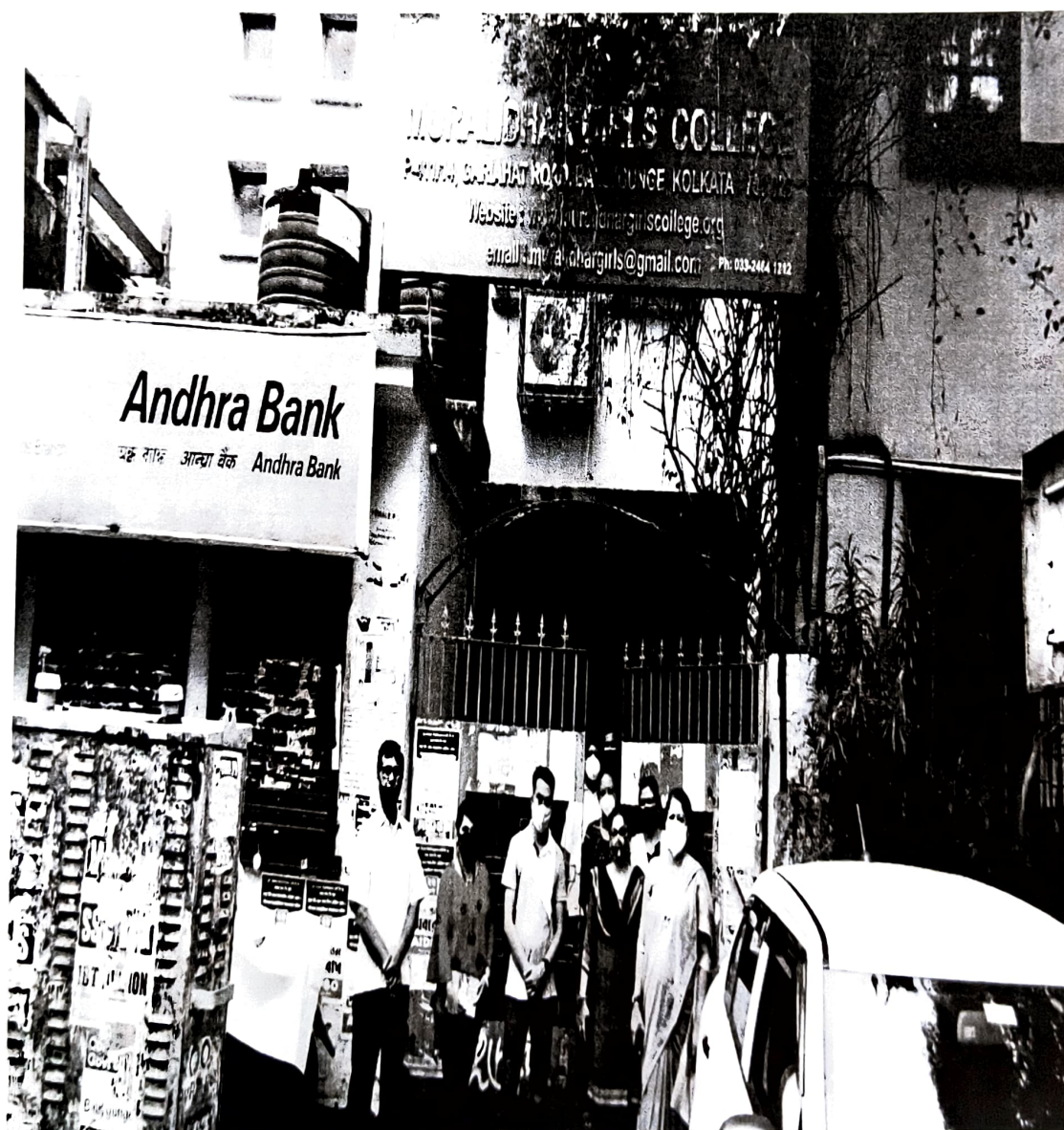


Green Audit Report for 2020-2021

MURALIDHAR GIRLS' COLLEGE

Affiliated to Calcutta University (Re-Accredited by NAAC Grade B++)
P-411/14, Gariahat Road, Ballygunge, Kolkata-700019



Attested

K. Biswas
Principal

Muralidhar Girls' College

ACKNOWLEDGEMENT

We would like to express a deep sense of gratitude to the authorities of Muralidhar Girls' College,P-411 /14, Gariahat Road, Ballygunge, Kolkata-700029 for giving us opportunity to carry out the Green Audit of the college campus. We also acknowledge with much appreciation the crucial role of faculty members and Principal of this college during the preparation of audit report.

