GREEN AUDIT REPORT

GURU NANAK COLLEGE

BUDHLADA, PUNJAB

CONDUCTED BY:

R.K. ELECTRICALS & ENERGY AUDIT SERVICES (An ISO Co.)

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Academic Year 2023-24

CERTIFICATE

This is to confirm that **"Guru Nanak College, Budhlada"** performed a detailed Green Audit of their campus during the 2023-2024 academic year and submitted all required data and credentials for evaluation. Based on the data submitted, the campus's actions and measures have been verified and found to be satisfactory. The efforts made by staff and students in the areas of environment and sustainability are much appreciated and encouraged.

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ACKNOWLEDGEMENTS

R.K. ELECTRICALS & ENERGY AUDIT SERVICES places on record its sincere thanks to the management of "**Guru Nanak College, Budhlada"** for entrusting the project of Green audit of the building of GNC, Budhlada particularly: -

Dr. Narinder Singh - Principal

We express our thanks to the IQAC Team and all Staff members without whose constant support, we could not have carried this audit.

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1. EXECUTIVE SUMMARY

"R.K. ELECTRICALS & ENERGY AUDIT SERVICES" was entrusted the Green audit of "**Guru Nanak College, Budhlada"**. The management of the campus is conscious with regard to improve sustainability and complementary to its Green Policy. The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity Keeping in view these issues in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards.

GNC aims to minimize the environmental impact of its operations and move towards restoring environmental integrity, promote social justice, equity and diversity contribute to human health and maintain its financial viability.

As part of its commitment to sustainability, GNC developed a Sustainability Policy and Sustainability Strategy and is now developing a series of Sustainability Action Plans on energy and greenhouse, water, transport and waste to support implementation of the Policy and Strategy.

This document deals with Green Audit of GNC, Budhlada for the year 2023-2024

2. THE BRIEF DESCRIPTION OF PREMISES

Project Title: Green Audit of the building of the GNC Budhlada.	
Client: Principal, GNC Budhlada., Budhlada	
Contact Person: Mr. Simran Singh (Asst Prof.)	
Date of Audit: 19 Feb 2024	
Source: Data collection from the staff & Physical verification/Inspection	
Date of report: 10.05.2024; Report Number: RKS/GA-27/2024	
Work Carried out by*:(Team Composition)*	**Er. R.K. Sharma (BEE's Energy Auditor) EA-10080, Accredited Professional (IGBC)** **Er. Harvinder Singh (BEE's Energy Auditor) EA-12433** **Er. Paramjeet Saini (BEE's Energy Auditor) EA-19322** **Mrs Savita Sharma M.Sc. (Ecology Environment)** **Er. Varun Sharma B. Tech (EE), MBA, PGD (Indl Safety) – C Engr**

3. INTRODUCTION

3.1. Guru Nanak College, affiliated to Punjabi University, Patiala (listed in 12(b) & 2(f) sections of UGC Act 1956) is situated on the outskirts of Budhlada city - a small town of district Mansa in Punjab. To tribute the 500th birth anniversary of "Sri Guru Nanak Dev Ji", it was started in 1971 by some eminent personalities of the region to keep in mind the noble cause of making affordable education accessible to all the people of this backward, rural and remote area. In the beginning, it was functioning under the local management but later on handed over to SGPC (Shiromani Gurdwara Parbandhak Committee, Sri Amritsar Sahib), an apex and philanthropic body of the Sikhs committed to serving humanity, on 09 November 1994 due to meagre financial resources and some other executive problems.

It was followed by some significant reforms in both college functioning and infrastructure. The growth of the college has been at a phenomenal pace since 2008 with a radical adjustment in a number of courses, faculty, infrastructure and other teaching learning resources. At present, it has become the foremost organisation in the area, having 16 PG and 14 UG courses (including 03 skill-development vocational and industry-oriented courses), 151 faculty members, more than 6000 students (3232 girls and 2768 boys) with state-of-the-art infrastructure and technology to provide quality education.

3.2. Green Analysis can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyses environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Analysis. Green auditing is essentially an environmental management tool for measuring the effectsof certain activities on the environment against set criteria or standards

3.3 Utility of Green Audit

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. The audit team will study an organization's environmental effects in a systematic and documented manner and will

Produce a green audit report.

4. OBJECTIVE OF THE STUDY

The main objective of the green analysis is to promote the Environment Management and Conservation in the college Campus. The purpose of the analysis is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Analysis are:

- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requiring high cost and to bring out a present status report on environmental compliance
- To introduce and aware students to real concerns of environment and its Sustainability.
- To secure the environment and cut down the threats posed to human health by analysing the pattern and extent of resource use of the campus.

5. METHODOLOGY

Methodology adopted for achieving the desired objectives viz: physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following area to summarize the present status of environment management in the campus:

- **GEOGRAPHICAL METROLOGICAL PARAMETERS**
- **WATER CONSUMPTION AND MANAGEMENT**
- **ELECTRICITY CONSUMPTION AND MANAGEMENT**
- **AIR QUALITY ASSESSMENT AND MANAGEMENT**
- **WASTE MANAGEMENT**
- **BIODIVERSITY STATUS OF THE CAMPUS**

6. GEOGRAPHICAL AND METROLOGICAL PARAMETERS

Budhlada located at 29.93°N 75.57°E at a distance of about 182 KM from state capital Chandigarh and is a prominent city of Punjab. In Budhlada, during the entire year, the rain falls for about 95 days and records up to 850mm.

The district lies in the South-western region of the State and is near from the Shivalik ranges in the North of the state. The city is well connected by road to Chandigarh both by road and rail and also with prominent places like Delhi, Amritsar, Jalandhar, Ludhiana, Patiala, Ambala, Jammu etc.

6.1. Weather Bins

This area has a humid subtropical climate characterized by a seasonal rhythm: hot summers, cold winters, good amount of rainfall and great variation in temperature. Budhlada weather by month weather averages:

During three months of monsoon season from July to September, the moist air of oceanic origin penetrates into the district and causes high humidity, cloudiness and good monsoon rainfall. The period from October to November constitutes post monsoon season. The cold weather season prevails from December to February followed by the hot weather season or Pre-monsoon season which ends up to the last week of June.

6.1.1. Rain falls

The normal annual rainfall of Budhlada District is about 850mm in 60 days which is unevenly distributed over the district. The southwest monsoon sets in last week of June and withdrawn towards end of September and contributes about 80% of annual rainfall. July and August are the rainiest months. Rest 20% of the annual rainfall occurs during none of the year in the form of thunder storm and western disturbances. Rainfall in the district increases from southwest to northeast. Therefore, climatically, the district has a very hot in summer and frequently scorching heat is in full swing. The climate of Budhlada district can be classified as tropical steppe, semi arid and hot which is mainly dry except in rainy months and characterised by intensely hot summer and cold winter. During three months of monsoon season from July to September, the moist air of oceanic origin penetrates into the district and causes high humidity, cloudiness and good monsoon

7. WATER CONSUMPTION AND MANAGEMENT

7.1. Water extraction and Storage

The College gets water for drinking and other purposes from Two number of Submersible Pumps. The water is pumped up to overhead tanks.

GNC Extracts Underground Water for Consumption from Submersible Pumps

Details of Pumps installed in GNC Campus

Sr.No.	Name	Quantity (Nos)	Capacity HP/KW	Location
1	Submersible Pump	1	7 HP	Near Girls Hostel Gate
2	Submersible Pump	1	3 HP	Near Electric Sub Station

7.2 Drinking water and quality

Reverse Osmosis Plant - Reverse osmosis (RO) is a membrane separation process, driven by a pressure gradient, in which the membrane separates the solvent (generally water) from other components of a solution. The membrane configuration is usually cross-flow. The campus has provided purified R.O. drinking water to all the students and staff residing in the campus by setting up the R.O plant. In additional to drinking purpose, R.O water is provided to the hostel mess for cooking foods.

At GNC Campus, RO plant supplies fresh water to various locations along with Water coolers so that faculty, staff and students can have access to clean drinking water. The RO plant is serviced regularly from authorized agencies.

Measured pH value and TDS Value of filtered drinking water

Auditors checked the quality of the drinking water after it is treated from RO Plant by taking a sample and found the quality water which is as under:

SR NO.	Particulars of checked item	Value	Remarks
1	Sample of drinking water for testing PH Value	7.8	Good
2	Sample of drinking water for testing TDS (total dissolved solids) Value	094 ppm	Good

Findings:

1. The PH value of safe drinking water lies between 6.5 & 8.5
Tested the sample of drinking water and found to be 7.8 which is Neutral PH value for safe drinking water

2. The TDS value of safe drinking water is less than 300 ppm
The TDS value of tested sample found to be 094 which is good and safe for drinking water

7.3 Water Conservation

GNC has developed for the various water-use categories in the office buildings and for monitoring and operational procedures. They are grouped according to indoor water use, outdoor water use, and monitoring and operational procedures.

Manually Operated Water Urinals Being Used in Building of GNC Budhlada

Sensor Based Taps and Urinals Can Be Installed for Minimizing Water Wastage

7.4.1. Use of Efficient Water Urinals/Fixtures

- **Low water use urinals:** Use of the standard systems urinals. Water is applied automatically through a continuous drip-feeding system or by automated flushing at aset frequency; 24x7.Waterconsumption varies with the system model.

- **Smart flush systems:** Now a days smart flush system using 0.8 litres per flush have also been launched.

- **Waterless urinals:** There are various technologies available for waterless urinals. In oil barrier technology, the urinals operate using an oil wall between the urine and the atmosphere, preventing odour from escaping.

- **In another technology**, the barrier has been replaced by a seal with a collapsible silicone tube that closes after the fluid has passed through it, to prevent gases from flowing into room.

