Dada Ramchand Bakhru
Sindhu Mahavidyalaya
Nagpur

Criteria 7 Institutional Values and Best Practices

Key Indicator 7.1

Institutional values & Social responsibilities

NAAC Reaccredited
B+ Grade
(3rd cycle)

Affiliation
Rashtrasant Tukadoji
Maharaj Nagpur University

National ID
सत्यमेव जयते
AISHE
All India Survey on Higher Education

https://www.drbsmvnagpur.ac.in

Dada Ramchand Bakhru
Sindhu Mahavidyalaya
Nagpur

Criteria - 7
Institutional Values and Best Practices

7.1

Institutional Values and Social Responsibilities

7.1.3

Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following

1. Green audit / Environment audit
2. Energy audit
3. Clean and green campus initiatives
4. Beyond the campus environmental promotion and sustainability activities

Dada Ramchand Bakhru Sindhu Mahavidyalaya Nagpur

Declaration

This is to declare that the information, reports, true copies and numerical data, etc. furnished in this file as supporting documents are verified and found correct.

Officiating Principal
Dada Ramchand Bakhru
Sindhu Mahavidyalaya, Nagpur-17

NAAC Reaccredited
B+ Grade
(3rd cycle)

Affiliation
Rashtrasant Tukadoji
Maharaj Nagpur University

National ID
सत्यमेव जयते
AISHE
All India Survey on Higher Education

POLICY DOCUMENTS

&

ENERGY USAGE CERTIFICATES

POLICY DOCUMENT ON THE GREEN CAMPUS/PLASTIC FREE CAMPUS

Our Institute is dedicated to creating a sustainable and environmentally conscious campus for the benefit of current and future generations. By adhering to the principles outlined in this policy, we aim to reduce our ecological footprint, promote environmental stewardship, and inspire positive change within our students and beyond neighborhood community. Our Institute take many initiatives for Green campus and Plastic free campus.

1. RESTRICTED ENTRY OF AUTOMOBILES

- Encourage the use of alternative modes of transportation such as walking, cycling and public transit by restricting vehicular access to certain areas of the campus. We encourage faculty members and students for use of bicycle and car/two-wheeler pooling.
- Designate specific areas of the campus as car-free zones where only authorized vehicles, such as emergency vehicles and service vehicles are allowed entry.
- Ensure that restriction on automobile access do not hinder accessibility for individuals with disabilities or for medical reasons.
- Encourage students and faculty for the use of combination of cycling or battery - powered vehicle usage with public transport like metro, electric auto, NMC operated e-bus, and carpooling which helps automobile free campus their by enabling environmental free campus.
- By restricting automobile entries and promoting alternative transportation options our institute aims to create a safer, healthier and more sustainable campus environment for all members of the community.

2. USE OF BICYCLES/BATTERY POWERED VEHICLES

- Promote cycling as a sustainable and healthy transportation option through educational campaigns, events.
- Provide information on the environmental benefits, cost savings and health advantages of choosing sustainable transportation options.
- Develop and maintain a separate parking for bicycle across the campus feel safe by bicycle users.
- Organize cycling events engage the campus community and encourage active transportation habits.
- Encourage the use of battery-powered vehicles (e.g., electric scooters, electric car) as eco-friendly alternatives to traditional vehicles.

.

3. PEDESTRIAN FRIENDLY PATHWAYS

- By prioritizing pedestrian-friendly pathways, our Institute aims to create a welcoming, accessible and inclusive campus environment that promotes active living, community engagement and sustainable transportation choices.
- Designate pedestrian-friendly pathways throughout the campus, prioritizing safety, accessibility, a comfort for pedestrians.
- Ensure pathways are wide enough to accommodate pedestrian traffic comfortably.
- Ensure that pedestrian with disable friendly pathways are accessible to individuals and disables also.