The green audit aims to analyze environmental practices within Muralidhar Girls' College, West Bengal campus which will have an impact on the eco-friendly atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of college environment. It was initiated with the motive of inspecting the effort within the institutions whose exercises can cause threat to the health of inhabitants and the environment. Through the green audit, a direction is provided as how to improve the structure of environment and there are several factors that have determined the growth of the green audit.

Muralidhar Girls' College, P-411/14, Gariahat Road, Ballygunge, Kolkata-700029 has assigned Global EHS Consultant, Kolkata to conduct green audit as per the Criteria 7 of NAAC. Global EHS Consultant (GEHSC), Kolkata is the foremost provider of country-specific and industry-academic specific EHS (environment, health, and safety) regulatory analysis. GEHSC, Kolkata is a research and advisory firm with country experts and partners over outside India. GEHSC, Kolkata has delivered critical business and regulatory intelligence to corporate managers and decision-makers around India.

Dr. Susanta Podder (Grad IOSH, PhD, M. Tech, Lead Auditor of ISO 14001, ISO 45001, and ISO 9001) Chief advisor of Global EHS Consultant, Kolkata and Adjunct Associate Professor, Lincoln University, Malaysia visited Muralidhar Girls' College campus on 7th August 2021 and carried out the assessment.

The aim of the Green Audit is to survey the existing environmental practices and to assess the significance of the features found to facilitate the development of Environment Action Plan (EAP) with clear, long-term objectives and the program for implementation.

The overall environment of the college campus is being safe guarded with various activities. The utilization of the renewable resources is being observed through rainwater harvesting unit, reuse of waste water and green coverage across the college campus.

Waste Management is also effectively managed through safe disposal systems of wet and dry waste. Apart from the implementation of the above, the college management has also been very keen on involving students continuously in creating awareness through several activities.

Introduction

1.General

Name : Muralidhar Girls' College

Address : P-411/14, Gariahat Road, Ballygunge, Kolkata-700029

Mail ID : muralidhargirls@gmail.com **Website :** www.muralidhargirlscollege.ac.in

Phone Number : +91 33 2464-1312/4371

Latitude and Longitude : 22°31'03.52" N & 88°21' 55.31" E

Available area of the recreation facility (Green Canopy) : 255.488 square meters

Population:

Teaching and non-teaching staff : **116**

Students : **1384**

Facilities

a. Total built-up area around **1021.9526** square meters and the total constructed area is about **3134.5** square meters.

b. Numerous classrooms(**37**) are available for variety of the classes.

c. Adequate number of sanitary facilities(**17**) separate each for male and female students, staff-members(**3**) are available.

d. Numerous staff-rooms (**3**), **One** auditorium, **One** conference room are available in the campus.

e. **One** library is available with lots of books, story books and popular magazines.

f. **Two** water-coolers of **500 L** capacity, **3** water purifiers and **3** overhead water tanks of **1500 L** capacity each are available.

g. Solar panel of **5KWP** capacity and **465 LED** lights are available in the campus.

