केल्यानें होत आहे रे I आधीं केलेंची पाहिजे II

Bhartiya Shikshan Prasarak Sanstha Amabajogai's

Shri Siddheshwar Mahavidhalaya, Majalgaon





Internal Quality Assurance Cell

Criterion 7-Institutional Values and Best Practices

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 activities

IQAC Coordinator

Website:www.ssmm.ac.in Co-Ordinator IQAC

Shri Siddheshwar Mahavidyalaya Majalgaon Dist. Beed (M.S.)



Principal
Principal
Shri Siddheshwar Mahavidyalaya
Majalgaon,Dist.Beed 431 131

norgy Hudit Certificate (Hiper Green Building Parameters)

The study is conducted as per Indian and International Green Building Standards initiated in the capacity of an Accredited & Certified Green Building Professional

It is awarded for 2021-2022 and 2022-2023 to the Esteemed Institution

(Analysed for 2 years and extended validity for 1 year, thus total 3 years)

Bhartiya Shikshan Prasarak Sanstha's

Shri. Siddheshwar Mahavidyalaya

Majalgaon, Beed District-431131, Maharashtra, India

We appreciate the immense efforts taken by Staff and students towards the Energy Management and Conservation. As part of the Institution's initiatives for a Healthy & Sustainable Institute the audit was conducted

Issued on Thursday, 04 May 2023 and valid till 30 April 2024

Ar. Nahida Abdulla Shaikh

"Elite 100 Green Architects of India" Econaur, 2022

Certifiec Green Building Professional (Registration. No. 22/718)

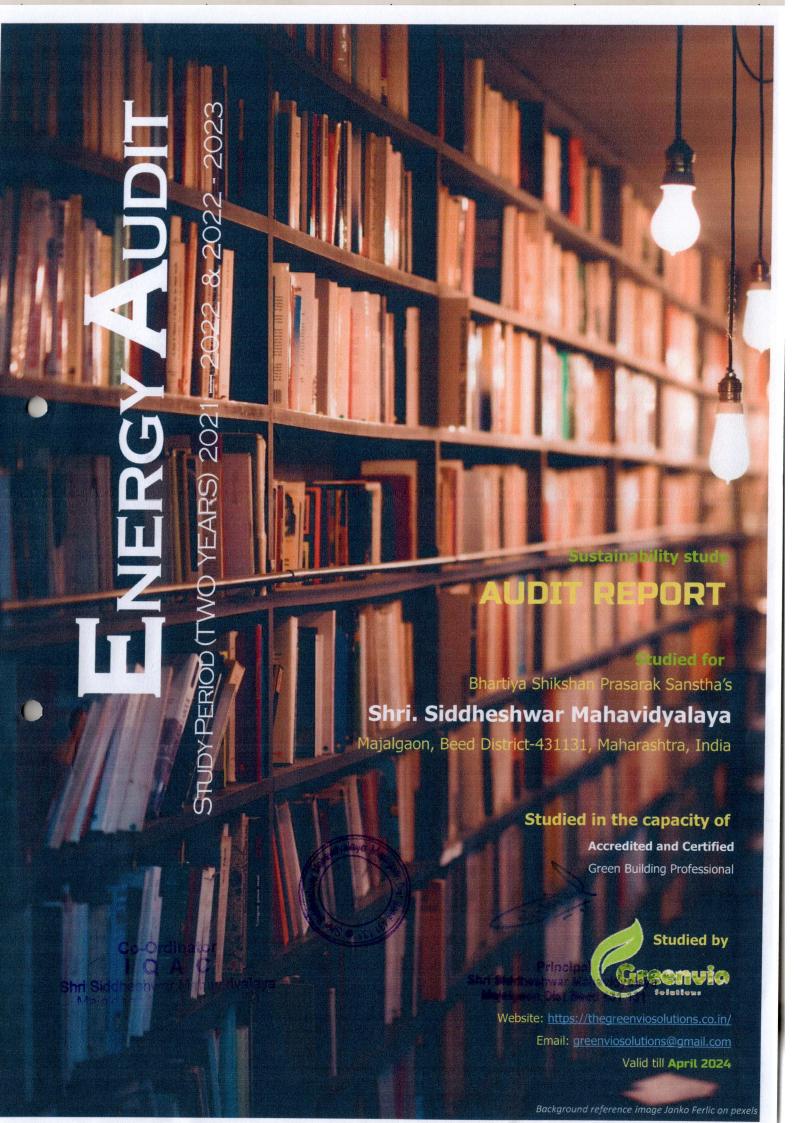
Project Head and Green Building Professional-Consultant