- **Other system** uses biological blocks which include microbial spores and

  Surfactants which can be placed into any urinal, thus eliminating water use

Other Areas which need attention for water conservation include

1. Identifying and Fixing Leaks
2. Review Leakages periodically& take corrective measures
3. Re-use / Recycle water

7.4.2. Identifying and Fixing Leaks

The hidden water leaks can cause loss of considerable water and energy without anyone being aware of it. A small leak can amount to large volumes of water loss. Leaks become larger with time, and they can lead to other equipment failure. Fix that leaky pipe, toilet, faucet, or roof top tank to save considerable amount of money and water.

7.4.3. Review Leakages periodically & take corrective measures

Regular maintenance of the toilets should be carried out. Test for leaks and make necessary repairs promptly. Keep the toilet in working order by periodically inspecting and replacing flappers and other defective parts.

7.4.4. Rain Water Harvesting and conservation

One of medium of harvesting rainwater is providing the incoming rainwater directly to the ground. This will increase the ground water level of the location and also helps in achieving the ground waterat same or at less level than the existing level,

7.4.5. Rain falls

The normal annual rainfall of Budhlada City (District Mansa) is about 650 mm in 20 days which is unevenly distributed over the district. The southwest monsoon sets in last week of June and withdrawn towards end of September and contributes about 82% of annual rainfall. July and August are the rainiest months. Rest 18% of the annual rainfall occurs during rest of the year in the form of thunder storm and western disturbances. Rainfall in the district increases from southwest to northeast. It is the nearest to the Tar Desert of Rajasthan and also far away from the Major rivers lines that run through the state. Therefore, climatically, the district has a very hot in summer and frequently scorching heat is in full swing. The climate of Budhlada district can be classified as tropical steppe, semiarid and hot which is mainly dry except in rainy months and characterised by intensely hot summer and cold winter.

During three months of monsoon season from July to September, the moist air of oceanic origin penetrates into the district and causes high humidity, cloudiness and good monsoon rainfall. The period from October to November constitutes post monsoon season. The cold weather season prevails from December to February followed by the hot weather season or Pre-monsoon season which ends up to the last week of June.

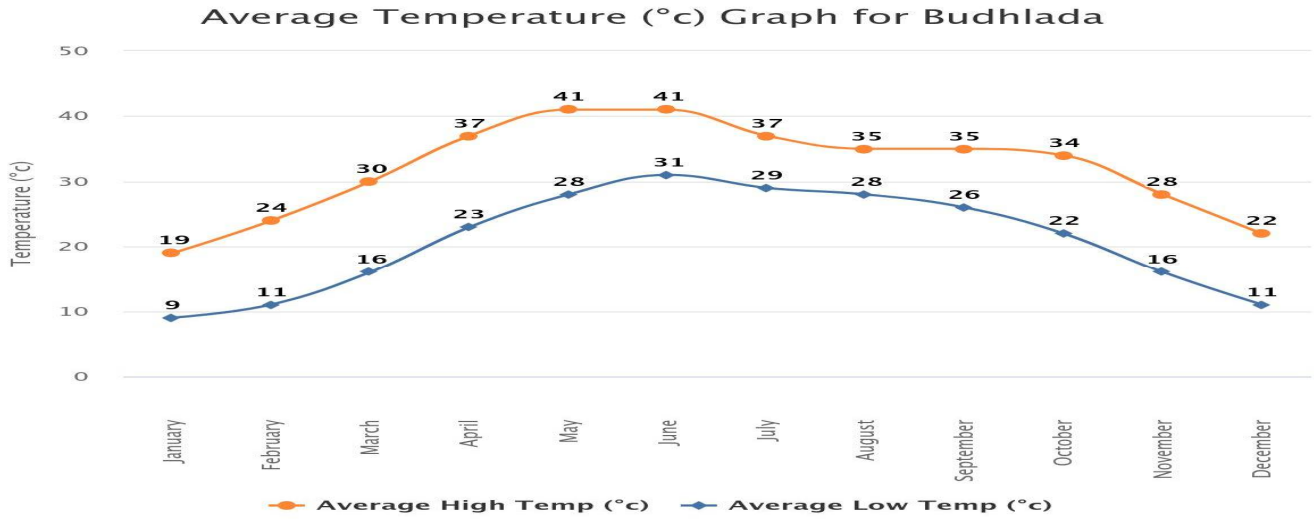
	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	12 °C (53.7) °F	15.2 °C (59.3) °F	20.5 °C (68.8) °F	27.1 °C (80.8) °F	31 °C (87.9) °F	31.5 °C (88.7) °F	28.8 °C (83.8) °F	27.7 °C (81.9) °F	26.7 °C (80) °F	23.7 °C (74.7) °F	18.8 °C (65.8) °F	13.9 °C (57) °F
Min. Temperature °C (°F)	6.4 °C (43.5) °F	8.8 °C (47.9) °F	12.8 °C (55.1) °F	18.4 °C (65.1) °F	22.9 °C (73.2) °F	25.6 °C (78) °F	25.5 °C (77.8) °F	24.7 °C (76.4) °F	22.4 °C (72.3) °F	17 °C (62.6) °F	12.2 °C (54) °F	7.9 °C (46.2) °F
Max. Temperature °C (°F)	18.3 °C (64.9) °F	21.6 °C (70.9) °F	27.7 °C (81.8) °F	34.8 °C (94.7) °F	38.1 °C (100.6) °F	36.8 °C (98.3) °F	32.4 °C (90.3) °F	31.2 °C (88.2) °F	31.2 °C (88.1) °F	30.5 °C (87) °F	26 °C (78.8) °F	20.8 °C (69.4) °F

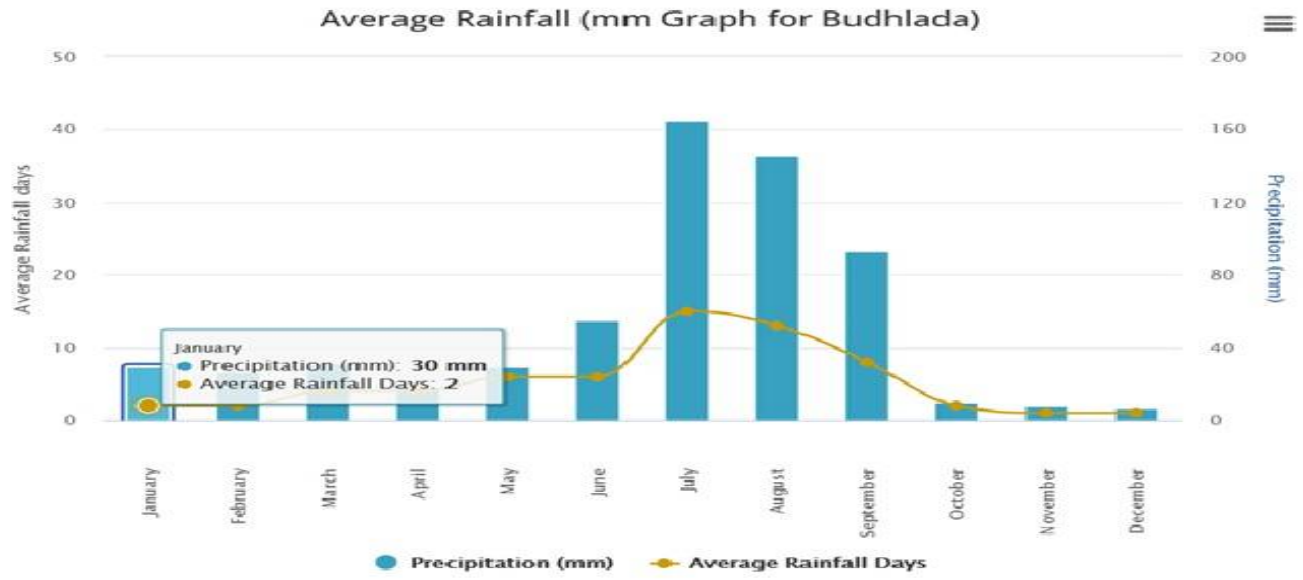
	January	February	March	April	May	June	July	August	September	October	November	December
Precipitation / Rainfall mm (in)	40 (1)	50 (1)	39 (1)	25 (0)	28 (1)	89 (3)	195 (7)	193 (7)	100 (3)	14 (0)	6 (0)	13 (0)
Humidity(%)	73%	65%	50%	30%	30%	46%	75%	80%	73%	55%	56%	66%
Rainy days (d)	3	4	4	4	5	8	16	16	8	1	1	1
avg. Sun hours (hours)	8.4	9.4	10.6	11.6	12.2	11.8	10.2	9.6	9.8	10.1	9.4	8.7

Yearly Weather Scenario of Budhlada Area

The hot season lasts for 2.6 months, from April 22 to July 8, with an average daily high temperature above 36°C. The hottest month of the year in Budhlada is June, with an average high of 40°C and low of 27°C.

The cool season lasts for 2.6 months, from December 3 to February 21, with an average daily high temperature below 24°C. The coldest month of the year in Budhlada is January, with an average low of 9.5°c and high of 20.5°C.





Average Temperature and Average Rainfall of Budhlada Area

7.4.6. Rain water Harvesting: In GNC has constructed one rain water harvesting borewell in college campus which puts rainwater back in underground water table.

RAINWATER HARVESTING BOREWELL IN GNC BUDHLADA

It is however recommended that at least two number of rain water harvesting tanks be constructed in campus in low lying area to arrest the rain water flowing from roads, pathways, roof tops of buildings etc and which can be utilized for landscape irrigation etc.

