

Green, Energy & Environment Audit Report  
Dnyan Ganga Education Trust, Thane

# Report

On

## GREEN, ENERGY & ENVIRONMENT AUDIT

For

**Dnyan Ganga Education Trust**  
Thane

Prepared

By

**Senergy Consultants Pvt Ltd**  
Mumbai

March – 2023


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Page 1 of 23



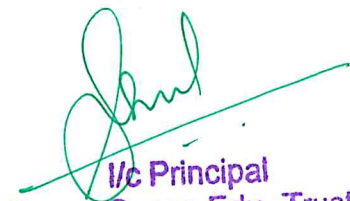
  
/s/ Principal  
Dnyan Ganga Edu. Trust's  
College of Education (B.Ed.)  
At Borivade, Kasar Vadavali Naka,  
G. B. Road, Thane (W)

## Contents

Sr. No	Description	Page
I	Introduction	3
II	Executive Summary	4
III	Electrical Gadgets	6
IV	Environmental System	13
V	Water Management	15
VI	Waste Generation & Management	17
VII	Infrastructure & Safety	18
VIII	Green Culture	22
IX	Renewable Energy	23

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Dnyan Ganga Education Trust, Thane

# I Introduction

Green, Energy & Environment Audit was undertaken at Dnyan Ganga Education Trust, Opp. Unnathi Greens, Near Haware Citi, Kasarvadavali, G B Road, Thane (West) - 400615 during the month of March 2023.

The organization is very keen to promote green culture wherever possible, as a commitment towards better environment and conservation of energy. A lot of efforts have already been put up to bring down the carbon footprint. To further optimize consumption and identify saving opportunities, M/s Senergy Consultants was assigned to carry out Green & Environment Audit of the premises.

This Audit Report presents the analysis of the data collected, observations made at the facility and is governed by the objectives, scope of work, methodology etc. discussed in the ensuing paragraphs.

## Team:

The team members of the audit study.

- Mr. Ravindra Datar
- Mr. Nitesh Kharche
- Mr. Pranav Shinde

## Acknowledgment:

We wish to express our gratitude towards Dr. Swapna Khairnar (B. Ed. Principal) for having given us the opportunity for conducting the study and the support provided during the study.

We are thankful to Mr. Parag Padelkar for extending necessary help and co-operation from their side.


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Page 3 of 23



  
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## II

# Executive Summary

The premises were evaluated against the various criterions laid down by the National Assessment and Accreditation Council (NAAC). The major observations are.

### Air Quality & Ventilation:

- The classrooms and other area are well ventilated to ensure proper air quality.
- The fans are appropriately installed to ensure proper air circulation.
- The outdoor plants have also been provided to improve the environment.
- The air conditioned rooms are provided with proper ventilation and fresh air.

### Lighting System:

- The usage of natural light is optimized through well designed structure and windows.
- The conventional tube lights operating for longer period should be replaced with energy efficient LED lamps.
- The switching of the lamps is done manually, which may be carried out with sensor based automation; especially for common area and washrooms.

### Green Campus Initiative:

- The movement of vehicle inside the campus is restricted with vehicles of Staff and Special Dignitaries are allowed to enter the campus with designated parking area.
- There is a ban on plastic usage inside the campus.
- The campus is surrounded with a lot of greenery, trees, and proper landscaping.
- The bicycles are allowed on the campus for movement as required.
- The college has internal committee for conservation of resources like energy, water.
- The student participation are also encouraged in such activities through student clubs and groups.

### Environment & Energy Initiative:

- Green Consumerism and Green Entrepreneurship workshop are conducted to create awareness related to the environment.
- Meri Mati Mera Desh - Environmental Campaign was carried out by students in campus.
- Tree Plantation drive was undertaken by students and staff members.

### Water Quality & Conservation:

- The water is supplied by the Municipal Corporation, which is a common practice in Mumbai, Thane & Navi Mumbai.
- Water purifiers & coolers are provided at convenient locations.
- Rainwater harvesting may be incorporated for ground water recharge.
- The distribution network and piping are more or less satisfactory and adequate.
- The toilets are provided with water efficient (low usage) fittings.

### Waste Management:

- The effluent water is discharged in the municipal drain, which is a common practice in and around Mumbai, Thane & Navi Mumbai.
- The organic waste may be segregated and converted into manure in the composting pits.


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Page 4 of 23



  
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**Dnyan Ganga Education Trust, Thane**

- The electronic gadgets / waste is either donated if useful or handed over to appropriate waste collectors.
- The general solid waste is disposed through municipal corporation.

