



**Sadhubella Education Society's  
Minority Institute**

# **J. Watumull Sadhubella Girls College**

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

## **INTERNAL ENVIRONMENTAL, ENERGY AND GREEN AUDIT**

### **Academic year -2018-2019**

Three expert members appointed for external green 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.

### **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.

### ***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 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.

### ***Environmental Audit***

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 reduce waste.
4. Minimize human exposure to risks from environmental, health and safety problems.

***Energy Audit:***

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:**

1. The main objective of an energy audit is to explore various possibilities for energy conservation.
2. The Energy audit provides the vital information base for overall energy conservation program covering essentially energy utilization analysis and evaluation of energy conservation measures.
3. Identifying the quality and cost of various energy inputs. relating energy inputs and production output.
4. 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.
5. Sometimes, energy audit is conducted to evaluate the effectiveness of an energy efficiency project or program.

### Following plants cultivated in college campus:

| Sr. No. | Botanical Name                      | Family          | Local name                           | Date of plantation | Height at plantation In Feet | Height of present Feet | Age |
|---------|-------------------------------------|-----------------|--------------------------------------|--------------------|------------------------------|------------------------|-----|
| 1       | Albizzia lebbeck (L.) Willd.        | Mimosaceae      | Shirish                              | July 1984          | 02                           | 60                     | 32  |
| 2       | Alstonia scholaris R.Br.            | Apocynaceae     | Saptparni                            | June 2016          | 02 feet                      | 04                     | 03  |
| 3       | Azadirachta indica A.Juss.          | Meliaceae       | Neem                                 | June 2016          | 02 feet                      | 04                     | 03  |
| 4       | Bauhania variegata                  | Caesalpiniaceae | Kachnar                              | October 2017       | 01                           | 04                     | 02  |
| 5       | Calatropis procera                  | Asclepiadaceae  | Madar                                | June 2016          | 01                           | 04                     | 3   |
| 6       | Citrus lemon                        | Rutaceae        | Limbu                                | June 2016          | 1.5                          | 03                     | 03  |
| 7       | Cocos nucifera Linn                 | Palmae          | Naral, Naryal                        | June 2016          | 02                           | 3.5                    | 03  |
| 8       | Dioscorea bulbifera Linn            | Dioscoriaceae   | Dukkarkand                           | June 2016 Natural  | rhizome                      | 06                     | 03  |
| 9       | Dracaena marginata                  | Asparagaceae    | Dracaena                             | January 2017       | 01                           | 03                     | 03  |
| 10      | Dracaena reflexa                    | Asparagaceae    | Dracaena                             | January 2017       | 01                           | 02                     | 03  |
| 11      | Ficus benghalensis Linn             | Moraceae        | Vad                                  | Naturally grow     | 01                           | 50                     | 25  |
| 12      | Ficus racemosa                      | Moraceae        | Umbar                                | Naturally grow     | 01                           | 20                     | 25  |
| 13      | Ficus religiosa Linn                | Moraceae        | Pipal                                | Naturally grow     | 01                           | 50                     | 24  |
| 14      | Mangifera indica Linn               | Anacardiaceae   | Aambaa                               | July 1980          | 1.5                          | 40                     | 39  |
| 15      | Moringa oleifera Lamk.              | Moringaceae     | Drumstick, Shevga                    | June 2016          | 02                           | 02                     | 03  |
| 16      | Ocimum sanctum Linn.                | Lamiaceae       | Tulas                                | September 2016     | 1                            | 3                      | 03  |
| 17      | Phoenix sylvestris (L.) Roxb.       | Aracaceae       | Shindi                               | January 2017       | 1                            | 2                      | 02  |
| 18      | Psidium guajava Linn.               | Myrtaceae       | Peru                                 | June 2013          | 1                            | 5                      | 06  |
| 19      | Syzygium cumini (L.) Skeel          | Myrtaceae       | Jambhul                              | June 2013          | 1                            | 20                     | 06  |
| 20      | Terminalia catappa L                | Combretaceae    | Deshibadam                           | June 2016          | 01                           | 3                      | 03  |
| 21      | Lenonia dysantha                    | Arecaceae       | Lady palm                            | January 2017       | 1                            | 1.5                    | 02  |
| 22      | Dypsis lutescens                    | Arecaceae       | Areca palm                           | January 2017       | 2                            | 04                     | 02  |
| 23      | Roystonea regia (H.B.K.)            | Arecaceae       | Royal palm tree                      | January 2017       | 03                           | 07                     | 02  |
| 24      | Latania verschaffeltii              | Aracaceae       | Yellow latan palm                    | January 2017       | 03                           | 06                     | 02  |
| 25      | Latania lontaroides                 | Arecaceae       | Red latan palm                       | January 2017       | 03                           | 06                     | 02  |
| 26      | Wodyetia bifurcata                  | Arecaceae       | Fox tail palm                        | January 2017       | 05                           | 15                     | 02  |
| 27      | Ravenala madagascariensis Sonnerat  | Strelitziaceae  | Traveller's palm of traveller's tree | January 2017       | 03                           | 20                     | 02  |
| 28      | Polyalthia longifolia (Sonner) Thw. | Annonaceae      | Ashoka                               | August 1980        | 03                           | 70                     | 39  |
| 29      | Saraca indica Linn                  | Caesalpiniaceae | Sita Ashok                           | June 1984          | 02                           | 30                     | 35  |
| 30      | Tamarindus indica Linn              | Caesalpiniaceae | Chinch, Imli                         | June 2015          | 02                           | 14                     | 04  |
| 31      | Livstonia rotundifolia              | Arecaceae       | Table palm<br>Foot stool palm        | January 2017       | 1/2                          | 1                      | 02  |
| 32      | Yucca                               | Agavaceae       |                                      | January 2017       | 02                           | 14                     | 02  |