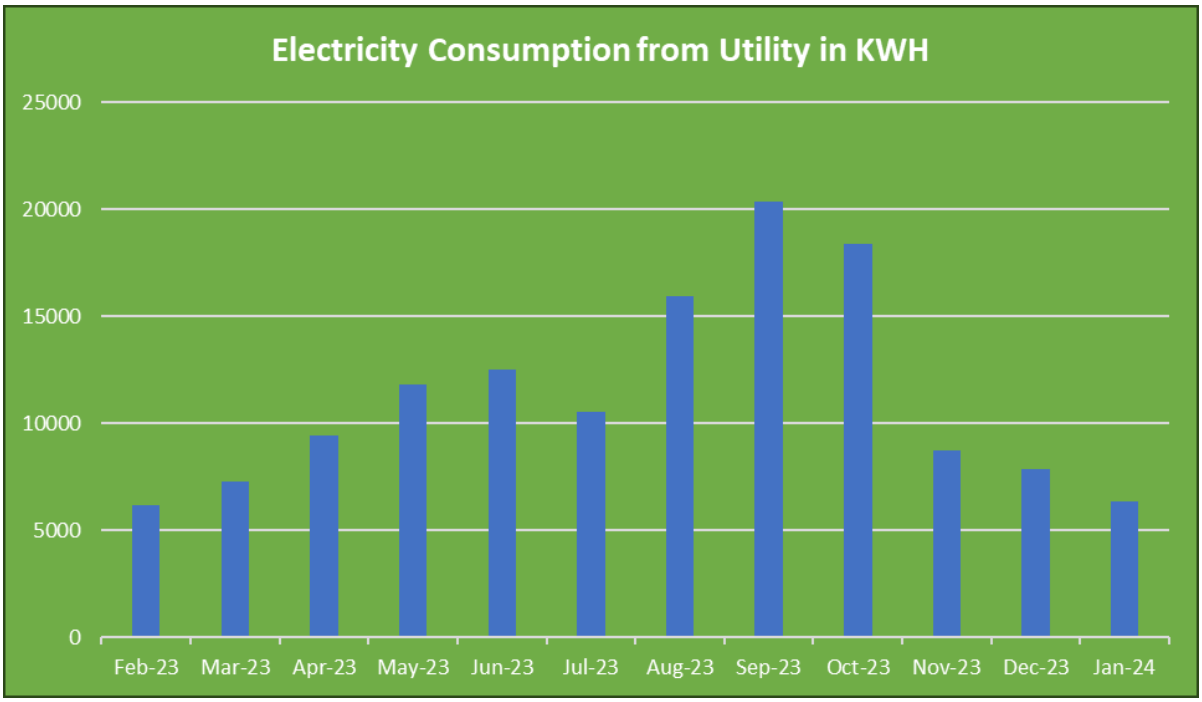
A SCHEMATIC DIAGRAM OF A RAINWATER HARVESTING UNDERGROUND TANK

8. ELECTRICITY CONSUMPTION AND MANAGEMENT

Guru Nanak College, Budhlada draws power from PSPCL through dedicated feeder at 11 KV. The campus has one transformer of 500 KVA to step down the voltage from 11 KV to 433V.

8.1. Detail electricity billing using Solar power

Month-Year	Electricity Consumption from Utility KWH
Feb-23	6144
Mar-23	7286
Apr-23	9412
May-23	11840
Jun-23	12508
Jul-23	10550
Aug-23	15946
Sep-23	20338
Oct-23	18380
Nov-23	8744
Dec-23	7832
Jan-24	6354



8.2 Energy conservation measures

GNC has installed 10 number of Solar Steet Lights in campus to utilize Renewable energy Resources

Solar Power Street Lights in Campus

Representative images of Solar Water Heater and Rooftop Solar Power Plant

8.3. Findings & Comments

The management of GNC is very conscious about energy conservation and has started replacing conventional lighting with LED lighting and some street lights with solar street lights.

It is strongly recommended that:

1. 100 % of FTL and CFLs be replaced with LED Fixtures.
2. Solar Water Heaters be installed in Mess kitchens
3. A rooftop Solar Power Plant as recommended in Energy Audit Report be installed in campus to harness renewable energy and reduce electricity bills and thus reducing carbon emissions.

9. AIR QUALITY ASSESMENT

9.1. The Air Quality Index

The **Air Quality Index** (AQI) is an index for reporting daily air quality. It tells us how clean or polluted the air is, and what associated health effects might be a concern. The AQI focuses on health effects which may experience within a few hours or days after breathing polluted air.

9.2. IN DOOR ENVIORONMENTAL QUALITY

Health and comfortable life is the top most priority of every building user. Corresponding to 1health and wellbeing, the quality of a built environment for its occupant inside a building is referred to as in door environmental quality. Indoor environmental quality involves noise disturbance, occupant density, in door lighting, day lighting, ventilation, room temperature, cleanliness and indoor humidity. All these factors add up and form indoor environmental quality.

The AQI is divided into three categories. **CO2, TVOC & HCHO** Each category has health concern. This is shown below in the table.

AQI Basics for Pollution			
CO2	**TVOC**	**HCHO**	**Description of Air Quality**
< 600 ppm	**< .6mg/m3**	**< .0.08mg/m3**	Air quality is excellent, and air pollution poses no risk.
>600 < 1000 ppm	**>0.6 < 1.6mg/m3**	**>0.08 < 0.12mg/m3**	**Air quality is good.** and air pollution poses no risk..

AQI Basics for Pollution			
CO2	TVOC	HCHO	Description of Air Quality
>1000 ppm	>1.6 **mg/m3**	>0.12 **mg/m3**	**Air quality is not good. Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.**

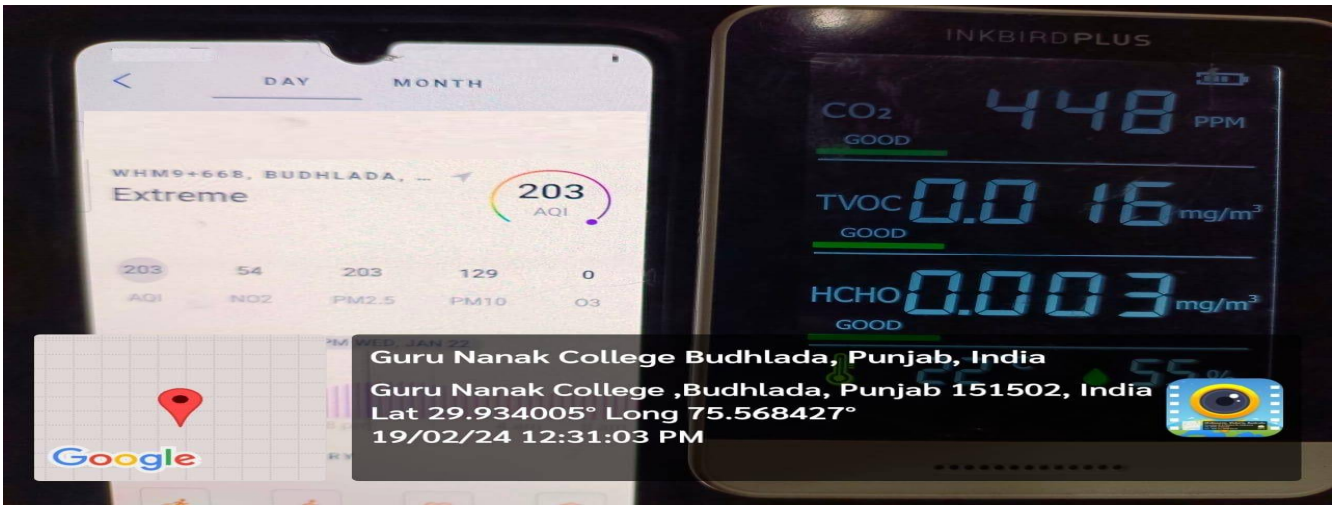
Index	Nitrogen Dioxide, Hourly mean ($\mu g/m^3$)	Sulphur Dioxide, ($\mu g/m^3$)	$PM_{2.5}$ Particles, 24 hour mean ($\mu g/m^3$)	PM_{10} Particles, 24 hour mean ($\mu g/m^3$)
1	0–67	0–88	0–11	0–16
2	68–134	89–177	12–23	17–33
3	135–200	178–266	24–35	34–50
4	201–267	267–354	36–41	51–58
5	268–334	355–443	42–47	59–66
6	335–400	444–532	48–53	67–75
7	401–467	533–710	54–58	76–83
8	468–534	711–887	59–64	84–91
9	535–600	888–1064	65–70	92–100
10	≥ 601	≥ 1065	≥ 71	≥ 101

AQI	Air Pollution Level	Health Implications	Cautionary Statement (for PM2.5)
0 - 50	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	None
51 -100	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
101-150	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151-200	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion
201-300	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
300+	Hazardous	Health alert: everyone may experience more serious health effects	Everyone should avoid all outdoor exertion

9.3. Auditors measured some air quality parameters at different locations in the buildings

Sr No.	Location	CO2 (PPM)	TVOC (mg/m3)	HCHO (mg/m3)	Temperature in ◦C	Relative Humidity in %
1	Admin Block GF	448	0.016	0.003	22	55
2	Park near Main gate	449	0.016	0.004	22	55
3	Near Girls Hostel	447	0.016	0.003	22	55

AQI (µg/m3)	PM 10 (µg/m3)	PM 2.5 (µg/m3)	CO (ppm)	NO2 (ppb)	O3 (ppb)
203	129	203	0.15	54	0



Measuring Air Quality Index and Other Environmental Parameters

Findings: Air Quality Parameters like AQI etc are in Hazardous range. Worth to be noted that AQI during this season in north India does remain in similar range due to dry season and even air speed is too low to disperse pollutants.

10. WASTE MANAGEMENT

Waste management includes the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process.