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K. Binu
Principal

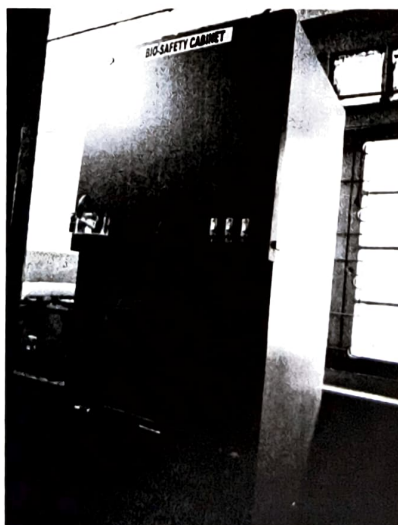
Muralidhar Girls' College



h. 2000 L storage capacity of 2 rainwater harvesting system are available in the campus.



i. One bio-safety cabinet in microbiology lab is available.



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U. B. Srinivas
Principal
Muralidhar Girls' College

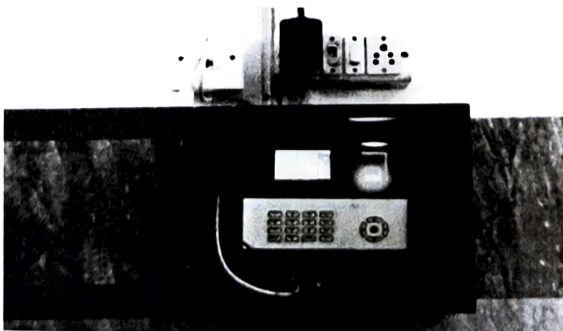
j. The college campus area, including the canteen is regarded as “plastic free zone.”



k. Two waste segregation bins are available in the campus for proper waste disposal.



l. The college campus has installed one computerized staff attendance system i.e. biometric machine system.



Attested
H. B. Srinivas
Principal
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m. The college has an electronic data processing (EDP) unit which provides curricular facilities to the students of the different departments.

n. Two office rooms, one browsing centre and one sick room are available within the campus.

1.2. Environmental Policy

Muralidhar Girls' College, P-411/14, Gariahat Road, Ballygunge, Kolkata-700029, West Bengal shows its sensitivity towards the environment by establishing its environmental policy.

The aims of the policy

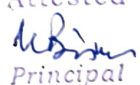
The policy aims to eliminate or reduce all forms of environmental pollution and encourages all faculty members, staff, students and other stakeholders to do the same. The college always raises awareness of environmental issues among its staff/ students/ stakeholders, especially plastic pollution and encourages initiatives leading towards a clean environment. Its academic departments, NSS and NCC unit, Union Cell works towards this aim collectively.

The policy promotes the 3R's for waste in the following order: Reduce, Reuse and Recycle and provide convenient waste collection points and guidance for the disposal of ----

- a. Paper
- b. Cardboard
- c. Glass
- d. Plastic
- e. Electrical items and white goods
- f. Hazardous waste
- g. E-waste.

The college aims to minimize the consumption of water and electricity and mainly solid waste disposal and thereby contribute to the proper use of the natural resource by the following ways:

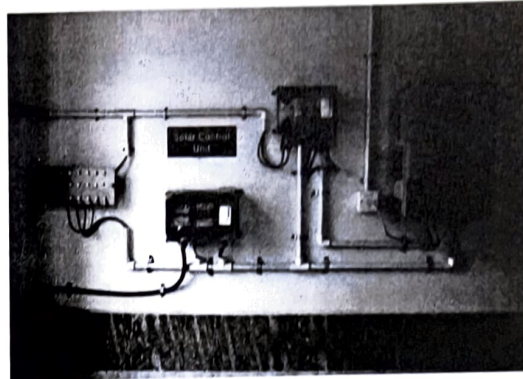
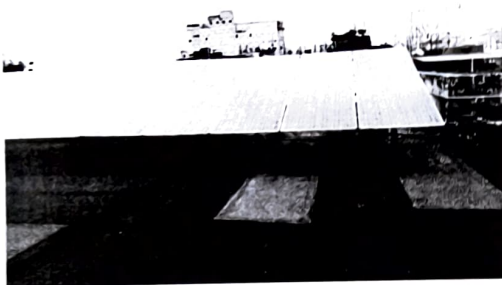
- a. Encouraging to report leaks and rectifying them promptly.
- b. Progressively replacing/supplementing water-taps in staffroom, washroom etc. if needed.
- c. Establishing rainwater harvesting schemes in the buildings of the campus.
- d. Progressive replacement of light bulbs with energy efficient ones.
- e. Encouraging staff, mainly students to turn off electrical appliances when not in use.
- f. Conserving energy by promoting the use of daylight.
- g. Conducting frequent preventive and corrective maintenance.