**Botanica Name, family and local name and numbers of plant 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              | Azardirachta indica A.Juss.            | Meliaceae       | Neem                                   | 03                |
| 4              | Bauhanian varigata L.                  | Caesalpiniaceae | Kachnar                                | 01                |
| 5              | Calatropis procera (Ait) R. Br.        | Asclepiadaceae  | Madar                                  | 02                |
| 6              | Citrus medica L.                       | Rutaceae        | Limbu                                  | 02                |
| 7              | Cocos nuciferaLinn                     | Palmae          | Naral, Naryal                          | 10                |
| 8              | Dioscorea bulbifera Linn               | Dioscoriaceae   | Dukkarkand                             | 01                |
| 9              | Dracaena marginata                     | Asparagaceae    | Dracaena                               | 02                |
| 10             | Dracaena reflexa                       | Asparagaceae    | Dracaena                               | 02                |
| 11             | Ficus benghalensisLinn.                | Moraceae        | Vad                                    | 01                |
| 12             | Ficus racemosa Linn.                   | Moraceae        | Umbar                                  | 02                |
| 13             | Ficus religiosaLinn                    | Moraceae        | Pipal                                  | 03                |
| 14             | Mangifera indicaLinn                   | Anacardiaceae   | Aambaa                                 | 04                |
| 15             | Moringa oleiferaLamk.                  | Moringaceae     | Drumstick, Shevga                      | 02                |
| 16             | Ocimum sanctum Linn.                   | Lamiaceae       | Tulas                                  | 10                |
| 17             | Phoenix sylvestris (L.) Roxb.          | Aracaceae       | Shindi                                 | 01                |
| 18             | Psidium guajava Linn.                  | Myrtaceae       | Peru                                   | 01                |
| 19             | Syzygium cumini(L.) Skeel              | Myrtaceae       | Jambhul                                | 02                |
| 20             | Terminalia catappa L                   | Combretaceae    | Deshibadam                             | 02                |
| 21             | Lenonia dysyantha                      | Arecaceae       | Lady palm                              | 03                |
| 22             | Dypsis lutescens                       | Arecaceae       | Areca palm                             | 06                |
| 23             | Roystonea regia (H.B.K.)               | Arecaceae       | Royal palm tree                        | 02                |
| 24             | Latania verschaffeltii                 | Aracaceae       | Yellow latan palm                      | 01                |
| 25             | Latania lontaroides                    | Arecaceae       | Red latan palm                         | 01                |
| 26             | Wodyetia bifurcata                     | Arecaceae       | Fox tail palm                          | 02                |
| 27             | Ravenala madagascariensis<br>Sonnerat  | Strelitziaceae  | Traveller's palm<br>ortraveller's tree | 01                |
| 28             | Polyalthia longifolia (Sonner)<br>Thw. | Annonaceae      | Ashoka                                 | 18                |
| 29             | Saraca indicaLinn                      | Caesalpiniaceae | Sita Ashok                             | 01                |
| 30             | Tamarindus indicaLinn                  | Caesalpiniaceae | Chinch, Imli                           | 01                |
| 31             | Livstona rotundifolia                  | Arecaceae       | Table palm<br>Foot stool palm          | 02                |
| 32             | Yucca                                  | Asparagaceae    |                                        | 02                |

## ***Solid Waste Management***

**Construction of two pits of size 10 × 10 × 03 ft.  
and having fly cover**



***Before pit flat area of the ground***



***Pit for Decomposed litter***



*Compost pit in prelim stage*



*Compost pit for decomposed liter of plants*



***Fox tail palm***



***Yellow latan palm***



*Areca palm*



*Redlatan palm*



***Fish tail palm***



***Royal palm***



*Traveller's tree*



*Saptparni*



*Coconut*



*Table palm*



*Jamun*

***Installation for solar panel for save  
environment and energy***



***Before Installation of solar panel on terrace***



***Installation of solar panel on terrace***



*Installation of solar panel on terrace*



*Meter of solar panel*

***Water storage tank pipeline of  
water supply to washroom***





***Celebrate world environment day on 06 June 2018***



***Principal Dr. Vasantmali deliver speech on world environment day on dated 06 June 2018***

***Awareness on environments of public and school students during Ganesh festival***





***J. W. s. girls college Students aware on environmental issues to school students and public in Ganpati festival distribute pomp let on dated 22/09/2018 under dept. N.S.S.***



जे. वाटुमल साधुबेला गर्ल्स कॉलेज, उल्हासनगर  
आणि



उल्हासनगर महानगरपालिका, उल्हासनगर

झाडाना नका करू नष्ट, ओला व सुका कचरा करा वेगवेगळा.  
श्वास घेताना होतील कष्ट. आरोग्य आणि पर्यावरण सांभाळा.