**Air Conditioning System:**

- The Air Conditioners are operated as required with manual control. The operation is minimal consequently automation may not be economical.
- The room temperature is maintained at 24 to 25 °C, which is well within the recommended values.
- The Air Conditioners are serviced regularly and properly maintained.
- Most of the Air Conditioners units are energy efficient with 3 star rating.

**Infrastructure usage:**

- Ramps are provided on the ground floor to address the needs of differently abled persons.
- The special toilets may be made available to address the needs of differently abled persons.
- The fire extinguishers are provided at key areas.
- The draining system for washrooms is efficient and effective.
- There were no seepages observed in the building premises.

**Green IT culture:**


- The Energy efficient computers and laptops have been procured.
- The electronic communication is encouraged to minimize usage of papers.
- Most of the papers are reused for doubled sided printing to further minimize usage of paper.

**Renewable Energy:**

- The possibility of installing Solar Photovoltaic System with NET metering may be assessed to meet part of the electricity consumption.
- The quantity of plate waste (organic waste with higher starch contents) is negligible, consequently, there is no potential for biogas generation.

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### III

## Electrical Gadget

#### Gadget List

#### Lamps:

Location	TFL 36 W
<b>Degree &amp; Junior College</b>	
<b>Ground Floor</b>	
Canteen	5
Office	11
Passes	4
<b>1st Floor</b>	
Auditorium	37
Toilet	3
Passes	28
<b>2nd Floor</b>	
Room - 1	2
Room - 2	3
Room - 3	4
Room - 4	4
Room - 5	2
Toilet	2
Passes	3
<b>3rd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	4
Room - 5	2
Toilet	2
Passes	4
<b>4th Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	4
Room - 5	0
Toilet	2
passes	4
<b>5th Floor</b>	
Library	19
Toilet	3

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Page 6 of 23



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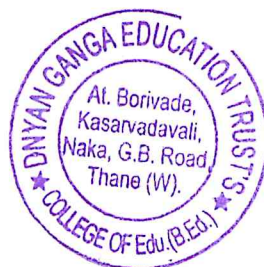
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Location	TFL 36 W
Passes	1
<b>6th Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	4
Toilet	2
Passes	4
<b>7th Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	4
Toilet	1
Passes	4
<b>School</b>	
<b>Ground Floor</b>	
Jr.KG (A)	4
Jr.KG(B)	4
Sr.KG(A)	3
Sr.KG(B)	4
Primary	4
Office	8
Passes	3
<b>1st Floor</b>	
Room - 1	3
Room - 2	4
Room - 3	4
Room - 4	4
Room - 5	7
Passes	1
<b>2nd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	2
Room - 4	3
Room - 5	4
Passes	1
<b>3rd Floor</b>	
Room - 1	2
Room - 2	2
Room - 3	1
Room - 4	2
Room - 5	4
Toilet	1

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Page 7 of 23



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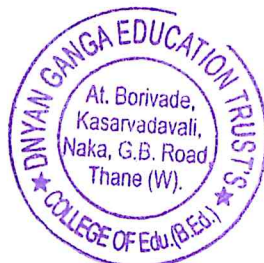
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Location	TFL 36 W
<b>4th Floor</b>	
Room - 1	4
Room - 2	2
Room - 3	2
Room - 4	2
Room - 5	3
Passes	1
<b>5th Floor</b>	
Room - 1	2
Room - 2	2
Room - 3	2
Room - 4	3
Room - 5	5
<b>6th Floor</b>	
Room - 1	4
Room - 2	8
Room - 3	2
<b>B Ed College</b>	
<b>Ground Floor</b>	
Gymkhana	9
Office	6
Passes	1
<b>1st Floor</b>	
Room - 1	3
Room - 2	4
Room - 3	4
Passes	1
Toilet	2
<b>2nd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Passes	1
Toilet	2
<b>3rd Floor</b>	
Room - 1	3
Room - 3	3
Toilet	1
<b>4th Floor</b>	
Room - 1	4
Room - 2	2
Room - 3	3
Toilet	1
5th Floor	1

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Page 8 of 23



  
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Green, Energy & Environment Audit Report  
Dnyan Ganga Education Trust, Thane**Ceiling Fans:**

Location	Ceiling Fans (70 W)
<b>Degree &amp; Junior College</b>	
<b>Ground Floor</b>	
Canteen	10
<b>1st Floor</b>	
Toilet	1
Passes	4
<b>2nd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	2
<b>3rd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	2
Passes	5
<b>4th Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	2
<b>6th Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
<b>7th Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	3
Total	85
<b>School</b>	
<b>Ground Floor</b>	
Jr.KG (A)	4
Jr.KG(B)	4
Sr.KG(A)	4
Sr.KG(B)	4
Primary	7
Office	1
Passes	3
<b>1st Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4