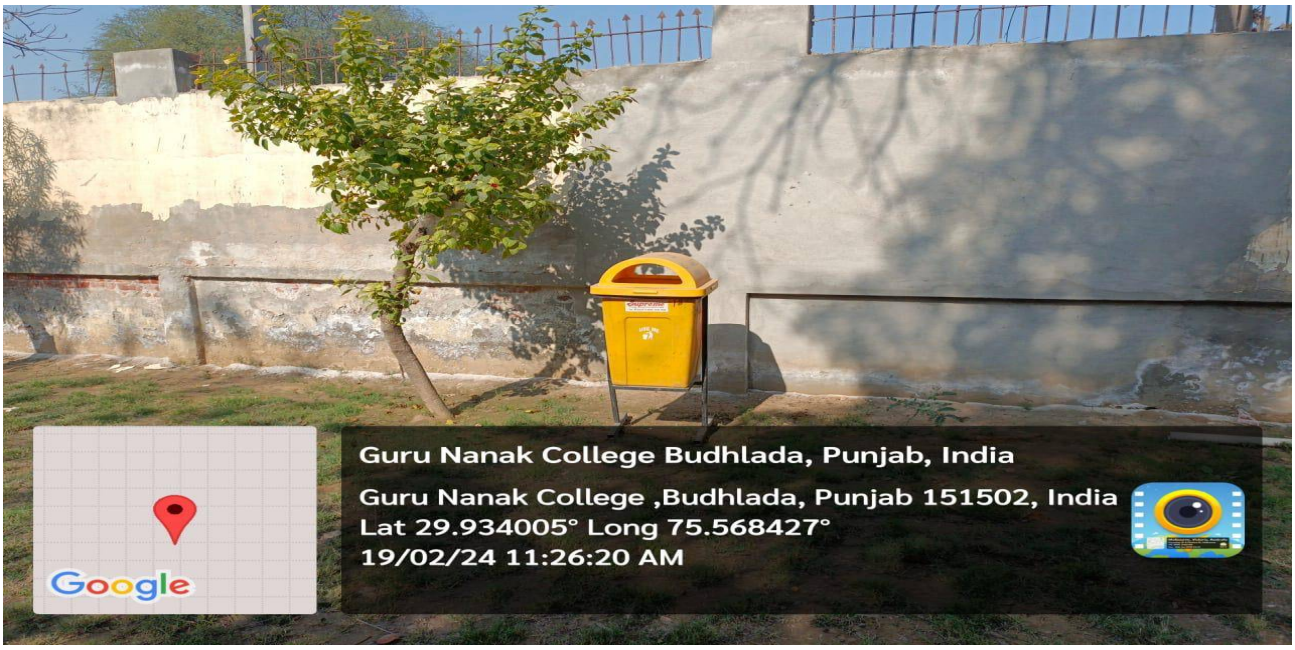
Waste can be solid, liquid, or gas, each type has different methods of disposal and management. Waste management deals with all types of waste, including industrial, biological and household. In some cases, waste can pose a threat to human health. Waste is produced by human activity, for example, the extraction and processing of raw materials. Waste management is intended to reduce adverse effects of waste on human health, the environment or aesthetics.

Waste management practices are not uniform among countries (developed and developing nations) regions (urban and rural areas), and residential and industrial sectors can all take different approaches.

3R (reduce, reuse and recycle) waste management initiatives had positive effects on people's attitudes about resources, waste management and consciousness of the need to avoid waste, but these initiatives did not affect recycling and waste management behaviour. A voluntary approach-only cannot bring about behavioural change. Incentive measures showed a greater positive effect on waste reduction to landfills. Nevertheless, the demonstration projects helped to increase the overall campus recycling from 10 to 12 per cent.

10.1. **Dust Bins & Lifting of Waste**

GNC has placed waste bins for proper segregation of solid wastes in the different locations of the campus. About 48 nos of Sintex Make dustbins of capacity 45 liters have been placed at various location so that staff and students can easily put their trash in them, in addition to this, 32 nos of small dustbins have been placed in various places like classrooms, staffrooms, labs etc.



10.2. Kitchen Waste

The Canteen in GNC runs for all the students, Staff and supporting Staff and has policy of zero food waste policy. It has created awareness for the same through posters in the canteen. The food waste log is maintained daily and makes sure people produce less food waste and as a community GNC excels in reduction of food waste.

For taking care of Solid waste (Dry and Wet) from various buildings, kitchens, canteens, hostels etc, GNC management has tie up for lifting garbage and waste from campus with a local Municipal contractor. The waste collection vehicle of this contractor visits the campus on daily basis for collection of waste which is already separated in Green and Blue dustbins (separate for dry and wet waste). Approximate waste collection tunes to 150-200 Quintals per day.

Waste Collection by Authorized person from GNC Campus for proper disposal

10.3. Sewage Disposal

Since GNC campus is located within municipal limits of Budhlada City, It has proper Sewage pipeline thru which sewage waste is passed off to Municipal Corporation's sewage plant and same is billed to GNC.

10.4 Green Waste: The Green Waste of trees and other plantations is converted into manure as this waste is disposed off in Vermi Compost Pits.

11. BIODIVERSITY IN CAMPUS

Introduction

GNC campus has lush green area, hence, is rich in biodiversity. To conserve this biodiversity, it is important to have an understanding of the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden, we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the university premises and their inter-relationship.

11.1. Objectives:

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

Documentation of the Landscape area use

Documentation of the floral diversity of the area, its trees, herbs, shrubs and climbers.

Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and butterflies.

11.2. Method of Study

Brief methodology for the floral and faunal survey is given below:

The total area was surveyed by walking at daytime.

Sampling was done mostly in random manner

Surveys were conducted for the maximum possible hours in daytime.

Tree species were documented through physical verification.

For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.

Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollow sand leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight. Active invertebrates like the insects require more active search. For larger winged insects like butterflies, random samplings were carried and point sampling was also done.

11.3. Landscape Use

The baseline landscape consumption is calculated as 12.5 Litres/m2/day. Whereas, the actual landscape requirement is done as per the plantation species/trees/turf grass. Also, during the actual calculation the annual impending rainwater is also considered.

However, as the part of landscape demand is catered with the treated water from STP. Hence, the treated water is reduced from the total landscape demand for more feasible solution.

Location	Length (FT)	Width (FT)	Area (Sq.- Ft)
Front of New Building	140	75	10500
Front of New Building (Parking Side)	75	75	5625
Front of old Building right	63	68	4284
front of Library	78	75	5850
Girl Lawn	142	85	12070
Corner side	100	70	7000
Ground			92347.2
Near canteen	90	72	6480
Total			**1,44,156.22**

The total landscape area 144157 Sq. ft in the campus premises utilisese sprinklers and natural ditches to irrigate the green area

Land scape watering schedule

In Summer season – Alternate days

Others-Twice week irrigation

LANDSCAPE WATERING GUIDELINES

How Much & How Often Water to the outer edge of the plant's canopy and to the depth indicated. Watering frequency will vary depending on season, plant type, weather and soil.		Seasonal Frequency - Days Between Waterings				Water This Deeply (Typical Root Depth)
		Spring Mar - May	Summer May - Oct	Fall Oct - Dec	Winter Dec - Mar	
Trees	Desert adapted	14-30 days	7-21 days	14-30 days	30-60 days	24-36 inches
	High water use	7-12 days	7-10 days	7-12 days	14-30 days	24-36 inches
Shrubs	Desert adapted	14-30 days	7-21 days	14-30 days	30-45 days	18-24 inches
	High water use	7-10 days	5-7 days	7-10 days	10-14 days	18-24 inches
Groundcovers & Vines	Desert adapted	14-30 days	7-21 days	14-30 days	21-45 days	8-12 inches
	High water use	7-10 days	2-5 days	7-10 days	10-14 days	8-12 inches
Cacti and Succulents		21-45 days	14-30 days	21-45 days	if needed	8-12 inches
Annuals		3-7 days	2-5 days	3-7 days	5-10 days	8-12 inches
Warm Season Grass		4-14 days	3-6 days	6-21 days	15-30 days	6-10 inches
Cool Season Grass		3-7 days	none	3-10 days	7-14 days	6-10 inches

These guidelines are for established plants (1 year for shrubs, 3 years for trees). Additional water is needed for new plantings or unusually hot or dry weather. Less water is needed during cool or rainy weather. Drip run times are typically 2 hours or more for each watering.

The best irrigation system is sprinkler which is one of effective way to save water, better yield and possibility of using soluble fertilizers and chemicals less problem of clogging of sprinkler nozzles due to sediment laden water

11.4. Findings

Matching with the green and sustainable practices, the college campus has facility for proper sewage disposal, RO drinking water points, solid waste management system and separate parking facilities for 2 and 4 wheelers. Around 60 percent of the total campus area is covered with lush green lawns & plantation covering more than 410 plants & tree species, thus giving adequate oxygen to the students.

