy efficiency.

- Identify the cost of energy you use.
- Identify and minimize wastage. Making changes to procedure, equipment and system to save energy.
- Retrofit energy efficiency technologies.
- Conserve non-renewable energy resources.
- Protect the environment by reducing power generation.
- Reduce running cost.

### **Report of Energy audit:**

**Observation:** As far concerning the energy audit, electricity audit is main concern regarding educational institution. We have collected data by considering the tube light, fan, computer, printer, A.C and instruments. Variation in electricity bill is due to different programs, local environment, functions. In the month of April and May energy requirement is more, because exams are going on in this period and summer season is going on so more electricity is required in this month's mostly. Thirty-three LED tube lights were replaced for energy saving. 2 KV PV solar panel installed which is producing 150 units energy per month approximately. It is the effort to reduce the amount of energy input in the college. Two LED street lights are installed in premises of the college which is on entire night being LED street light saving the consumption of energy.

### **Comparative Chart of Yearly average unit**

| <b>Year</b>                       | <b>Average Unit</b> | <b>Total Unit</b> | <b>Solar installed in year</b> |
|-----------------------------------|---------------------|-------------------|--------------------------------|
| <b>April-2017 to March - 2018</b> | <b>963</b>          | <b>11553</b>      |                                |
| <b>April-2018 to March - 2019</b> | <b>869</b>          | <b>10430</b>      |                                |
| <b>April-2019 to March - 2020</b> | <b>391</b>          | <b>4693</b>       | <b>Solar Panel installed</b>   |

**Resource and material use:** Use of renewable energy 6 solar units are working, each has 2 KW powers. Therefore, total power receive from solar energy is 2 KW.



## CAMPUS ENERGY POWER

01. Average Electricity Consumption/ Month average = 425 KW

02. No. of Electricity meters = 02

Details of Electrical Particulars working in the campus

| Sr. No. | Name of Particulars                               | Total No |
|---------|---|----------|
| 01      | Total No. Electrical fans                         | 99       |
| 02      | Exhaust fans                                      | 02       |
| 03      | Air Conditioner                                   | 01       |
| 04      | Total No. of Tubes                                | 111      |
| 05      | Total No. of LED Tubes                            | 30       |
| 06      | LED Street Light                                  | 02       |
| 07      | Total No. of Sockets                              | 48       |
| 08      | Total No. of CFL Lamps                            | 02       |
| 09      | 1KW<br>Water motor                                | NA       |
|         | 1 HP<br>2 HP<br>3 HP<br>5 HP<br>RO motors<br>250W | 03       |
| 10      | Water Cooler                                      | 02       |
| 11      | No. of computer                                   | 46       |
| 12      | Printers  | 05       |
| 13      | Xerox Machine                                     | 02       |
| 14      | Inverters   | 04       |
| 15      | LCD TV  | 00       |
| 16      | Smart board                                       | 04       |
| 17      | LCD Projectors                                    | 04       |

### Solar Units Photo



**Before installation of solar panel in college on terrace**



**Installation of solar on terrace**



**Area Solar installation in college on terrace**



**PV inverter of solar**

Use of Solar energy for various equipment: **Generated electricity directly goes to electricity board and reduce from our consumed electricity**

Whether solar energy is used by inverter system/Grid system:

### Grid system



### LED Tube light used office



**LED tube light used in library and LED tube light in CAP center and internet lab.**



**LED tube light in class room**

**LED tube light in college at staircase**

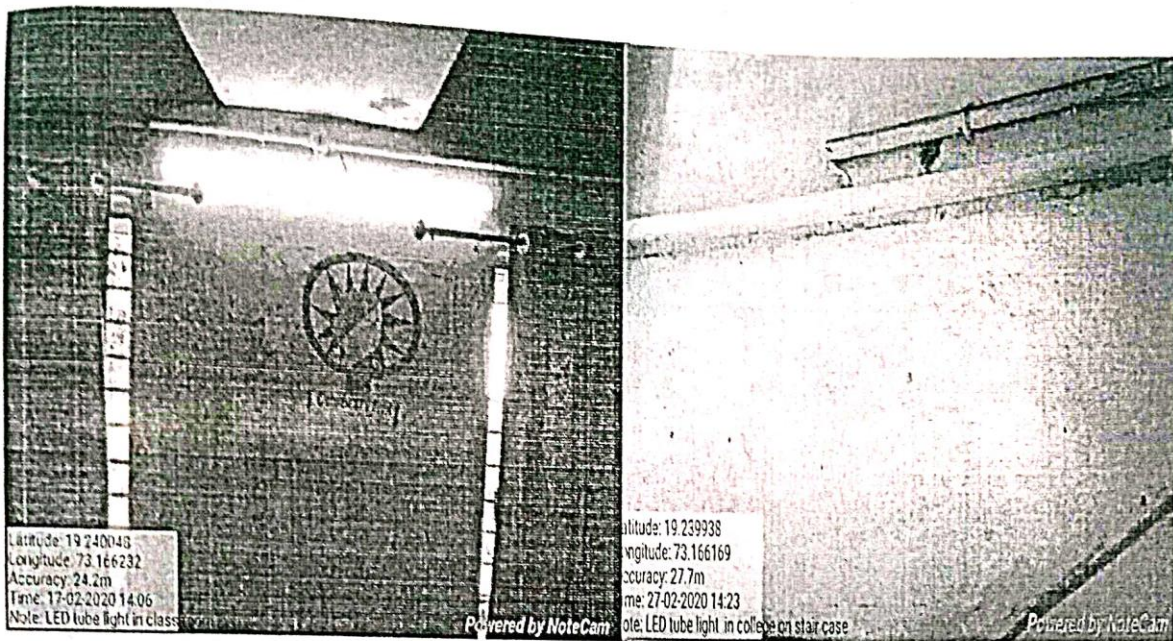
**Recommendations:**

1. In our view thirty-three LED tube lights have been installed but remaining 78 LED tube lights should be replaced at an earliest to save more electricity.
2. 06 photo voltaic solar panel should be installed to save more electricity and to reduce the amount of energy input into the system.

**Conclusion:** In conclusion, data generated in energy audit are useful for to understand the energy distribution and utilization of college. In year April,2017-to March, 2018average unit is 963 Unit. In March, 2018 to April, 2019 average unit is 869 and April 2019 to March 2020 average unit is 391. Installed solar panel is benefiting to the college. Energy audit provided the vital information base for overall energy conservation which will be guiding path for energy management. We will try to install more solar panels and replace the remaining tube light (240 W.) into LED tube lights.



*W. K. Chab*  
**PRINCIPAL**  
J. Watumull Sadhubella Girls College  
Ulhasnagar-421 001



**LED tube light in class room**

**LED tube light in college at staircase**

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*S. T. Mahajan*  
**Signature of Chairperson**  
 (Prof. S. T. Mahajan)

*A. N. Wagh*  
**Signature of member**  
 (Prof. A. N. Wagh)

*Charudatta Wadnere*  
**Signature of member**  
 (Mr. Charudatta Wadnere)



**Sadhubella Education Society's  
Minority Institute**

# **J. Watumull Sadhubella Girls College**

**Near Government Dispensary, Ulhasnagar-421 001, Dist-Thane**

## **ENVIRONMENTAL AUDIT**

### **Academic year -2019-2020**

Three expert members appointed for external Environmental audit **1) Prof. Chetan Waman Mahajan**, Dept. of Geography / Environmental Science, J.S.S.P'S. Arts commerce and Science college, Goveli Tal. Kalyan, Dist. Thane, **2) Mrs. Manjushree Chetan Mahajan**, Asst. Prof. Department of Geography/ Environmental, K.V. Pendharkar college of Arts Commerce and Science, Dombivali Dist. and **3) Mr. Waman Sonawane**, Sanitary Inspector, Ulhasnagar Mahanagarpalika corporation of inspection.

Environmental audit is defined as basic management tool which comprises a systematic, documented, periodic and objectives evaluation of how well organization, management systems and equipment are performing phase. Post audit activity pertaining to drawing conclusion and identifying areas of improvement.