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Location	Ceiling Fans (70 W)
Room - 4	5
Passes	1
<b>2nd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
Room - 4	7
Passes	1
<b>3rd Floor</b>	
Room - 1	1
Room - 2	3
Room - 3	4
Room - 4	5
<b>4th Floor</b>	
Room - 1	3
Room - 2	4
Room - 3	4
Room - 4	6
Passes	1
<b>5th Floor</b>	
Room - 1	4
Room - 2	3
Room - 3	4
Room - 4	3
<b>6th Floor</b>	
Room - 1	9
Room - 2	4
<b>B Ed College</b>	
<b>Ground Floor</b>	
Gymkhana	12
Office	6
<b>1st Floor</b>	
Room - 1	2
Room - 2	4
Room - 3	4
<b>2nd Floor</b>	
Room - 1	4
Room - 2	4
Room - 3	4
<b>3rd Floor</b>	
Room - 1	7
Room - 3	8
<b>4th Floor</b>	
Room - 1	5
Room - 2	4
Room - 3 & 5	5

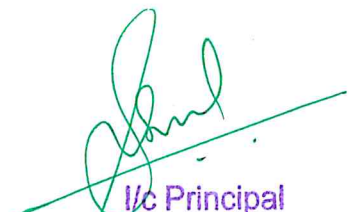
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Page 10 of 23



  
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Green, Energy & Environment Audit Report  
Dnyan Ganga Education Trust, Thane**Air Conditioning Units:**

Location	Type	Quantity (Nos.)
Degree and Junior College		
Office	Split	1
Auditorium	Split	4
School		
Office	Split	2
First Floor Room 5	Split	1
Third Floor Room 4	Split	1
B. Ed College		
Office	Split	1

**Observations & Suggestions:**


- The conventional tube lights operating for longer period should be replaced with energy efficient LED lamps.
- The fans are of standard efficiency; which may be replaced with high efficiency fans with BLDC motor.
- The air conditioning units have 3 star ratings, which intrinsically operate at high energy efficiency.
- The Air Conditioners are operated as required with manual control. The operation is minimal consequently automation may not be economical.
- The temperature is maintained at 24 to 25 °C for air conditioning spaces, which is within the recommended values.
- The rooms are well ventilated and provided with fans at appropriate location for proper air circulation.
- The gadgets are serviced properly and maintained in good condition.

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Page 11 of 23



  
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Green, Energy & Environment Audit Report  
Dnyan Ganga Education Trust, Thane**Electricity Bill:**

<b>Consumer Name: Shri Dhyanganga Education Trust</b>	
Tariff Category: 89 LT-VII B	Consumer No. 000382098129
Meter No.: 055-MHD14291	Contract Demand : 140KVA


Description	Unit	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
Energy Consumption	KWH	9012	7084	8158	7860	7177	7577
Bill	Rs	125019.6	103646	128508	124877	116190	121226
Cost	Rs/KWH	13.87	14.63	15.75	15.89	16.19	16.00

Description	Unit	Oct-22	Nov-22	Dec-22	Jan-23	Average
Energy Consumption	KWH	7468	6737	7052	6160	7429
Bill	Rs	118574	110550	114561	103897	116705
Cost	Rs/KWH	15.88	16.41	16.25	16.87	15.71

**Observations:**

- The power cost is within the normal range.