11.5. Faunal Species

The list of Fauna indicates that the university campus is significantly rich in faunal diversity. Significant number of bird nests can be seen at many places. Faunal groups with species number

11.6. List of Butterflies

Sr.No.	Common Name	Scientific Name
1	Common Rose	Pachliopta aristolochiae
2	Lime Butterfly	Papitto demolish
3	Tailed Jay	Grapheme agamemnon
4	Small Grass Yellow	Furema Brigitte
5	Common Grass Yellow	Eurema hecabe
6	Common Quaker	Neopithecops Zamora
7	Dark Grass Blue	Zizeeria karsandra
8	Indian Wanderer	Pareronia hippie
9	Lemon Emmigrant	Catopsila Pomona
10	Mottled Emmigrant	Catopsila pyranthe

11.7. List of Birds

No.	Common Name	Scientific Name
1	House Crow	Corvus splendens
2	House Sparrow	Passer domesticus
3	Common Iora	Aegithrna tipsia
4	Common Kingfisher	Alcedo atthis
5	Common Myna	Acridotheres tristis
6	Common Pigeon	CoInmba livia
7	Common Sandpiper	Actitis hypoleucos
8	Common Tailorbird	Orthotomus sutortus
9	Coppersmith Barbet	Megalaima haemacephala
10	Common Hawk Cuckoo	Hierococcyx varlus
11	Common Hoopoe	Upupa epops

11.8. List of Amphibians

No.	Common Name	Scientific Name
1	Frog	Enphldctis cyanophlyctis
2	Indian Toad	Duttaphrynus melanostictus

1.	Birds	15
2.	Reptiles	1
3.	Amphibians	2
4.	Butterflies	22

11.9. Floral species:

The list of FIora indicates a significant diversity of plants which indicates the overall richness of the place. The most diverse group is tree total 964 trees list as below:

Sr.No	Name of Plant	Botanical Name	Family	No. of plants
1	Ficus	Ficus sp.	Moraceae	190
2	Alstonia	Alstonia scholaris	Apocyanaceae	5
3	Amaltas	Cassia fistula	Fabaceae	6
4	Amla	Phyllanthu semblica	Phyllanthaceae	9
5	Arjun	Terminalia arjuna	Combretaceae	15
6	AshokaTree	Saraca asoca	Caesalpiniodae	70
7	Bohad/ Banyan	Ficus benghalenisis	Moraceae	3

8	Hibiscus	Hibiscus sp.	Malvaceae	34
9	Ber	Ziziphus mauritiana	Rhamnaceae	9
10	Araucaria	Araucaria sp.	Araucariaceae	3
11	Bottlebrush	Callistemonviminalis	Myrtaceae	6
12	Bottle Palm	Hypophor belagenicaulis	Arecaceae	45
13	Areca palm	Dypsislutescens	Arecaceae	6
14	Date palm	Phoenix sp.	Arecaceae	40
16	Lantena (West Indian Lantana)	Lantena camara	Verbenaceae	14
17	Cycas	Cycas revoluta	Cycadaceae	9
18	Dek	Melia azedarch	Meliaceae	9
19	China palm	Livistona Chinensis	Arecaceae	2
20	Golden shower tree	Acassia fistula	Fabaceae	1
23	Guava	Psidium guajava	Myrtaceae	14
24	Rose (Gulab)	Rosa indica	Rosaceae	18
25	Kadam (Burflower Tree)	Neolamarckia cadamba	Rubiaceae	4
26	Gulmohar	Delonix regia	Fabaceae	9
27	Harshingar	Nyctanthes arbortristis	Oleaceae	5
28	Cheel tree (Narrow leaved paperbark)	Melaleuca alternifolia	Myrtaceae	1
29	Jamun	Syzygium cumini	Myrtaceae	8
30	Jatropha	Jatropha curcus	Euphorbiaceae	2
31	Kachniar	Bauchinia variegata	Caesalpinaceae	2

31	Kachniar	Nerium oleander	Caesalpinaceae	1
32	Nolina (Ponytail palm)	Beaucarnea recurvata	Asparagaceae	4
34	Lasuda	Cordiamyxa	Boraginaceae	1
35	Mango	Mangifera indica	Anacardiaceae	3
36	Neem	Azadirachta indica	Meliaceae	30
37	Peepal	Ficus religiosa	Moraceae	4
38	Rabish palms	Rhapisexcelsa	Arecaceae	9
39	Rubber Plant	Ficus elastica	Moraceae	1
40	Safeda	Eucalyptus obliqua	Myrtaceae	11
41	Sarien	Albegia lebbeck	Fabaceae	1
42	Sukhchain	Millettia pinnata	Fabaceae	43
43	Tahli	Delbergia sisso	Fabaceae	16
44	Tecona	Tecona sp.	Bignoniaceae	9
45	Cupressus	Cupressus sp.	Cupressaceae	3
46	Ixora (West Indian Jasmine)	Ixora sp.	Rubiaceae	3
47	Furcraea	Furcraea sp.	Asparagaceae	2
48	Marigold	Caltha sp.	Ranunculaceae	200
49	Baheda	Terminalia bellirica	Combretaceae	14
50	Coral tree	Erythrina variegata	Fabaceae	2
57	Bougainvillea	Bougainvillea sp.	Nyctaginaceae	10
58	Mulberry	Genus morus	Musaceae	2
59	Croton	Croton tiglium	Euphorbiaceous	10
60	Tulsi	**holy basil, (Ocimum tenuiflorum)**	Lamiaceae	42
61	Bael	**Aegle marmelos**	Rutaceae	4
Total				964

Besides above, there are some plants / Flowers

List of Grasses

No.	Common Name	Scientific Name
1	Common Carpet grass	Axo nopus sp.
2	Durba	Cynodon dcatyl on

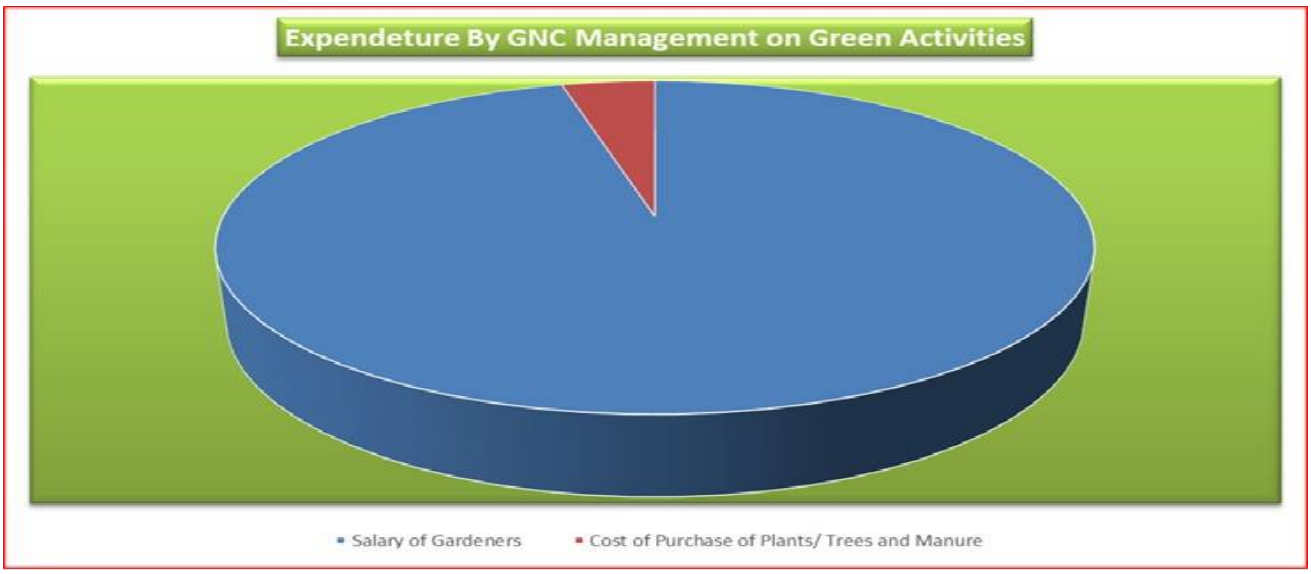
SOME PICS OF LUSH GREEN CAMPUS OF GNC BUDHLADA

Findings:

Biodiversity status of GNC campus found satisfactory.

11.9.1. Expenditure Summary incurred on tree plantation activities / green initiatives taken in last year (April-2022 to March -2023)

S.NO	Name of Activity	Expenditure (Average)
1	Salary of Gardeners	Rs. 1020000
2	Cost of Purchase of Plants/ Trees and Manure	Rs. 43550



Average Annual Expenditure: Rs**. 10,63,550/-** (Rupees Ten Lakh Sixty-Three Thousand Five Hundred Fifty only)

GREEN CAMPUS POLICY OF GNC, BUDHLADA – GNC has a well-defined and implemented Environment and Energy Usage Policy of GNC Budhlada which is enclosed at the end of this report as Annexure - 1.

WASTE MANAGEMENT AND WATER WASTAGE CONSERVATION POLICY of GNC Budhlada enclosed at the end of this report as Annexure – 2

SINGLE USE PLASTIC BAN POLICY of GNC Budhlada enclosed at the end of this report as Annexure – 3

12. RECOMMENDATIONS

- The college campus is no doubt bio diversified but more plantations especially medicinal plantations are required in the campus. Plantation of fruit plants will attract more birds.
- GNC Management should form a Green Monitoring Team which should consist of members from teaching staffs, non-teaching staffs, and students and if possible, try to include some local interested people..
- Air quality monitoring be done on regular basis, especially during crop harvesting season as this area is prone to pollution caused by burning of crop residue by farmers.
- More scope of Rain water harvesting be proposed for the campus.
- Balance conventional lighting be replaced with LED lighting.
- More awareness camps be organized by college students and staff in nearby Villages for subtle (crop residue) management.
- Management must consider installing Solar Power Plant and Solar water heaters in canteens, mess and to harness renewable Solar energy.