जे. वाटुमल साधुबेला गर्ल्स कॉलेज, उल्हासनगर-१ आणि उल्हासनगर महानगर पालिका, उल्हासनगर यांच्या संयुक्त विद्यमाने स्वच्छ ऑगस्ट क्रांती मोहिमे अंतर्गत रॅली द्वारे जनजागृती मोहिम काढण्यात येत आहे.

\*\*\* नागरिकांसाठी जाहीर सूचना\*\*\*

- \* ओला व सूका कचरा वेगवेगळा करा आणि कचरा पेटी किंवा घंटागाडीमध्ये टाका.
- \* पाणी हे जीवन आहे, पाण्याचा योग्य वापर करावा.
- \* गणपती सजावटी साठी प्लॅस्टिक व थर्माकोलचा वापर करू नये.
- \* गणेश मूर्तीचे विसर्जन वाहत्या पाण्यामध्ये करू नका.
- \* गणेश विसर्जनासाठी महानगर पालिकेने ठरवून दिलेल्या पुढील ठिकाणीच विसर्जन करावे.  
(1) IDI कंपनी (मोहने गावाजवळ), (2) उल्हासनगर स्टेशन, (3) सॅच्युरी रेयॉन, बोट क्लब  
(4) पवई चौक, बोट क्लब, (5) कैलाश कॉलनी, उल्हासनगर

\*\*\* वरील सूचनांचे सर्व नागरिकांनी पालन करावे \*\*\*

आणि महानगरपालिकेस सहकार्य करावे. हि नम्र विनंती

\*\*\* सर्वाना गणेशोत्सवाच्या हार्दिक शुभेच्छा\*\*\*\*\*

थर्माकोल व प्लॅस्टिकचा वापर टाळा, मातीच्या गणेशमूर्तीची धरू कास,  
पर्यावरणाची हानी टाळा. पर्यावरणाचा वाचवू न्हास.

आपले स्नेहांकित

एन.एस.एस. विभाग  
जे. वाटुमल साधुबेला गर्ल्स कॉलेज  
उल्हासनगर-१

महानगर पालिका  
उल्हासनगर

पर्यावरण विभाग  
जे. वाटुमल साधुबेला गर्ल्स कॉलेज  
उल्हासनगर-१



***College campus cleaning on dated 13/08/2018 ,  
under N.N.S. unit***

**Organized disaster training programme in  
collaboration with Ulhasnagar municipal corporation  
on 12 oct. 2018**



**Principal Dr. Vasant Mali felicitate to Mr. Balasaheb Netke,  
dy. CFO and Chief Management officer UMC  
On dated 12 Oct. 2018**



**Mr. Balasaheb Netke, deliver speech on Disaster  
Management on dated 12 Oct. 2018**



***Students and trainer in seminar hall in disaster training programme on dated 12 oct 2018***

## ***Environmental Awareness***

***Details of environmental awareness programs organized  
by collage Photos of Environmental awareness programs***



**Fire safety awareness training programme organized  
in college campus.**

## ***Environmental Audit***

### ***A) Environmental audit 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 rallies are arranged to create awareness among the public regarding clean environment.
4. College organized nature trip at Bhimashankar and Alibag.
5. College celebrate the days connected with environment like Environment day to create awareness among the students.
6. College prepared compost pit for decomposed fallen litter in college campus and Wormiculture tank are also made in college garden.
7. In college campus stick notice on plastic ban and junk food ban in college campus.
8. The college has a system provided drinking water earthen flat pots and bowl for birds.
9. Fire extinguisher is installed at strategic place in the college to meet with any emergency of extinguishing fire.
10. PCI has been given annual contact to check the loss inflicted by Rats.

### **B) Recommendations:**

1. Provide separate dustbins for Dry waste and wet waste
2. To place environmental information to the public.
3. Arrange rally and competition for environmental awareness.
4. Clean the college campus area.
5. 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.

### **C) 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.

**A) *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. Installed solar panel in college campus it is benefited for college.

## ***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**

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

### **B) Recommendations:**

1. In college campus install LED tube light for save electricity 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.

### **C) Conclusion:**

In conclusion, data generated in energy audit are useful for to understand the energy distribution and utilization of college. Six Solar panel installed on college terrace and it generate 150 Units/month and hybrid energy generation device generate the only 150 units/moths. 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.

### **A) Green Audit observation**

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. 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 year. The college campus has enough trees and plants inside. All plants existing inside the campus are regularly watered.

**B) Recommendations:**

- 1) Review periodically the list of trees planted in the campus and garden, allot numbers to the trees and keep records.
- 2) Develop botanical garden cultivate medicinal plants in next year.

**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 plants are cultivated fox in college campus. 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.

**Signature of Chairperson**

**Signature of member**

**Signature of member**