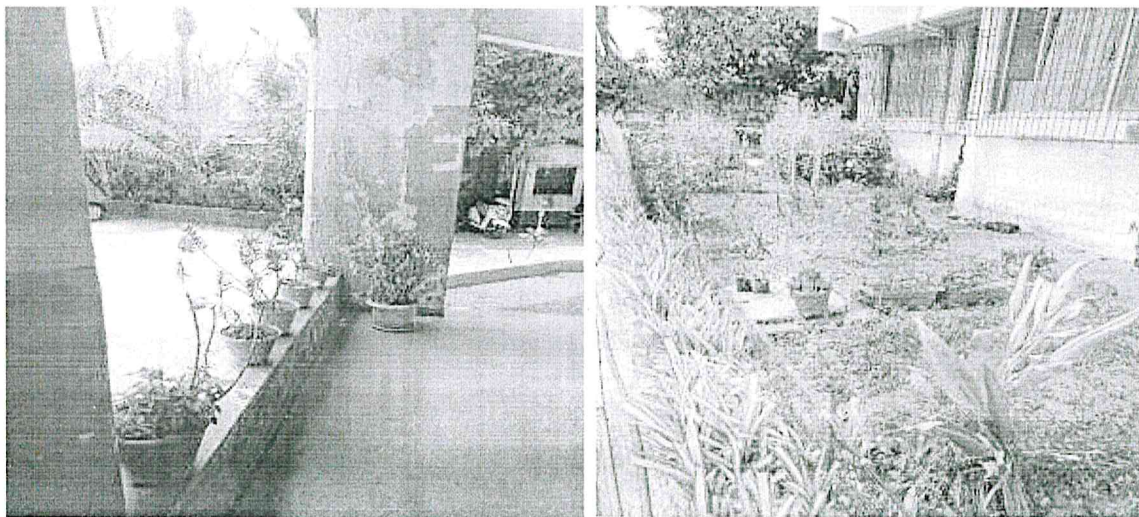
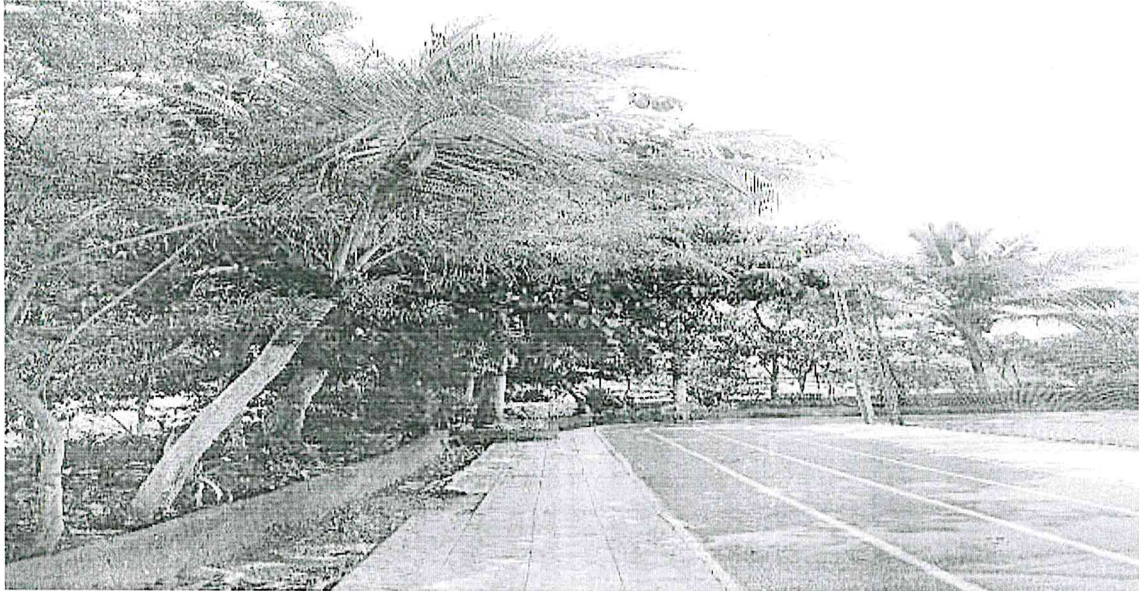
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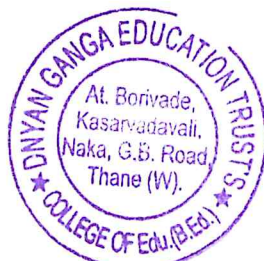
## IV Environmental System


### Ventilation & Air Quality:

- The air ventilation is adequate.
- Several indoor & outdoor plants have been installed to improve air quality.



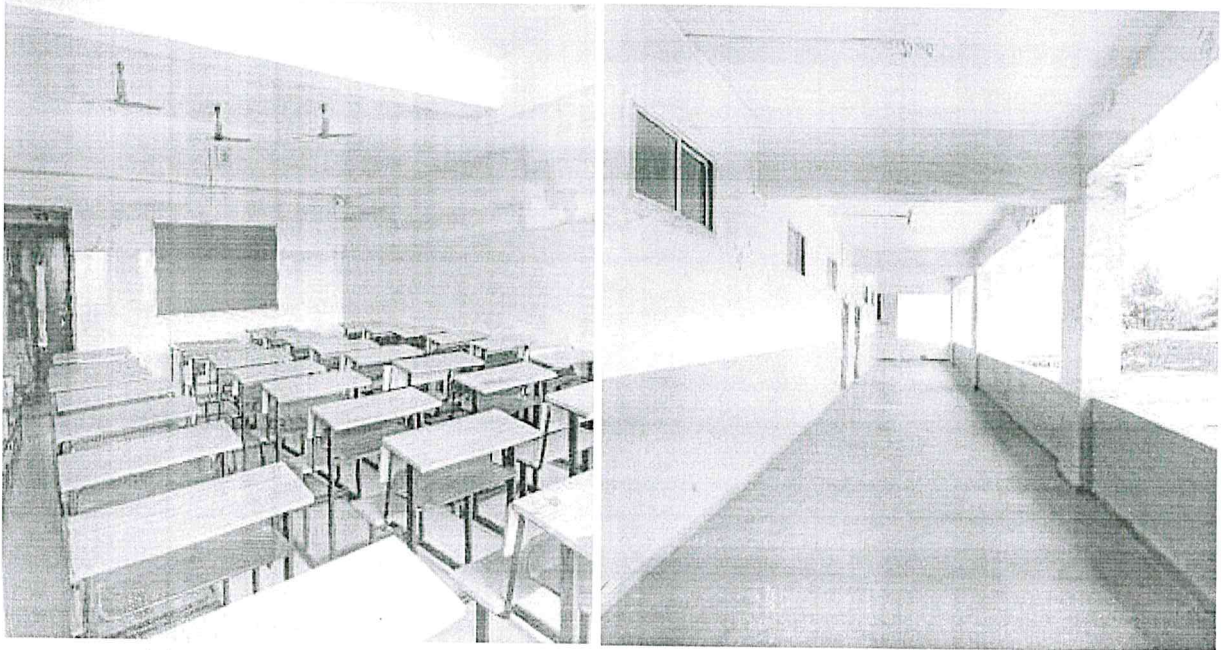
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- Natural light is been used for maximum illumination during daytime.
- It has been a general practice to switch off the fans & lights in an occupied area.