Sustainable Academe I Sustainability Department of Greenvio Solutions, Naigaon An environment Design and Comsultancy developing Healthy and Sustainable Environments Email: sustainable academe@gmail.com I greenviosolutions@gmail.com



Wabsite: https://thegreenviosolutions.co.in/





Disclaimer

The Audit Team has prepared this report for the **Bhartiya Shikshan Prasarak Sanstha's Shri. Siddheshwar Mahavidyalaya** located at <u>Majalgaon, Beed District-431131, Maharashtra, India</u> based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inspection and investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm with the Project Head - Ar. Nahida Shaikh who is as an Accredited and Certified Green Building Professional-Architect. Green Building consultancy is her forte and she is one of the most sought after names when it comes to providing excellent quality services within the stipulated time frame.

The Study is conducted in capacity of Accredited & Certified Green Building Professional with extensive experience.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

<u>Sustainable Academe</u> is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com





Contract of the Contract of th

Principal

Start State President Mehavidy shay a

Majelgeen, Dist. Beed 431 131



Acknowledgement

The Audit Assessment Team thanks the **Bhartiya Shikshan Prasarak Sanstha's Shri. Siddheshwar Mahavidyalaya, Maharashtra, India** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Mr. Jitesh Dullabhdas Chapasi**, President; **Mr. Vishnu Shyamrao Kulkarni**, Secretary and everyone from the Management.

Our heartfelt thanks to Chairpersons of the entire process **Prof. Suhas Morale,** Principal for their valuable inputs.

We are also thankful to **College's Task force the faculty members** who have collected data required - **Dr. Vinayak Deshmukh**, IQAC Co-ordinator; **Dr. Gajanan Honna**, Vice-Principal; **Dr. Youvraj Muley**, Vice-Principal; **Dr. Sanjay Pawar**, Chairman Criteria VII; **Dr. Swati Kulkarni**, Member Criteria VII and **Dr. Jijaram Bagal**, Member Criteria VII

We highly appreciate the assistance of **Mr. Uttareshwar Anewar**, Office superintendent; **Mr. Pramod Nandgaokar**, Attendant and the **entire Teaching**, **Nonteaching and Admin staff** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208



Co-Ordinator
I Q A C
Shri Siddheshwar Mahavidyalaya
Majalgaon Dist. Beed (M.S.)

Control of

Principal Shri Shhiheshwar Mahavidyalaya Majalgaon,Dist.Beed 431 131



Contents

D	isclaimer	1
A	cknowledgement	2
Co	ontents	3
1.	Introduction	4
	Overview	
3.	Research	9
4.	Investigation	10
5.	Documentation	11
6.	Suggestion	15
7.	References	18







Principal
Shri Siddheshwar Mahavidyalaya
Majalgaon, Dist. Beed 431 131



1. Introduction

1.1 About the Institute

A few educationalists in Bhartiya Shikshan Prasarak Sanstha, Ambajogai, understood that 'education is the most powerful weapon which you can use to change the world' with this understanding Shri. Siddheshwar Mahavidyalaya, Majalgaon started on 15 June 1996.

- The College has achieved an 'A' grade in Academic and Administrative Audit by the parent university.
- ⇒ The Government of Maharashtra appreciated the NSS unit of our College as the Best NSS unit.
- ⇒ The District Election Officer too has awarded the College with an Appreciation letter.