#### **Objectives of Environmental Audit:**

Environmental audit is done to safeguard the environment and minimize risk to human health.

The key objectives of an environmental audit are to:

1. To assess environmental performance.
2. To promote environmental awareness.
3. To improve production safety and health.

4. To reduce waste.
5. Verify compliance with relevant national, local or other laws and regulations.
6. Determine how well the environmental management information systems and equipment are performing.
7. Minimize human exposure to risks from environmental, health and safety problems.

***Observation:***

**A comprehensive and proper environmental audit report cover a number of environmental categories including:**

1. Waste management: Municipal corporation collects waste from college campus daily.
2. Water management: College provides clean, filtered drinking water to students. Water management is proper and water harvesting system has been implemented.
3. College organized painting competitions, distribution of cotton cloth in collaboration of Municipal corporation Ulhasnagar-3 to create awareness regarding environment.
4. College rallies are arranged to create awareness among the public regarding clean environment.
5. College organized nature trip at Bhimashankar and Alibag.
6. College maintain green and clean campus. Made arrangement for separation of dry waste, wet waste dustbins and for E-Waste in college campus.
7. College celebrate the days connected with environment like Environment day to create awareness among the students.
8. College prepared compost pit for decomposed fallen litter in college campus and Worm culture tank are also made in college garden.
9. In college campus stick notice on plastic ban and junk food ban in college campus.
10. College promotes generating less waste during festival.



11. The college has a system provided drinking water earthen flat pots and bowl for birds.
12. Fire extinguisher is installed at strategic place in the college to meet with any emergency of extinguishing fire.
13. PCI has been given annual contact to check the loss inflicted by Rats.

### **Resource and material use :**

College has a well of which water is utilized for gardening, toilets and bathroom through pipe lines uninterruptedly.

### **Evidences used :**



**Dustbin for and dry wet waste in college campus**



Latitude: 19.240014  
Longitude: 73.166113  
Elevation: 26.31m  
Accuracy: 26.8m  
Time: 27-02-2020 14:12  
Note: Dry waste dustbin in college on first floor

***Dustbin for dry and wet waste on first floor***



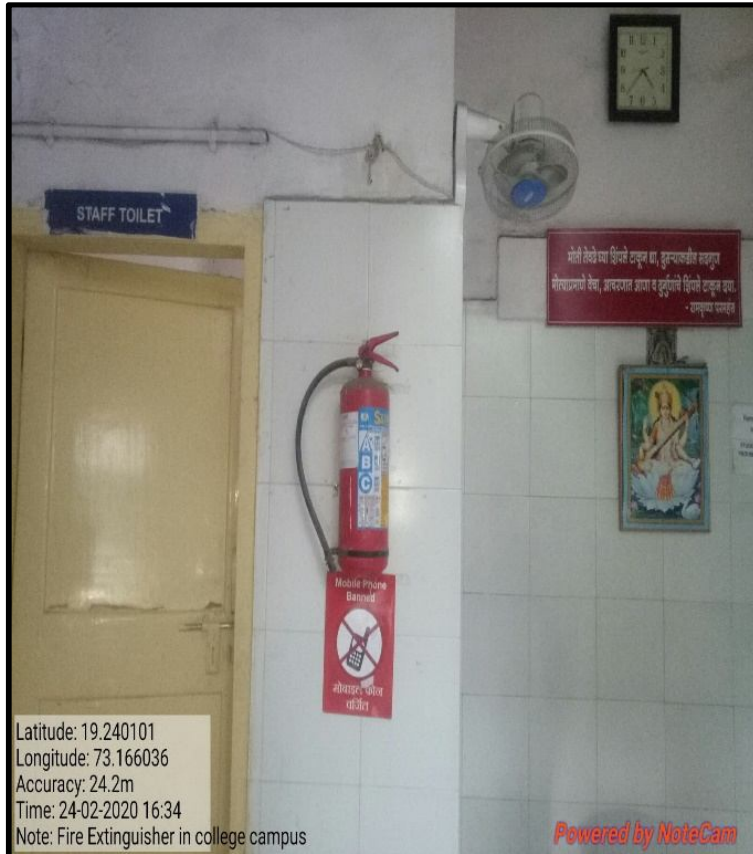
Latitude: 19.240142  
Longitude: 73.165999  
Accuracy: 31.3m  
Time: 27-02-2020 14:14  
Note: Wet waste dustbin in college on first floor