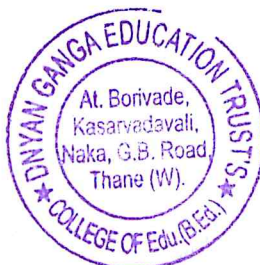



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Page 14 of 23



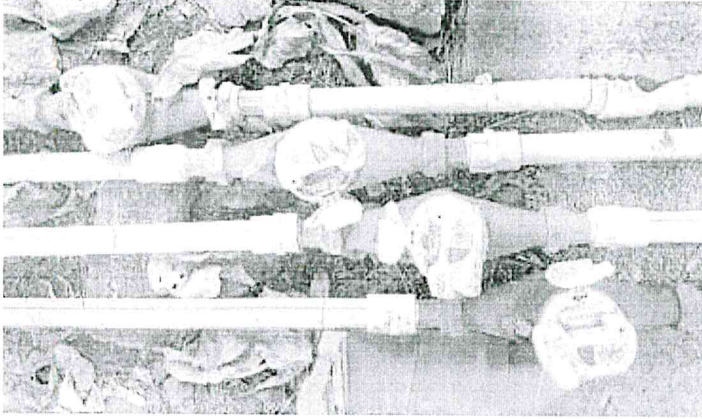
  
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## V Water Management

**Water Source:**

The water supplied by the municipal corporation is used for drinking & other applications like washing of utensils and other requirements. The incoming water from the municipal corporation is metered.



The water consumption details are as under.

Period	Days	Consumption	Bill Amount	Cost
		KL	Rs	Rs/KL
<b>Connection No- 060962002403</b>				
1-04-22 to 30-06-22	91	193	5790	30.00
1-07-22 to 30-09-22	91	310	9300	30.00
1-10-22 to 31-03-23	88	704	21120	30.00
<b>Connection No- 060962002404</b>				
1-07-22 to 30-09-22	91	262	7860	30.00
1-10-22 to 31-03-23	91	662	19860	30.00
<b>Connection No- 060962002405</b>				
1-07-22 to 30-09-22	91	237	7110	30.00
1-10-22 to 31-03-23	91	612	18360	30.00
<b>Connection No- 060962002406</b>				
1-07-22 to 30-09-22	91	308	9240	30.00
1-10-22 to 31-03-23	91	698	20940	30.00

**Observation & Suggestions:**

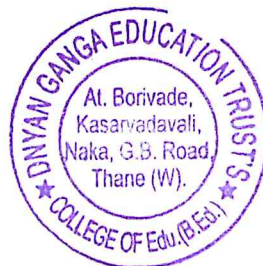
- The cost as well as consumption is within the normal range.