4. PLASTIC FREE CAMPUS

- By implementing a comprehensive ban on single-use plastics, our Institute demonstrates its commitment to environmental stewardship, waste reduction and the preservation of natural resources for present and future generations.
- Launch educational campaigns and awareness initiative to inform the campus community about the environmental impact of single-use plastics and the importance of the ban.
- Display signages at various prominent places in the campus to bring awareness among the students.
- Organize events to promote sustainable practice and encourage behavior change.
- Encourage the use of reusable alternatives and provide water refill stations for reusable bottles.
- Enforce the plastic ban through regular inspections, monitoring and enforcement measures.

5. LANDSCAPING WITH TREES AND PLANTS

- By prioritizing landscaping with trees and plants, our Institute aims to create a vibrant, sustainable and resilient campus environment that enhances biodiversity, promotes ecological health and enriches the quality of life for all members of the community.
- Incorporate a diverse range of trees and plants species to enhance biodiversity, reduction in CO_2 emission and ecosystem health on campus.
- Plant trees and shrubs create a welcoming environment and improve air quality.

- Involve the campus community in tree planting initiatives within and outside the campus and volunteer opportunities to foster a sense of ownership, aesthetic value and ambience in campus landscapes.
- Encourage collaboration with local community groups, environmental organizations and government agencies to promote tree planting campaigns and urban greening efforts.

6. ENERGY EFFICIENCY

- Implement energy-saving measures such as LED lighting, sensor light and energy-efficient appliances like fans.
- Encourage the use of public transportation, cycling and carpooling to reduce carbon emissions from commuting.
- Explore renewable energy options such as solar panels to meet campus energy needs.

7. WASTE MANAGEMENT:

- As college campus generates a significant amount of waste, its management is a major concern to protect the environment, health and well-being. It is ensured through implementation of effective waste management practices such as segregation, recycling and composting.
- For growing consciousness of generating less waste, controlling 'throw away' lifestyle and proper waste management practices, awakening is done through programs, advertisement on notice boards, displaying slogan boards in the campus.
- Gardeners help in segregation of waste. Waste management on college campus ensure compliance with local bodies regulation thereby enable to protect the environment, save money, create educational opportunities and engage the community.

SOLID WASTE MANAGEMENT:

- Waste is collected on a daily basis from various sources and is separated as **dry and wet waste**.
- Color coded bins (green for wet and blue for solid waste) have been installed in the campus for waste segregation.
- Non-biodegradable garbage is collected and handed over to authorized NMC personnel.

- Waste material like papers, practical's record books etc. are collected and sold out to scrap vendor from time to time.
- Biodegradable solid waste such as garden and kitchen waste is used in the vermi-culture to convert into organic manure in the form of vermi-compost and vermi-wash.

LIQUID WASTE MANAGEMENT:

- By implementing liquid (chemicals) management practices, our institute ensures the safe handling, storage, and disposal of chemicals on campus, minimizing risks to personnel, facilities, and the environment.
- The waste chemicals and liquid waste mixed water from laboratory passes through efficiently designed Chemical Waste Management System (CWMS).
- All the Toilet blocks of the campus are connected to sewage line network of the campus. The line is connected to Nagpur Municipal Corporation Main sewage line.

E-WASTE MANAGEMENT

- The latest development of digitalization and the computerized reforms is another way which contributes to the waste in form of e-waste. For the e-waste management College has provision of special e-waste bins at convenient place for exclusive collection of tiny electronic waste and has requested employees and students to drop such electronic wastes in the bins for disposal.
- For proper disposal of e-waste institute has collaboration with 'The Recycling Company (Threco Recycling LLP)' to recycle in an eco-friendly manner.

8. WATER CONSERVATION

- By implementing comprehensive water conservation measures, including rainwater harvesting and ground water recharge initiatives, our institute demonstrates its commitment to sustainable water management and environmental responsibility within the campus community and beyond.
- Educate the campus community through workshops, educational campaigns, and outreach programs to promote water-saving behaviours and encourage individuals to take actions to conserve water in their daily lives.
- From the view point of harvesting rain water in the institute, proper pipelines are connected with the building roofs to that of ground water recharge pits which is filled with stones and sand. Thus, rain water from the roof is properly channelized in the ground water recharge pits which assist in recharging the open well
- Rain water from the roof top fitted with other pipelines is allowed to percolate in the ground.
- In order to increase the water holding capacity, trees are planted and more area is covered under plantation to recharge underground water reservoir.
- Protect and preserve natural water recharge areas such as open well to maintain hydrological balance and sustain groundwater resources.