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1.3.Steps Taken and Mechanism

a.The college adapts health, safety, and environment-based codes of practice and relevant guidance and complies with legislation.

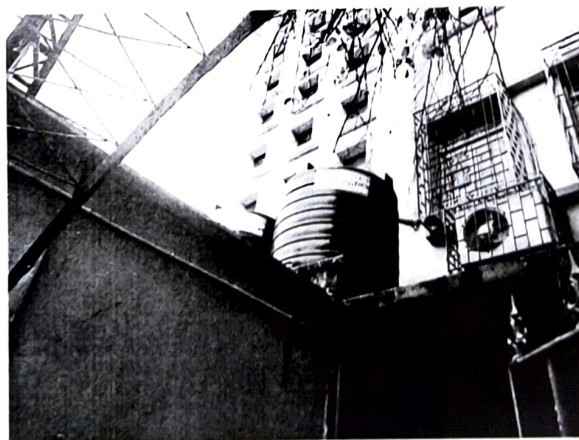
b.The college has planned for Solar panel systems on the campus.



c. The college campus maintained completely free from plastic bags and cups.

d.Waste bins are placed at appropriate sites to maintain a clean and tidy campus.

e. The college has adopted “Roof Top Rain Water”harvesting system to reuse and recycle water.



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Principal

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e.Green initiatives are taken by developing medicinal plants through adequate plantation by the college(NSS, NCC Unit and the maintenance cell).



f.Arrangement to set off the fire that may cause accident and environmental damage by setting fire extinguishers at different places of the college premises.



g.Social work like distribution of masks and sanitizer by the NSS Team of the college during Covid-19 pandemic scenario.



Muralidhar Girls' College National Service Scheme Wing - An initiative to fight against Covid-19

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Principal
Muralidhar Girls' College

h. Swachh Bharat Abhiyan initiatives are taken by NCC Cadets as well as by the college students to keep the college campus clean and tidy.



2. Audit Scope

The audit is carried out for the activities at Muralidhar Girls' College, P-411/14, Gariahat Road, Ballygunge, Kolkata-700029, West Bengal.



3. Audit Criteria

- a. Applicable guidelines of NAAC
- b. Applicable Environmental Legislation
- c. Best environmental practices

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4. Audit Objective

In line with the audit definition, the objective of the audit is to have systematic, periodic, planned evaluation against objective evidence and reporting the results to the management as per the focus of the audit. Green Audit focus on the environmental sustainability in terms of applicable environmental elements like Air, Water, Land, Flora, Fauna, Natural resources, and Human being. The very objective of this audit is to evaluate the institutes green performance based on the focus indicators as stated above in view of the goal towards environmental sustainability, applicable legislation, environmental policies and standards. The green audit objectives can be stated as follows.

- a. To review the knowledge and awareness concerns of the institute for the journey of sustainability.
- b. To review the efforts made to protect the environment by preventing pollution and conserving the natural resources being used in the campus.
- b. To establish a baseline data to assess future sustainability and avoid heavy environmental tolls.
- c. To bring out a status report on environmental compliance.
- d. To assess the environmental performance and report it to management/authorities.

5. Audit Methodology

The scope of the audit is divided into various environmental areas like Land use, water, effluent, sewage, energy etc. Each such area is analyzed based on the evidence produced by the institute. The evidence is collected in form of discussions or interactions, documents and records, practical site conditions and photographs of it.