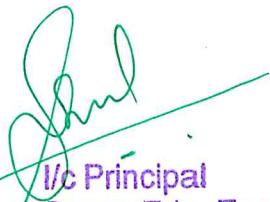
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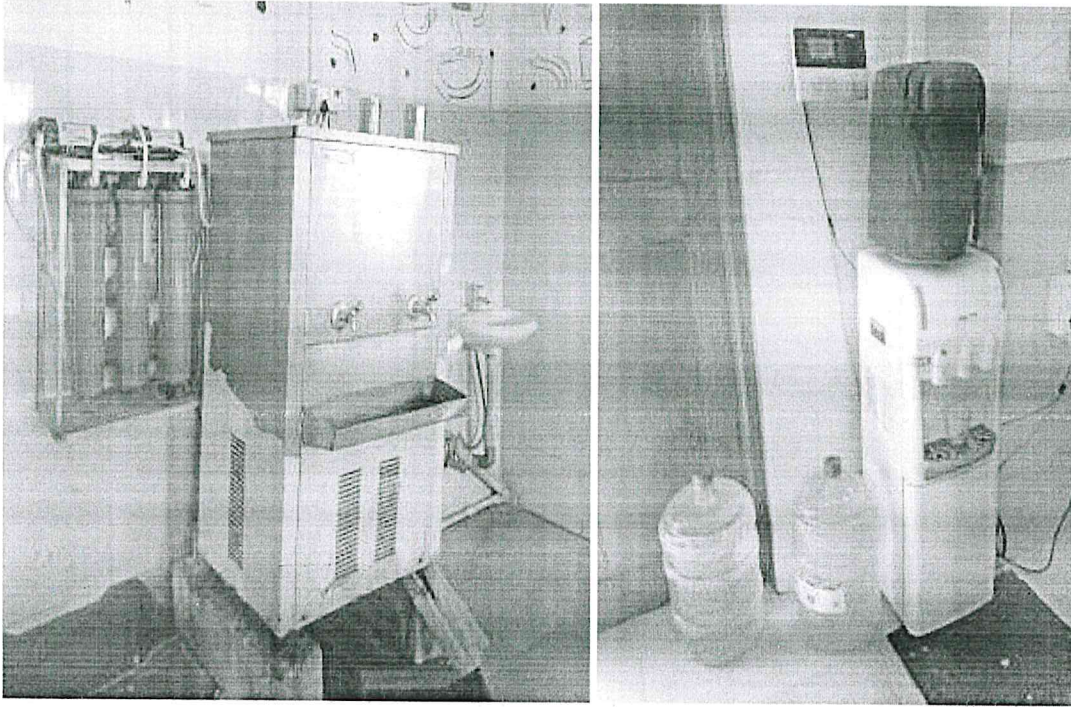
Page 15 of 23



  
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**Water Coolers & Purifiers:**



The water purifiers are provided on convenient locations.

**Water Distribution System:**

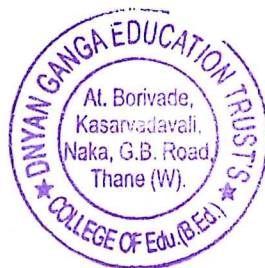
The distribution network and piping are more or less satisfactory and adequate.

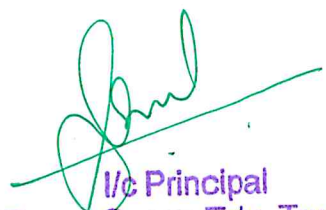
**Rainwater Harvesting:**

The rainwater from the terrace area of the college building is being drained into municipal storm water system through requisite ducts and pipes.

However, considering proximity to the seashore, rainwater harvesting may not be practical.

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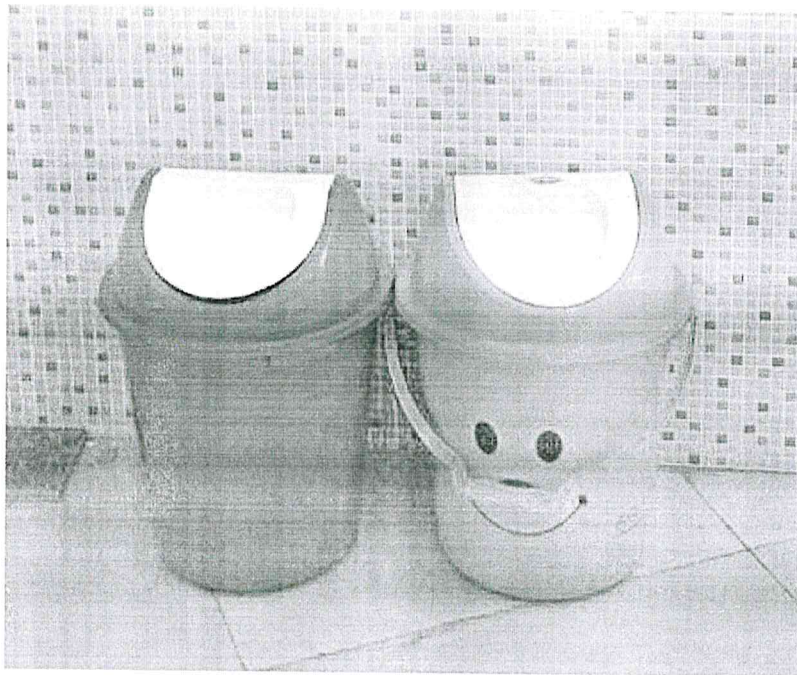
## VI Waste Generation & Management

### Sewage & Wastewater:

The sewage is fed into the municipal drainage. This is a common practice and the municipal corporation which charges towards the sewage charges.