System Report

Galaxy Solar

Name : Sindhu Mahavidyalaya	KW : 13	Phase : Ph 3ph	Time : 1:15 Date: 25/3/21		Commissioning Date : 5 Feb 19				
Inverter Reading			Str/MPPT 1	Str/MPPT 2	Str/MPPT 3	Str/MPPT 4	Str/MPPT 5	Str/MPPT 6	
Today :	31.7	DC Voltage :	555	532					
Yesterday:	47.4	DC Current :	6.4	7.0					
~~This month~~	303.7		Ph 1	Ph 2	Ph 3	Str/MPPT 7	Str/MPPT 8	Str/MPPT 9	
Last month:	1231	AC Voltage :	229	241	246				
Total :	75645	AC Current :	9.9	9.9	9.8				
No. of Panels:-	39	Power :	6986	Inverter make :	Power ABB				
Gen. meter	74776	Import :	50985	Panel make & Wp :	Navitas 335 wp				
End Clamp Checked:- ✓		Export :	35514	Panel Condition :	Normal Dusty.				
Mid Clamp Checked:- ✓		Crimping Check :	✓	Inverter Condition :	Good				
ACDB/DCDB Check : ✓	O&M Engineer Name :- Vaibhav			Client Signature:-					

*Fault related to:-
1. DC Wiring :-
2. AC wiring :-
3. MC4 Connector :-
Type of fault & its troubleshooting Method :-

Name :	KW :	Phase : Ph	Time : Date:-		Commissioning Date :			
Inverter Reading			Str/MPPT 1	Str/MPPT 2	Str/MPPT 3	Str/MPPT 4	Str/MPPT 5	Str/MPPT 6
Today :		DC Voltage :						
Yesterday:		DC Current :						
This month:			Ph 1	Ph 2	Ph 3	Str/MPPT 7	Str/MPPT 8	Str/MPPT 9
Last month:		AC Voltage :						
Total :		AC Current :						
No. of Panels:-		Power :		Inverter make :				
Gen. meter		Import :		Panel make & Wp :				
End Clamp Checked:-		Export :		Panel Condition :				
Mid Clamp Checked:-		Crimping Check :		Inverter Condition :				
ACDB/DCDB Check :	O&M Engineer Name :-			Client Signature:-				

*Fault related to:-
1. DC Wiring :-
2. AC wiring :-
3. MC4 Connector :-
Type of fault & its troubleshooting Method :-

Energy usage certificate

Energy Audit Report

Dada Ramchand Bakhru Sindhu Mahavidyalaya, Nagpur (Year 2022-23)

Prepared by

Onkar Services

Aggregators of National & International Quality Audits

Officiating Principal
Dada Ramchand Bakhru
Sindhu Mahavidyalaya, Nagpur-17

Acknowledgement

We at Onkar Services, Nagpur, express our sincere gratitude to the management of DRB Sindhu Mahavidyalaya, Nagpur for awarding us the assignment of Energy Audit of their college premises.

We are also thankful to academic & administrative staff members for helping us during the field measurements.

We hope that the recommendations stated in this report will be useful and worthy of discussions to take things forward to help implementation of energy conservation measures through energy savings. While we have made every attempt to adhere to high quality standards, in both data collection and analysis through the report, we would welcome your suggestions so as to improve upon this report further.

Vaishali Udar

Director,
Onkar Services, Nagpur

Officiating Principal
Dada Ramchand Bakhru
Sindhu Mahavidyalaya, Nagpur-17

Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the Energy Consumption & mitigate the CO_2 emissions. College consumes Energy in the form of Electrical Energy used for various gadgets, Office & other facilities.