13. PROGRAMME AND INITIATIVES

Programme and Initiatives taken by GNC Management and Students for promotion of Green and clean Environment in and around the Campus

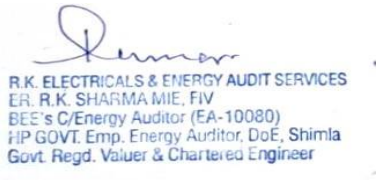
Environmental & health awareness drives are conducted on regular basis in campus by staff and students


GPS Map Camera
Budhlada, Punjab, India
WHM9+5X6, Jakhal Budhlada Rd, Budhlada, Talwandi, Punjab 151502, India
Lat 29.932952°
Long 75.56965°
08/02/24 11:07 AM GMT +05:30
Google


GPS Map Camera
Talwandi, Punjab, India
WHM9+4JR, Talwandi, Budhlada, Punjab 151502, India
Lat 29.932888°
Long 75.568872°
15/02/24 01:00 PM GMT +05:30
Google

14. CONCLUSION

Considering the diversity of GNC, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar power street lights and solar water heater system are noteworthy. Besides, environmental awareness program initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of strategic management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development



For R.K. Electricals and Energy Audit Services

(END OF THE REPORT)

15. CREDENTIALS IN R/O "R.K. ELECTRICALS AND ENERGY AUDIT SERVICES"

15.1. Certificate ISO50001:2018(Energy Management Services)

CERTIFICATE

This is to Certify that the Management System of

R.K. ELECTRICALS & ENERGY AUDIT SERVICES

PROGRESSIVE SOCIETY, 1131, SECTOR 50 B, CHANDIGARH - 160047, INDIA.

has been audited and found to comply with the requirements of:

ISO 50001:2018
(Energy Management System)

For the Scope of activities described bellow:

DEALS IN ENERGY MANAGEMENT, ENERGY, ENVIRONMENT & GREEN AUDITS,

THERMOGRAPHY OF ELECTRIC EQUIPMENT AND ELECTRIC INSTALLATIONS OF BUILDINGS & INSTITUTIONS AND INDUSTRIES.

Certificate No.: 279101

Date of initial registration	*Date of this Certificate*	*Surv. audit on or before/ Certificate expiry*	*Recertification Due*
16-07-2022	*16-07-2022*	*15-06-2023*	*15-06-2025*

Validity of this certificate is subject to successful completion of surveillance audit on or before due date, in case surveillance audit not conducted this certificate shall suspended/cancelled.

Director

This Certificate is the property of LMS Certification Limited and shall be returned immediately when demanded.

KAB-EN-06

LMS Certification Limited
Labrynth Business Centre, 43 Middle Hill Gate, Stockport,
Great Manchester, England-SK1 3DG
Phone :+44 208 935 5094
Company No.: 11029176

15.2. Certificate ISO 9001:2015(Quality Management System)

Certificate of Registration

This is to Certify that
Quality Management System of

R.K. ELECTRICALS & ENERGY AUDIT SERVICES

PROGRESSIVE SOCIETY, 1131, SECTOR 50 B, CHANDIGARH - 160047, INDIA.

has been assessed and found to conform to the requirements of

ISO 9001:2015

for the following scope :

DEALS IN ENERGY MANAGEMENT, ENERGY, ENVIRONMENT & GREEN AUDITS, THERMOGRAPHY OF ELECTRIC EQUIPMENT AND ELECTRIC INSTALLATIONS OF BUILDINGS & INSTITUTIONS AND INDUSTRIES.

Certificate No	: 22EQHU11		
Initial Registration Date	: 01/07/2022	Issuance Date	: 01/07/2022
Date of Expiry	: 30/06/2025		
1st Surve. Due	: 01/06/2023	2nd Surve. Due	: 01/06/2024

mms

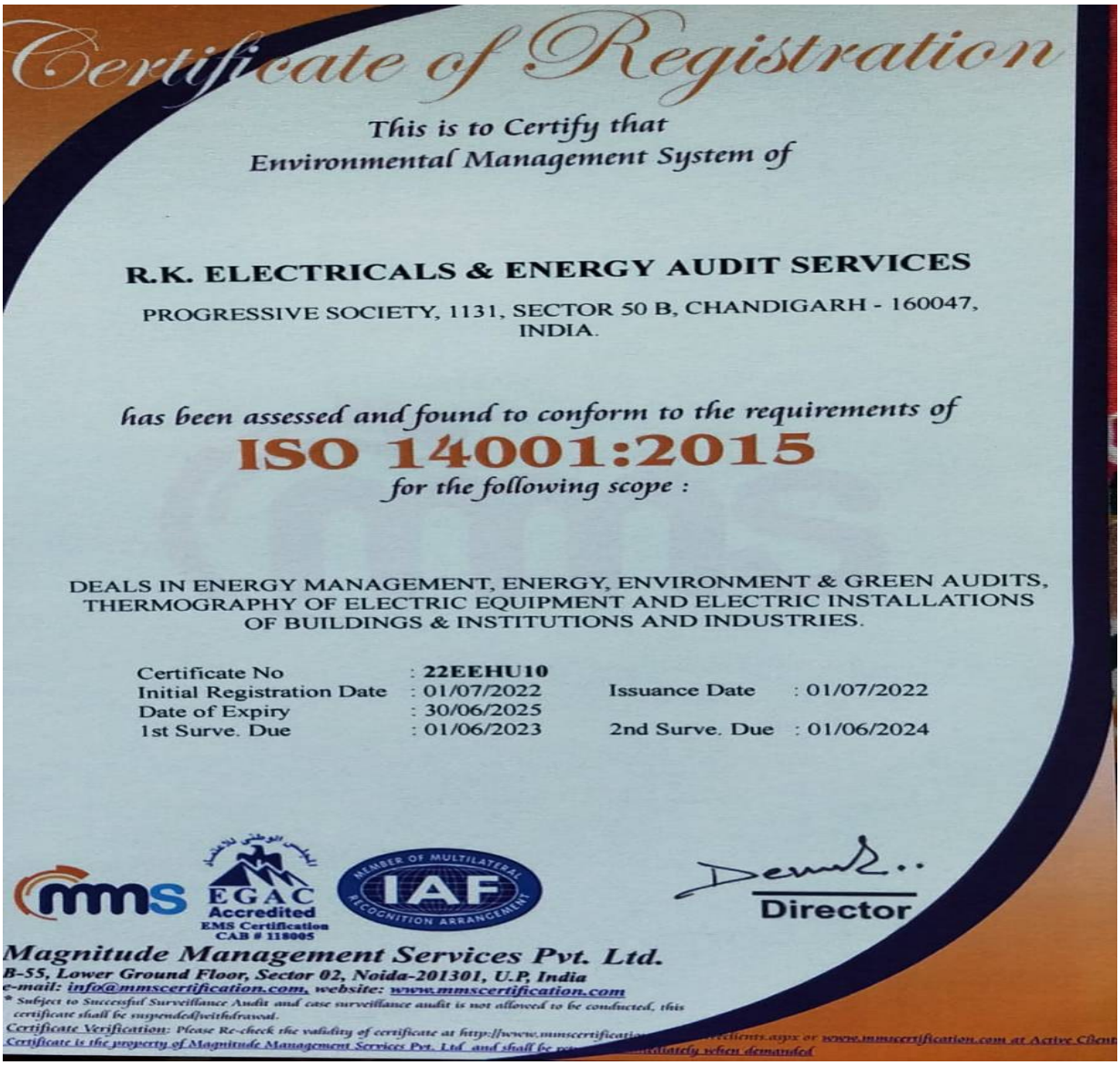
EGAC Accredited QMS Certification CAB # 118005

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

Director

Magnitude Management Services Pvt. Ltd.
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P, India
e-mail: info@mmscertification.com, website: www.mmscertification.com
* Subject to Successful Surveillance Audit and case surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawal.
Certificate Verification: Please Re-check the validity of certificate at http://www.mmscertificatio... ...clients.aspx or www.mmscertification.com at Active...
Certificate is the property of Magnitude Management Services Pvt. Ltd. and shall be ... immediately when demanded

15.3. Certificate ISO 14001:2015 (Environmental Management System)



Certificate of Registration

This is to Certify that
Environmental Management System of

R.K. ELECTRICALS & ENERGY AUDIT SERVICES

PROGRESSIVE SOCIETY, 1131, SECTOR 50 B, CHANDIGARH - 160047, INDIA.

has been assessed and found to conform to the requirements of

ISO 14001:2015

for the following scope :

DEALS IN ENERGY MANAGEMENT, ENERGY, ENVIRONMENT & GREEN AUDITS, THERMOGRAPHY OF ELECTRIC EQUIPMENT AND ELECTRIC INSTALLATIONS OF BUILDINGS & INSTITUTIONS AND INDUSTRIES.

Certificate No	: 22EEHU10		
Initial Registration Date	: 01/07/2022	Issuance Date	: 01/07/2022
Date of Expiry	: 30/06/2025		
1st Surve. Due	: 01/06/2023	2nd Surve. Due	: 01/06/2024

mms EGAC Accredited EMS Certification CAB # 118005 IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

Director

Magnitude Management Services Pvt. Ltd.
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P, India
e-mail: info@mmscertification.com, website: www.mmscertification.com
* Subject to Succesful Surveillance Audit and case surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawal.
Certificate Verification: Please Re-check the validity of certificate at http://www.mmscertificatio... ...ents.aspx or www.mmscertification.com at Active Client
Certificate is the property of Magnitude Management Services Pvt. Ltd. and shall be ... ...immediately when demanded

15.4. Certificate EA-10080 (Energy Auditor Certificate MoP, GoI)

Regn. No. EA-10080 Certificate No. 5591

National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr. / Ms. Rakesh Kumar Sharma

son / daughter of Mr. Krishan Datt

has passed the National Certification Examination for Energy Auditors held in July - 2010, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India

Date : 7th October, 2010

Controller of Examination

15.5. Certificate of IGBC Accreditated Professional (IGBC India)

IGBC

CII Confederation of Indian Industry

The Indian Green Building Council

hereby certifies that

Rakesh Kumar Sharma

has successfully demonstrated knowledge on the Green Building Design & Construction, Building Standards & Codes, IGBC Resources & Processes and Green Design Strategies & their Impacts, required to be awarded the title of