### Solid Waste:


- The waste is segregated and disposed through municipal disposal system.
- The dustbins for Recyclable waste and Non-Recyclable Waste have been provided at appropriate locations.



- The organic waste may be converted in to manure by installing composting pit.
- The electronic gadgets with residual life may be donated while the electronic waste is properly segregated and handed over to appropriate scrap collector.

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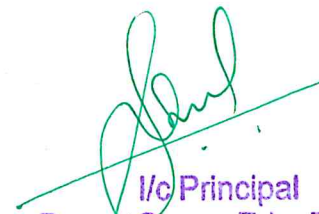
  
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## VII Infrastructure & Safety



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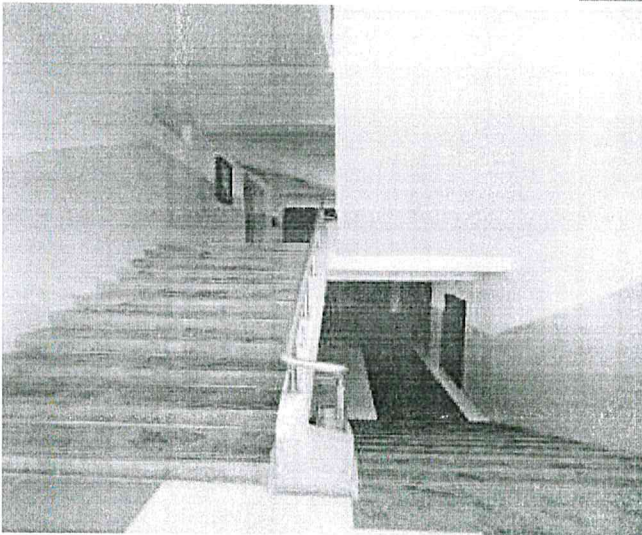
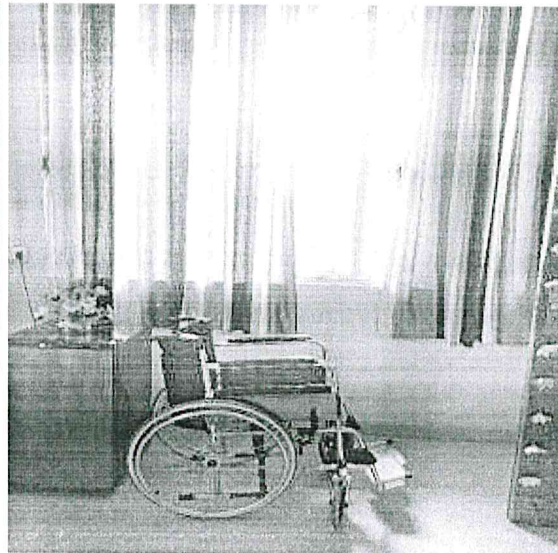


  
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**Movement on-campus (Distributed / non-distributed leading to crowds)**

- The premises are provided with multiple staircases with necessary entrances to ensure quick and effective movement in normal as well as emergency conditions.
- The movement of vehicle inside the campus is restricted with vehicles of Staff and Special Dignitaries are allowed to enter the campus with designated parking area.
- There is complete ban plastic usage inside the campus.
- Ramp & Wheelchair is available for differently abled students.



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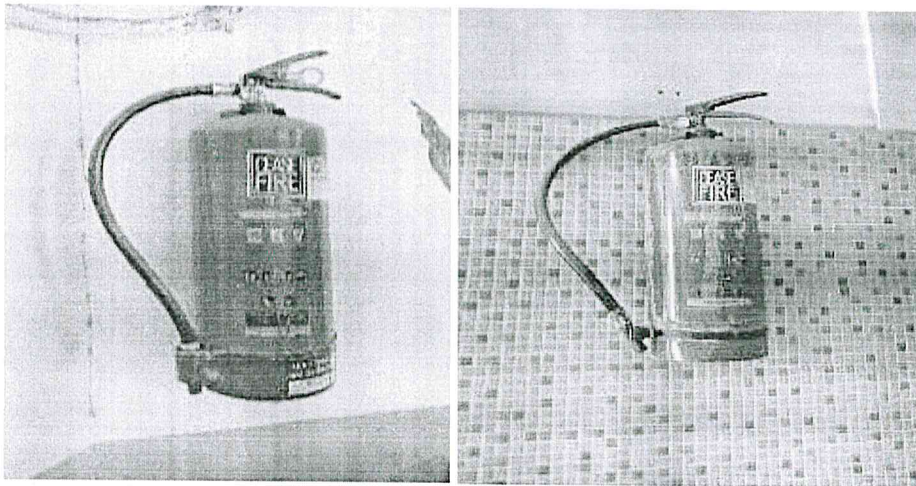
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**Parking space:**