Powered by NoteCam

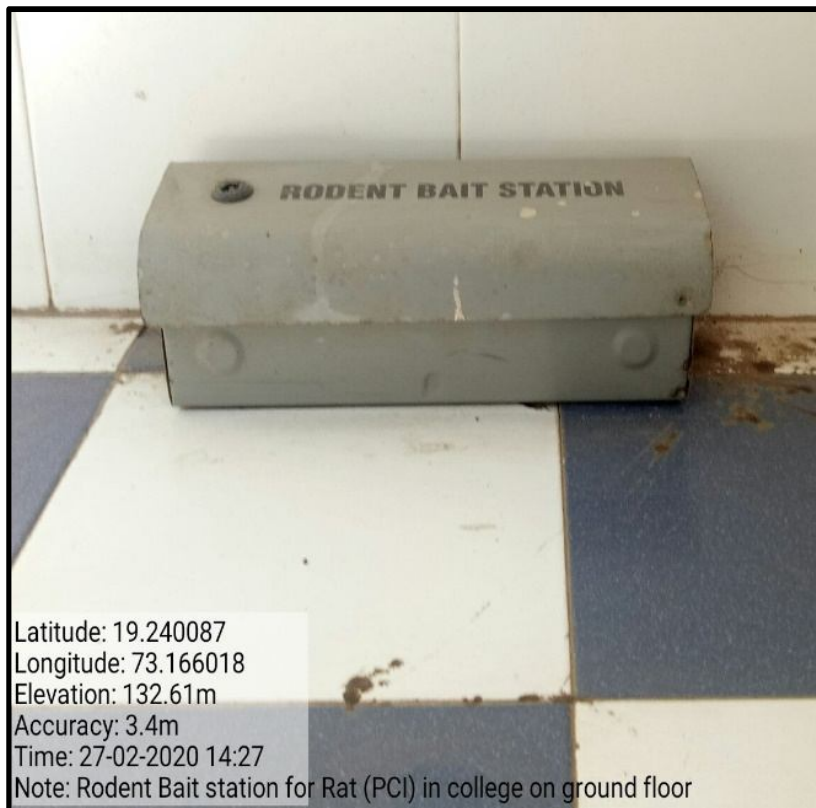


Latitude: 19.239938  
Longitude: 73.166169  
Accuracy: 27.7m  
Time: 27-02-2020 14:11  
Note:  
E-Waste dustbin in college on first floor