IGBC Accredited Professional

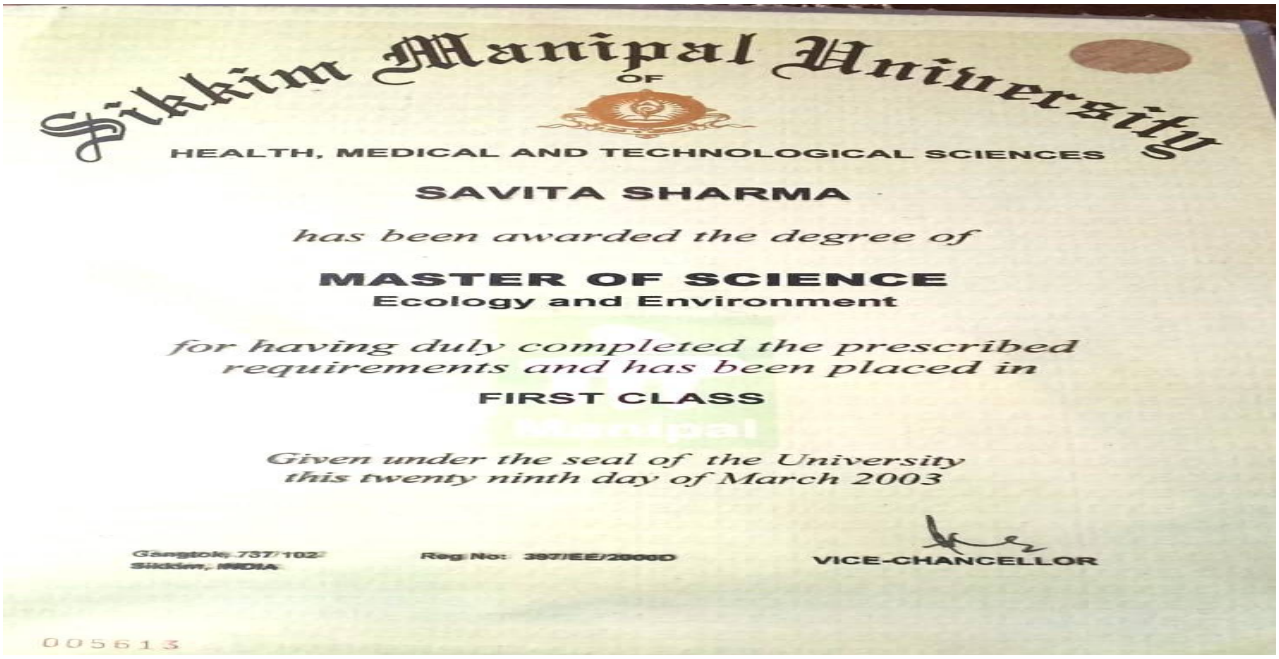
K S Venkatagiri
Executive Director
CII-Godrej GBC

Gurmit Singh Arora
Chairman
Indian Green Building Council

B Thiagarajan
Vice-Chairman
Indian Green Building Council

220022 19-Feb-22

15.6 Certificate of M.Sc. Ecology and Environment



Sikkim Manipal University
OF
HEALTH, MEDICAL AND TECHNOLOGICAL SCIENCES

SAVITA SHARMA

has been awarded the degree of

MASTER OF SCIENCE
Ecology and Environment

for having duly completed the prescribed requirements and has been placed in

FIRST CLASS

Given under the seal of the University this twenty ninth day of March 2003

Gangtok 737 102 Sikkim, INDIA

Reg No: 397/EE/2000D

VICE-CHANCELLOR

005613

15.7. Certificate EA-12433 (Energy Auditor Certificate MoP, GoI)

Regn. No. EA-12433 Certificate No. 6356

National Productivity council

National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr. / Ms. ....Harvinder Singh.....
son / daughter of Mr.....Ujjagar Singh.....
has passed the National Certification Examination for Energy Auditors held in October - 2011, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as **Certified Energy Manager** as well as **Certified Energy Auditor.**

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India
Date : 1st February, 2012

Controller of Examination

Regn. No. EA-19322 Certificate No. 7889

National Productivity council

National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr. / Mrs./ Ms. Paramjeet Singh
son / daughter of Mr.....Barkha Ram
has passed the National Certification Examination for Energy Auditors held in August - 2013, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India
Date : 6th January, 2014

Controller of Examination

Annexure 1: Environment and Energy Usage Policy of GNC Budhlada

Guru Nanak College, Budhlada

Affiliated to Punjabi University, Patiala

Environment and Energy Usage Policy Document

Principal
Guru Nanak College
Budhlada (Mansa)

POLICY DOCUMENT
ON
ENVIRONMENT AND ENERGY USAGE

The Environment and Energy usage policy of Guru Nanak College, Budhlada is to manage energy in such a systematic way so as to minimize its impact on the environment and to invest in sustainable growth through clean energy as it is the only dependable option to sustain life in future. At the institution we understand the immense potential of renewable energy. The policy implies to explore the renewable energy resources to reduce the burden of the government and to find ways to switch to the sources that are energy efficient and renewable. This transition to the renewable energy and to inexhaustible sources of energy will maintain the interest of our planet and its inhabitants. This environment and energy policy is applicable for all the components of the institution and to all its stakeholders and to the various activities undertaken by the institution. It will enable us to become energy independent and efficient in a cost effective way. This policy will help us to realize our responsibilities and commitment to conservation of natural resources about reducing air & water pollution and greenhouse gas emissions and to limit their usage. Waste Management Cell, Environment and Green Audit Committee are devoted to the cause of environmental awareness, to undertake green initiatives and to conduct green literacy programs to save energy and protect the environment.

POLICIES:

- To assess our energy usage and measure its impact on the environment.
- To count CO_2 emissions generated by our means of transportation vehicles.
- To reduce the air pollution emission using environment friendly vehicles like bicycles, public transportation and sharing of vehicles.
- To install LED and Solar lights in the campus and the hostel to save the energy.
- To organize tree plantation drives and make students adopt the trees.

GURU NANAK COLLEGE BUDHLADA IQAC Distt. Mansa, Punjab-151502

Principal
Guru Nanak College
Budhlada (Mansa)

- To develop rain water harvesting and underground water management system.
- To implement the zero-tolerance policy on single use plastic in the institution.
- To host awareness programs about the importance and benefits of energy conservation measures.
- To encourage faculty and students to switch off lights, fans, air conditioner and electrical appliances in labs and classrooms when not in use.
- To generate awareness about segregation of the waste.
- To adopt paperless measures to minimize impact on nature.
- To get Green Audit, Environment Audit and Energy Audit done by internal committee having external members.
- To organize seminars/lectures on the initiatives that should be undertaken to conserve energy and natural resources.
- To use sprinklers to water lawns and playgrounds to meet emission reduction target.
- To engage in dialogue with the government agencies, municipal corporation and the affiliating university and local institutions to collaboratively work for the promotion of sustainable environment.

The policy is communicated to the students and employees through internal communication channels. The environment and energy usage policy, objectives and targets are monitored periodically by the Waste Management Cell, Environment and Green Audit Committee under the guidance of the principal of the college.

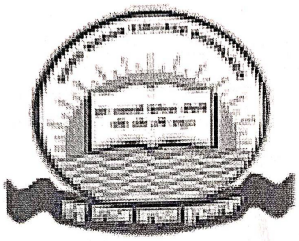
GURU NANAK COLLEGE BUDHLADA Distt. Mansa, Punjab-151502

Principal
Guru Nanak College
Budhlada (Mansa)

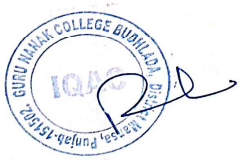
Annexure – 2 Waste Management and Water Wastage Conservation Policy of GNC Budhlada

Waste Management & Water Wastage Conservation Policy

(Committed to build a clean planet & healthy community)



Guru Nanak College Budhlada
Punjab 151502
NAAC 'A' Grade Accredited
(Affiliated with Punjabi University, Patiala, Punjab)
Email: gncbudhlada@yahoo.co.in



Principal
Guru Nanak College
Budhlada (Mansa)

Summary

Guru Nanak College realizes sustainable and holistic waste management and is committed to reduce, reuse, recycle and recover of waste that assures clean environment. The institution has sustainable waste management strategy to minimize the effect of environmental footprint and to provide safer and healthy surroundings to all employees and students. The purpose of formulating this policy is to establish suitable action plans of waste management and to ensure their implementation. This policy revolves around the 3 R's (Reduce, Reuse, and Recycle) aspect of waste management .

Policy statement

The institution has very strong determination for not to harm the natural environment. Institution will make efforts to implement the suitable action plans to achieve aim of environment friendly clean and green campus. The institute will adopt the principles of the 'best practicable environmental friendly options' in the delivery of its waste management services. Institution will apply 'Waste Hierarchical Approaches' that is prevention, reduction, recycle and reuse in waste management.

Fig-1 Waste Hierarchy system

1. The Institution shall adopt the best suitable practices keeping view of environmental issue in the waste management services and ecological resource conservation.

Principal
Guru Nanak College
Budhlada (Mansa)

2. The Institution will apply a 3R's (Reduce, Reuse and Recycle).
3. The Institution will promote **water conservation** by water harvesting.
4. The Institution will share the process practices with students and local community for the promotion of clen environment.
5. The institute will focus on the proper management of E-waste generated in college campus.

Policy Objective:

Our Institution will work with following objectives under waste management:

1. To promote sustainable and holistic approach for the waste management and green initiative.
2. To popularize possible practices of waste management that minimize environment footprint with stakeholder.
3. To develop new ideas and concepts of waste management by need based in waste-based issue.

Waste Management Advisory Committee

Institution Waste Management Committee is constituted by having Principal as the chairperson, members from teaching staff, non-teaching staff and students.

Principal (Chairperson)

IQAC Coordinator

One teaching faculty from every department

Superintendent

Accountant

Student Representative

Member of Budhlada Municipal Corporation

Principal
Guru Nanak College
Budhlada (Mansa)

Along with above mentioned committee the college has also formed another Waste Management and Campus Cleanliness Committee to organized various waste management activities and awareness programmes for the house keeping staff, students and faculty and to achieve the targets of clean and green campus.