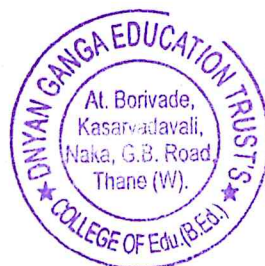



There is adequate parking space for vehicles/four wheelers. However, almost all the students and many of the faculty members avail public transport system which is very convenient due to proximity to railway station and bus services.

**Firefighting & fire escape system:**



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There are efficient fire extinguishers in the premises; which are checked / refilled as per the stipulated frequency.

The premise is provided with multiple staircases with requisite entrances to ensure quick and effective movement in emergency conditions.

**Draining system:**

The drains from the washrooms are connected to the municipal drainage, which is a common practice in the colleges in and around Mumbai.

The municipal corporation charges cess for water disposal.

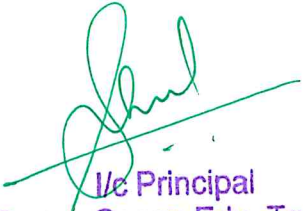
**Seepage in the building:**

The premise was visually inspected for seepages.

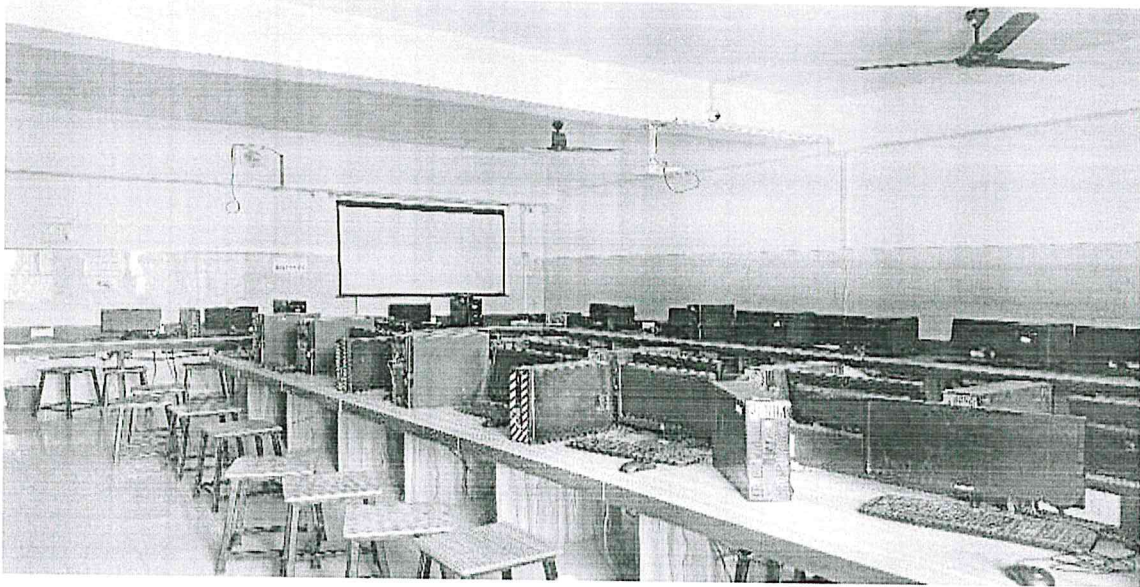
No seepages were observed in any of the places.

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## VIII Green Culture



### Computers/Laptops:

1. The LED / LCD monitors & Laptops has been procured, which are energy efficient.
2. These monitors are not only energy efficient but also generate minimal heat and cut down on air conditioning load.

The following steps may be initiated to further enhance efficiency of the systems.

1. An efficient power management system may be incorporated to
  - a. Switch off the display if not in use.
  - b. Put the computer in Sleep mode / switching off the machines, if not used for prolonged period.
2. Optimize brightness of the screen.
3. Discourage use of screen savers, which has similar power consumption.

### Paper-less communication:


The major internal as well as external communication is through electronic medium.

### Re-using one sided paper for printing:

It was observed that two side printing / printing on the back side of used paper in more than 80% of the cases.

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## IX Renewable Energy

### Solar Photovoltaic:

It is suggested to install rooftop solar panels with net metering for captive usage.

### Solar Thermal:


There is no application of solar thermal system and does not find attractive in this case.

### Biogas Plant:

There is no possibility of installing biogas plant for cooking as the quantity of plate waste is negligible.

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