6. Observations and Recommendations

6.1. Water Supply

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Muralidhar Girls' College

Water Sources

The main source of water to the institute are three well-built overhead tanks, each 1500 L capacity i.e. 4500 litres in total and the water supplied from Kolkata Municipal Corporation(KMC) stored in underground reservoir. Water charge is paid along with KMC tax. 500 L of water is pumped once a week and 200 L of water get used from washroom per day by the staff members of the college. Whole college campus has 35 water-taps of which only 100 L water get used and 2 water-taps in canteen of which 200 L of water get used up per day. From rainwater harvesting tanks, 100 L of water get used from April to December month in the year 2020 and only 10 L water during rainy season (June to September) of the same year. 20 L per day water get used from two water-coolers by the teachers and staff-members of the college. No waste water is generated from labs and canteen, only waste water from toilets go to underground sewage. The college has practiced green chemistry i.e. toxic water disposal mechanism within the premise.

Recommendations

Installation of sensor, push taps should be given more importance for sufficient water conservation. Periodic water audits can be planned and initiated at regular intervals.

6.2. Land Cover and Green-Belt Development

Land Use

Available land in the whole campus is with a limit of 255.488 square meters of which 61.5 ft by 8.5 ft occupies the garden area..Due to high crowds and shortage of enough space as the college is situated in residential area, it is very difficult to have proper green-belt for noise and pollution reduction within the campus. However, the college has total 41 plants and few trees with large canopy cover like Mango, Peepal, Simul and Bakul which enhance green cover. In addition, Go Green Club of the college maintains some medicinal plants like Tulsi, Krishna Tulsi, Babui Tulsi, Kalmegh, Vasaka, Sarpagandha, Curry pata, Hadjora, Pudina, Ghritakumari etc and 25 ornamental pots for rich green effect. The garden area is devoid of any threatened plant species. Approximately, 100 litres of water get used every day in the garden area of the campus whose source are the rainwater harvesting tanks. The college has planned to implant neem, turmeric, some vegetable plants and herbs in the campus within next three years.

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Recommendations

Indoor plants like snake plant, money plant, spider plant, African violet etc. can be placed at the corner of each corridor of the campus to reduce indoor air pollution and to enhance beautification also. Medicinal plants to be maintained properly for their appropriate growth and vigor.

6.3. Sewage Management

Sewage

Sewage is generated by the use of water for sanitary (200 litres per day) from 14 common washrooms and 3 washrooms from staff-room. The sewage generated after the use is connected to the municipal sewer lines through the underground tanks and some get mixed with underground water table.


Recommendations

Specific water audit can be conducted to know the water inflow and out flow along with the losses, leakages, wastages etc. to plan actions for water conservation.

6.4. Energy

Energy Source

Maximum energy consumption occurs from principal's room and staff-rooms of the college. Major source of electricity usage in the college campus include electric kettle, electric bulb of 10 units (9 watt \times 6 hours per day \times 2 days per month), 250 ceiling fans (320 watt per month), 17 wall fans (1200 watt per month), 89 computers (720 watt \times 2 days per month), 12 split AC and one window AC, 2 photocopy machine (1 hour per day \times 2 days) etc. Machineries like computer, AC and printer are kept in stand-by mode when not in use for only 2 hours. Annual electric bill come around 18,520. The college has adapted some energy conservation methods such as installation of solar panel of 5 KWP capacity to reduce impact of non-renewable energy and 465 LED lights (run approximately 6 hours per day \times 2 days per month). The college runs switch off drills at the premise. One generator is available in the college campus. Not much energy consumption occurs from air conditioner, refrigerator, incubator, digital balance (2), spectrophotometer, autoclave and pH meter, heater, television etc. this year. Approximately 1.5 kilowatt energy gets used up from solar panel this year.

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Recommendations

More LED and halogen (eco-incandescent) bulbs should be placed in the college campus for sufficient energy conservation. Periodic energy audits can be planned and initiated in regular intervals.

6.5. Solid Waste Management

Solid Waste

No specific amount of solid waste is being generated from the college as the college canteen has been shut down due to lockdown and unavailable of student strength. Minimum amount of solid waste was generated from staff-rooms only which get disposed off smoothly to the KMC (Kolkata Municipal Corporation).