***E- waste in college on first floor***



***Fire Extinguisher in college on first floor  
Fire Extinguisher in college on ground floor***



***Rodent Bait station to check the loss inflicted by Rats***



***Fallen leaf litter decomposing pit in college campus  
Wormiculture tank in college garden***

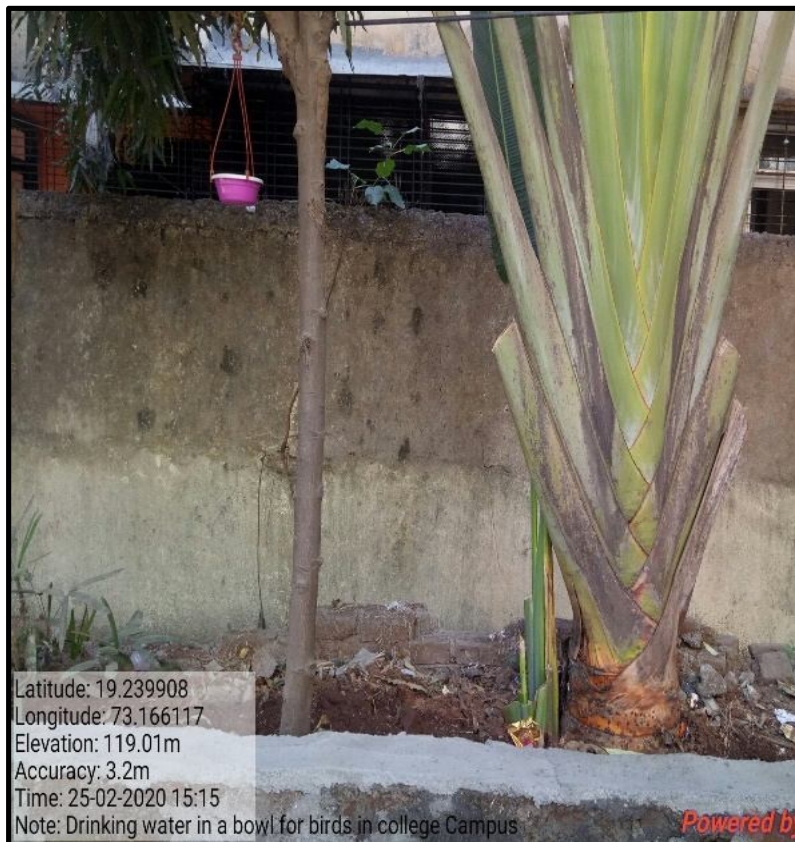


***Water supply from Well to garden plants***



Latitude: 19.24006  
Longitude: 73.166026  
Accuracy: 23.9m  
Time: 22-02-2020 17:51  
Note: Hanging feeding bowl of birds

Powered by NoteCam



Latitude: 19.239908  
Longitude: 73.166117  
Elevation: 119.01m  
Accuracy: 3.2m  
Time: 25-02-2020 15:15  
Note: Drinking water in a bowl for birds in college Campus