Responsibilities:

- Waste management committee shall have the overall responsibility to ensure the compliance of the waste management policy. Committee members shall have to coordinate for all the related activities and to ensure logistics support for collection, segregation, transport, treatment, disposal and reuse of solid and liquid waste generated in the institution.
- The teaching faculty representative of each department shall have the responsibility to monitor individual department's waste resources, to plan possible solutions and to ensure the proper waste disposal.
- Non-teaching staff like lab assistants are well-trained for the proper handling of lab wastage to minimize the wastage by proper use of chemicals, proper handling of water and safe disposal of chemicals etc.
- Gardeners and other house keeping staff are instructed to collect plant-based residue for decompose into compost pit as per instruction.
- Student representatives, attached with working committee, are committed to inform about the maintenance of sanitation and hygiene, proper cleaning and proper management of waste.

Policy for the Solid Waste Management

i) Produced waste in institution premises is collected, segregated and stored in three separate colored bins meant for biodegradable, non-bio-degradable and hazardous wastes and is handed over to authorized waste pickers/waste collectors (Budhlada, Municipal Corporation) from time to time.

ii) Daily sweeping of roads, class rooms, departments, washrooms, and hostel.

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iii) In Institution premises RO water supply is installed in each block for students and students can not bring plastic bottles and in canteen area single use plastic is strictly banned.

iv) Plant residue waste generated from institution is collected and dumped into compost pit size of 8ft x 3 ft x 1.5 ft (LxWxD) for production of compost as per the directions of Waste Management Committee.

v) The institute has 'zero tolerance policy' and 'Use and Throw' items like plastic cups, plates, cans etc. are strictly prohibited. Only reusable glasses and cups and plates are used to serve food.

vi) In college premises students and other faculty staff not allowed to throw, burn or burry the solid waste generated in classrooms, offices, laboratories, corridors, streets, roads, canteen etc. in open places.

vi) Reuse of one side printed paper for internal communication has been managed.

Water and Waste-water Management

Our Institution will undertake very precise efforts to control wastage of water through:

1) Conserving water through efficient fixtures as well as to adopt rain water harvesting practices.

2) Minimizing wastage of water in campus is ensured by plumber to maintain proper distribution and water storage system.

4) Reusing and recycle wastewater originating from institution activities in a sustainable manner.

5) The institute has installed RO/ Water storage tank and auto-cut tap to control the wastage of water.

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Annexure – 3 Single Use Plastic Ban Policy of GNC Budhlada

Guru Nanak College Budhlada
Distt. Mansa-151502
Under the Management of S.G.P.C., Sri Amritsar Sahib
Affiliated to Punjabi University, Patiala
NAAC Accreditation 'A' Grade
Selected Under 'Star College Scheme' by DBT, GOI
ESTD.1971

Single Use Plastic Ban
GURU NANAK COLLEGE, BUDHLADA

Every product has a shelf life however, that is not the case with plastic. Use of plastic is leading to one of our planet's greatest environmental challenges. Macro, micro and nano plastic threatens not only wildlife, but also humans. A large and unquantifiable amount of plastic waste enters the soil, air, water bodies and ocean from littering, burning, unsustainable management, unmanaged landfills and consumerist attitude. Many reports highlight that either reducing or recycling products could bring multiple environmental and economical benefits, yet the opportunities remain untapped. According to The World Economic Forum study done on plastic pollution around the world, Oceans will have more plastics than fish by the year 2050, if plastic pollution continues to increase. India's contribution to plastic waste that is dumped into the world's oceans every year is 60%. UN plays a major role to beat the plastic which has become a big threat to the society. After the establishment made by the UN Environment experts on plastic pollution, the Governments across the world are beginning to take action against plastic.

India is one of the developing countries which consumes more plastics and needs efficient laws to control and prevent plastic waste pollution. Implementing toughest laws in the country enables to control plastic waste and introduces measures to recycle and reuse the plastic which helps to safeguard the environment and make the nation one of the environment friendly countries. Sikkim was the first state to ban plastic in India in 1998 and it even targets to ban use of packaged drinking water and check Styrofoam and thermocol disposal to out down toxic pollution and garbage disposal. This has been succeeded by the Swachh Bharath Campaign (Clean India Campaign). Major responsibility for implementing the rules is in the hands of

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Central Pollution Control Board and State Pollution Control Boards or Pollution Control Committees and also with the State Departments of Environment. India has imposed a ban on single use plastics (SUPs) from 15-7-2019 . SUPs are defined as those items which are completely made of plastics and are non-biodegradable.

The University Grant Commission (UGC) had taken a massive leap to eliminate plastic from Universities and Higher Educational Institutions by launching 'Swachhata Hi Sewa Campaign' on 10-09-2019, to ban the use of the plastic. University Grants Commission issues the following guidelines for the higher educational institutions in the country.

Guidelines

Scope of guidelines

a) These guidelines are applicable to all the higher educational institutions (HEIs) across the country.

b) They encourage HEIs (universities and colleges) to adopt policies and practices towards cleaner and plastic-free campuses.

1. All the HEIs in the country shall strive to make their campuses 'plastic-free' by systematically banning the use of plastic and replacing the same with suitable environment-friendly substitutes.

2. Every HEI shall:

a) Ban use of single-use plastics in canteens, shopping complexes in the institution's premises and hostels, etc.

b) Carry out awareness drives and sensitization workshops on the harmful impacts of single-use plastics.

c) Mandate all students to avoid bringing non-bio-degradable plastic items to the institution.

d) Encourage their students to sensitize their respective households about the harmful effects of plastics and make their households 'plastic-free'.

e) Install necessary alternative facilities like water units to avoid the use of plastic water bottles, and encourage the use of alternative solutions like cloth bags, paper bags, etc, instead of plastic bottles, bags, covers, and other goods on campuses.

3. All HEIs which have adopted villages under Unnat Bharat Abhiyan shall undertake a campaign in their adopted villages till they are converted into 'plastic-free villages' by promoting awareness and encouraging the shift to alternative products.

Similarly, The All India Council for Technical Education (AICTE) has issued guidelines for ban of plastic use in Higher Education Institutions.

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Guidelines

1. All institutions to carry out awareness drives and sensitising workshops on the harmful impacts of single use plastics.
2. Ensure plastic-free campuses in the institutions. Students and faculty must work towards this in mission mode. Usage of plastics should be stopped in canteens, shopping complexes in the institution's premises and hostels, etc. Students may not be permitted to bring non-bio-degradable plastic items to the institution.
3. Every student will strive to make his or her household plastic free
4. Students to be incentivized to carry out similar campaigns at community level
5. Installation of necessary alternative facilities like water units to avoid the purchase and use of plastic water bottles.
6. Ensure presence of alternative solutions like cloth bags etc., to plastic bottles, covers and other goods on campuses.
7. Conducting events and poster competitions etc. on designing ecological and environment friendly goods to minimize the use of single use plastic.

Following the guidelines, Guru Nanak College, Budhlada encourages the ban of single use plastic in the campus and the hostels. Given the broad range of possible actions to curb single-use plastic, the college has drawn up a roadmap to effectively reduce the plastic footprint in the campus. The college has constituted a waste management and campus cleanliness committee to conduct surprise checks on the campus, hostels and canteens.

- **Target the most problematic single-use plastic**

Single-use plastic has seemingly snuck into every corner of modern life. The most effective way to tackle plastic pollution is to identify single-use plastic based products being used in the institution. The college has identified the following single-use plastic product highly used in campus and hostels:

Plastic Bags: Plastic bags are used in college canteen to sell daily commodities and food items. Students also bring plastic bags from shops outside the campus. Plastic bags create a plethora of problems like clogging sewers and providing breeding grounds for mosquitoes and pests. Plastic bags can also increase the transmission of vector-borne diseases like malaria. Moreover, high concentrations of plastic materials, particularly plastic bags, have been found blocking the airways and stomachs of hundreds of species. Plastic bag bans can effectively counter one of the causes of plastic overuse.

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- **Identify and engage key stakeholder groups and Raise public awareness**

The next step is, of course, engaging our students, teachers, non-teaching staff and visitors. One of the best ways to get stakeholders connect with the issue is to let them see for themselves the scale of the problem; how the plastic they use in their everyday lives is spilling out into nature.

Organizing regular clean up events inside college premises, or at a local park, adopted village will sensitize the students and the general public about hazardous repercussions of plastic waste.

Besides this, different events like poster presentation, power point presentation, short documentaries, theater performances will also help to understand significance of single use plastic ban initiative of the college.

- **Promote alternatives**

It is more expensive to clean up tomorrow than to prevent plastic pollution today. The college will endeavor the use of different alternatives for highty used plastic products in the college. Reducing plastic in the canteen and hostel mess can be implemented, as returning to the system we had 10-20 years ago, where reusable cutlery, plates, trays, and cups were washed and reused time and again. The college canteens could take a bold stance by simply not selling plastic bags and bottles at all. The students and staff can have drinking water readily available via water filters, jugs, and taps; and strongly encourage the students to bring reusable water bottles.In case of alternative drink choices, try juices and milk drinks in refillable glasses; or drinks in cans and glass bottles. When it comes to college events such as fairs and parties;Instead of using wasteful disposables, the use of reusable cups, plates and cutlery and storing them between events at the college should be preferred.

- **Segregation of waste sources**

The solid waste management rules, 2016, state that it is the onus of generators to segregate waste into three categories — wet, dry and hazardous waste. The college has implemented segregation of waste at sources using bio-degradable, non-biodegradable and domestic hazardous waste bins and handovers segregated wastes to authorized waste pickers or waste collectors as per the direction or notification of the local authorities. It is utmost important to enforce the selected measures effectively. The committee monitors the ban of plastic bags and Styrofoam products to reduce other plastic waste in college.

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