Recommendations

Besides dumping of solid wastes in landfill, it can be treated through biodegradable fertilizer pit.

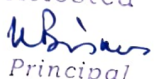
6.6. E-Waste Management

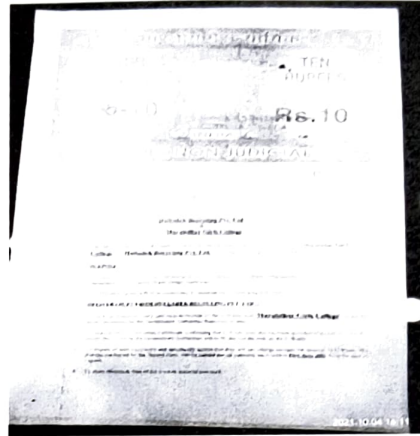
E-Waste

Since the organization is well established and equipped with the necessary and up-to-date electronic infrastructure, the e-waste generation like scraped computers, laptops, xerox machines are produced in a minimal amount. However, as a proactive initiative, an authorized vendor is identified for disposal of e-waste in case it is generated i.e. the college has tie-up with renowned E-waste company, Hulladek Recycling Pvt.Ltd and also signed with "MOU" (Memorandum of Understanding) this year to provide management of electronic waste.

Recommendations

Immediate transfer of e-wastes to the authorized recycler should be ensured.

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Muralidhar Girls' College



6.7. Carbon Footprint

Institute has started measuring GHG (Green House Gas) emission in terms of considering fuel consumption per students or staff of college. Carbon footprint is the total amount of Green House Gases (GHGs) emitted in terms of carbon dioxide by a person, institute. Carbon Footprint is typically given in tons of CO₂ equivalent per year. Maximum students use public transport system (10 in number), 1 car by principal and 2 times parent-teachers' meeting held in a year. Annual carbon footprint of the college is near about 23,310 (Co₂) equivalents.

6.8. Other Environmental Initiatives

Go Green Club and NSS group of the college have taken initiatives for "**Biodiversity Conservation**" in the pandemic year.

To commemorate World Environment Day

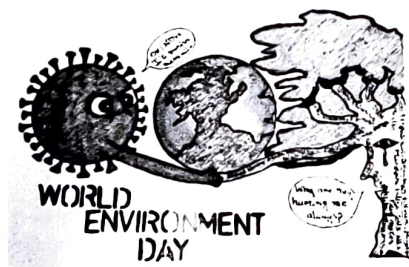
1. Students are encouraged to participate in online poster presentation, quiz competition and drawing competition on different topics related to environment.
2. They also undertook sapling or tree plantation in and around their houses.

Additional activities include:

3. Online environmental awareness campaign.
4. Monitoring the amount of water collected from rainwater harvesting tanks and watching the use of this water by the gardener for watering plants.

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Murugesu
Principal
Muralidhar Girls' College

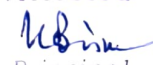
5. Arranged webinars maximum on environmental topics.
6. Arrange online class for fresher students to make them aware about environment.
7. Distribution of saplings among students and staff members by NSS team to increase awareness and understand the importance of plant kingdom.
8. Green Club and NSS team plant neem-sapling (medicinal plant) at the front garden of the college.



7. Conclusion

The institute thrives hard and sincere efforts are taken towards conservation of environment. Starting with the environmental awareness programs and implementing the practical changes like solar panel installation to conserve energy and use of alternative energy resource. The institute has put effort in the water management system also by installing rainwater harvesting system in the campus. It is noteworthy that the college premise is kept free from plastic pollution within the premise. It shows commitment and responsibility towards the Mother Nature. Institute takes care of the students and staffs as well. The rooms are well ventilated, and premise has enough space and well-equipped.

There are always opportunities for improvements which are noted in the different sections for making the activities robust and the institute might try to achieve the proposed recommendations or suggestions more effectively after post-pandemic scenario. These would help in the journey towards a sustainable future which already have been started and reached at a remarkable height.

Attested

 Principal
 Muralidhar Girls' College