Powered by

***Hanging feeding bowl for birds Hanging bowl to provide drinking water for birds***



***Plastic and junk food are prohibited in campus.***



**Exhaust fan installed in Staff room toilet and student common room toilet for fresh air**

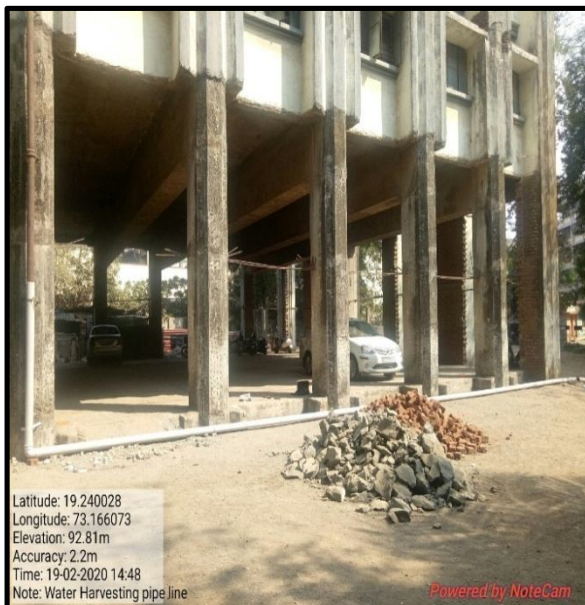


## ***Roof Water Harvesting:***

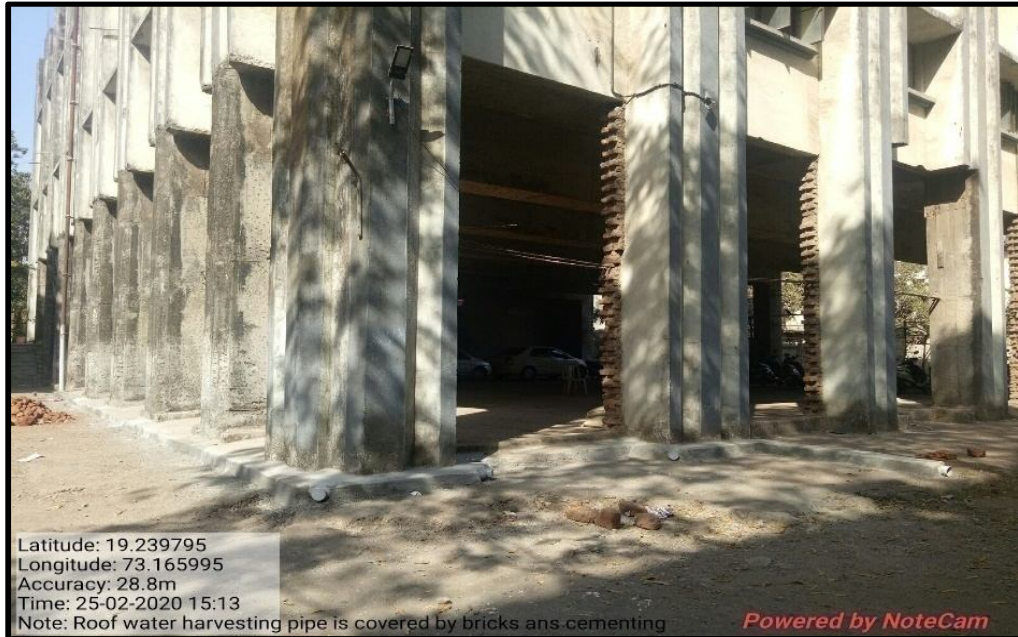
1. **Strength of student** : **661**
  
2. **Strength of staff** : **19 Teaching and 10 non teaching**  
**(Teaching and non teaching)** : **total 29.**
  
3. **Consumption of water/ week for gardening in liter:** : **1000 liter per week.**
  
4. **Catchment area of building here roof** : **1000 Sq. feet water harvesting is done in sq. feet.**
  
5. **Annual rainfall in a area** : **2598 mm.**
  
6. **Photo of rain water harvesting pipes and ditch system.** :



**Photo: Catchment area of building here roof top rain water harvesting**



**Photo of rain water harvesting pipes**



Latitude: 19.239795  
Longitude: 73.165995  
Accuracy: 28.8m  
Time: 25-02-2020 15:13

Note: Roof water harvesting pipe is covered by bricks and cementing

Powered by NoteCam

***Roof top rain water harvesting pipes is covered by bricks and cementing***



Latitude: 19.240197  
Longitude: 73.166252  
Elevation: 81.01m  
Accuracy: 4.4m  
Time: 17-02-2020 13:50

Note: Aquaguard with Water cooler in students common room

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***Drinking water facilities provide in the student's common room (Aqua guard and water cooler).***



***Clean and cool Drinking water facilities provided in the staff room (Aqua guard with water cooler).***

### ***Recommendations:***

1. Waste : Consider reducing the number of general waste bins in offices to one or two in order to encourage people to think more carefully about the waste they are producing.
2. Ensure that it's clear as to which bin collect which waste stream.
3. Provide separate bins for glass on each floor to make segregation and collection easier.
4. Consider designating the Eurobins for either general waste or recyclables in order to avoid the possibility of cross contamination.
5. Water: Consider carrying out meter reading on a regular basis (e.g. bi-monthly) In order to monitor water usage. Not only will this make checking water bills much easier but also allow a base line to be set from which further reductions can be measured, as well as possibly altering RSA to any leaks.
6. To place environmental information to the public

***Emergency plans and response /safety system:***

The review of the emergency response system will ensure adequate knowledge, alertness and readiness of the staff concerned to effectively face an emergency.

***Conclusion:***

The main purpose to conduct environmental audit was to explain the ways in which environmental awareness contributes to improving and preserving environmental protection, respecting the concept of sustainable development. We pay heed attention on the practical applicability to reduce pollution and improve environmental protection. A number of factors were taken into consideration i.e. waste management, water management, cleanliness programme, green and clean campus, compost pit and plastic ban.

We take initiative to instill a sense of environmental protection among students and achieve a higher level of environmental performance. We are contributing to the conservation of natural resources, using less electricity etc. College adopts ecofriendly practices and takes necessary action.

**Signature of Chairperson**

**Signature of member**

**Signature of member**

## 5. Beyond the campus environmental promotional activities



Students distribute pamphlets in Ulhasnagar Ban Plastic and use cloth bag



Tree plantation at Raita Village and in Vaishnav Dev temple Raita village



*Pral's*  
**PRINCIPAL**  
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