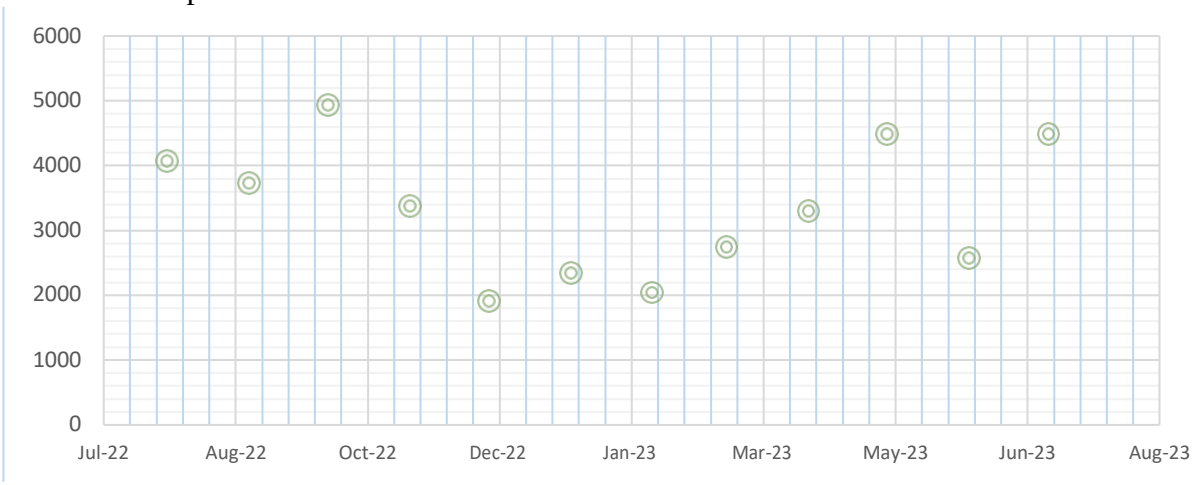
Present Energy Status

Number of Electricity Board meters /Sources : 05 (02 Three Phase + 03 single Phase)

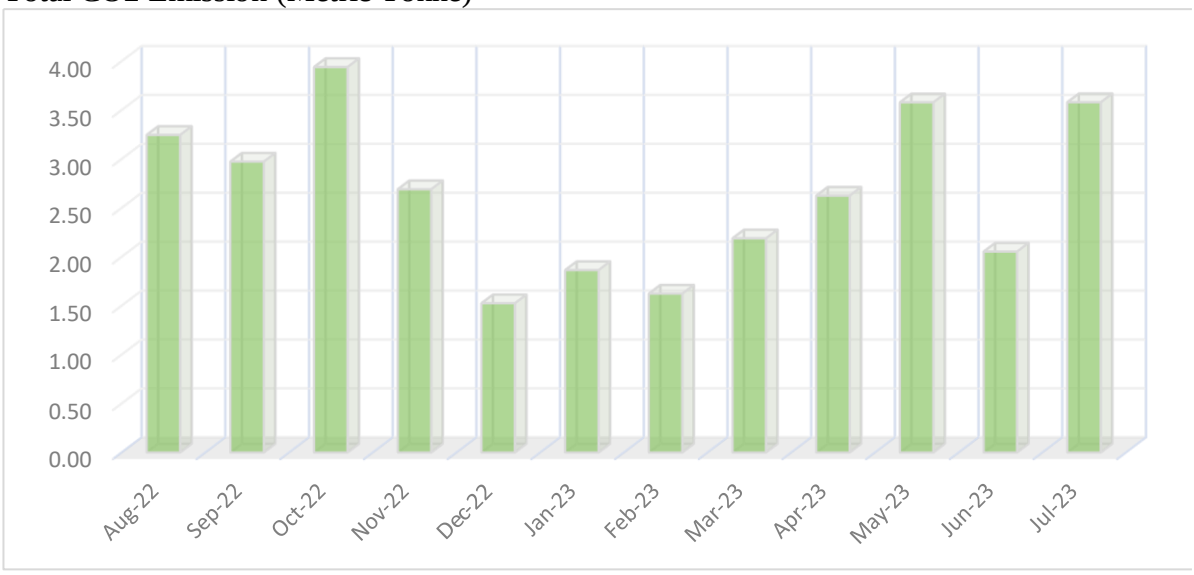
Installed : Across time line of 50 years

Analysed consumption :

Total Consumption



Total CO2 Emission (Metric Tonne)

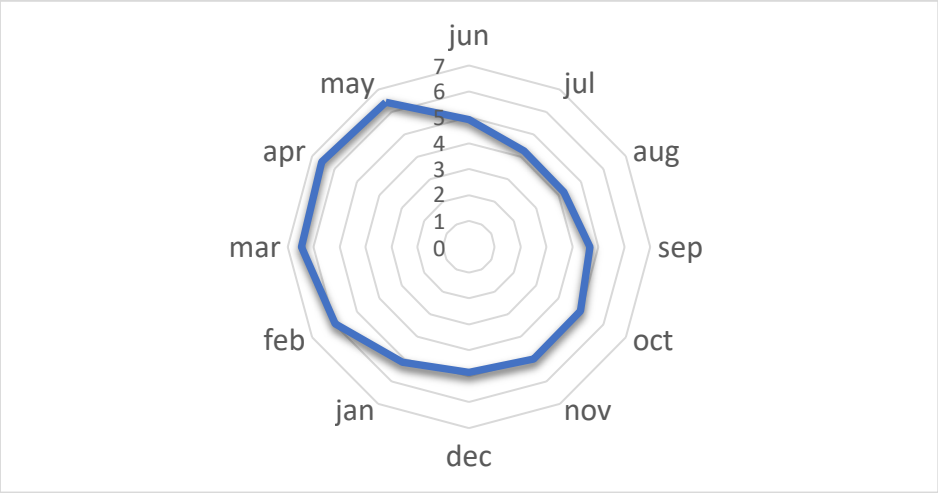


Officiating Principal
Dada Ramchand Bakhru
Sindhu Mahavidyalaya, Nagpur-17

Grid Connected Rooftop System (GCRT)

Capacity 13 kW

Analysed Generation



Solar Rooftop Calculation

Average solar irradiation in MAHARASHTRA state is 1266.52 W /sq.m

1kWp solar rooftop plant will generate on an average over the year 5.0 kWh of electricity per day

1. Size of Power Plant	13kW
2. Cost of the Plant :	
MNRE current Benchmark Cost (without GST) :	Rs. 38236 Rs. / kW
3. Total Electricity Generation from Solar Plant :	
Annual :	19500kWh
4) Financial Savings :	
Tariff @ Rs.8/ kWh (for top slab of traffic) - Monthly :	Rs. 13000
Carbon dioxide emissions mitigated is	400 tonnes
This installation will be equivalent to planting	640 Teak trees over the life time. (Data from IISc)

Disclaimer: The calculation is indicative in nature. Generation may vary based on maintenance condition & location.

Officiating Principal
Dada Ramchand Bakhru
Sindhu Mahavidyalaya, Nagpur-17

Energy Conservation Status

Usage of STAR Rated ACs at new installations	
Usage of STAR Rated Laboratory Equipment	
Usage of STAR Rated Computer / Gadgets	
Usage of LED lights at indoor / outdoor locations	
Usage of sensor based lighting	
Usage of power efficient fan	
Earthing	

 Available / Good

 Good on energy consumption, needs recycling

 Proposed replacement in Phases

 Needs improvement

Continue practice to replace old electrical lighting with New LED / BLDC systems

New distribution panel and re-segmentation of load, is needed

Solar Power generation should be increased by 15 kV additional along with high earthing

Automation & sensor based gadgets can be incorporated wherever necessary & feasible

Next Energy Audit is suggested only after major changes or after end 2 years validity of this report.

Officiating Principal
Dada Ramchand Bakhru
Sindhu Mahavidyalaya, Nagpur-17