The College organizes many skill based and value added courses. Students are encouraged to participate in various competitions and training organized by the parent university and various Colleges.

The College motivate undergraduate students of all faculties to research attitudes during graduation, additionally research facilities are provided for Ph.D. students in the subjects: Economics, Sociology, Political Science, History, Marathi, Hindi, Zoology, Botany, and Physics.

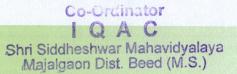
Vidyasabha, the think tank of the institution design and implements the year plans for teaching-learning. The teaching-learning process is partially ICT enabled with an audio-visual facility. All the curricular, co-curricular, and extra-curricular activities of the College aim to develop the holistic personality of learners and aim towards making healthy and moral citizens.

College staff has started a scheme of funds to help economically backward students and bring them into the stream of hassle-free education.

The College begins with the national anthem and any program is concluded with the shanti mantra or Pasaydan, which reflects the name of the institution.

MYS O VE

Principal



Guma

1.2 Statements of the Institution

1.2.1 Vision

The College proposes <u>"To build a tradition of ideal citizens loyal to democracy, virtuous, scholarly, morally sound and nationalist through Indian education."</u>

1.2.2 Mission

The College adheres and focuses towards:

- Nation building through man making and character building.
- To adopt requisite pedagogies for quality awareness of knowledge and skills among the students for fulfilment of national and international requirements.
- To promote the competencies of the students by imparting value added education to face challenges of rapid changing world.
- To promote teachers and students to undertake academic activities and training programmes related with higher education.

1.2.2 Aim

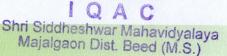
The College has formulated the following aim "<u>To render quality education for the rural area students and to bring transformation in the life of people residing in the rural area of Majalgaon tehsil."</u>

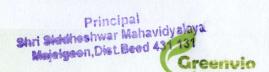
1.2.4 Objective

It is the objective of the College

- To promote facilities of higher education in rural areas.
- To provide graduate and post graduate education under various faculties in and around Majalgaon area.
- To provide adult and continuing education services.
- To implement schemes and projects for all round development of students.
- To create awareness among youth about development and self-reliance.
- To contribute in social awaking and social change through education.

 Co-Ordinator





1.3 Assessment of the Institute

1.3.1 Affiliations

The Institute is affiliated to **Dr. Babasaheb Ambedkar Marathwada University**, **Aurangabad.**

1.3.2 Certification

The College has received AISHE - The All India Survey of Higher Education code is C-34440.

1.3.3 Accreditation

The following are details of the accreditation awarded by the National Assessment & Accreditation Council (NAAC) to the College.

Cycle	First	Second
CGPA	1.89	2.46
Grade	С	В
Year	2014	2021

Table 1: NAAC Accreditation details of the Institute

The College is due to enter its Third cycle of NAAC.

1.3.4 Recognitions

The College has upgraded in the teaching level – Under graduate to Post graduate in the section 2(f) and 12 (B) of the University Grants Council Act, 1956.

Co-Ordinator
I Q A C
Shri Siddheshwar Mahavidyalaya
Majalgaon Dist. Beed (M.S.)

Avalaya Managara

Principal
Shri Shidheshwar Mahavidyalays
Majalgaen, Dist. Beed 431 131



2. Overview

2.1 Summarised Populace analysis for 2022-2023

2.1.1 Students data

The data (shared by the Institute) shows there were a total of **426 male and 431** female students.

2.1.2 Staff data

S. No.	Туре	Male	Female	Total
1	Admin staff	04	01	05
2	Teaching staff	22	03	25
3	Non-Teaching staff	14	02	16
Total Staff Members		40	06	46

Table 2: Staff data of the Institution for 2022-2023

The staff data shows the College premises had a total of 46 Staff Members.

2.2 Summarised Populace analysis for 2021-2022

2.2.1 Students data

The data (shared by the Institute) shows there were a total of **419 male and 396** female students.

2.2.2 Staff data

S. No.	Туре	Male	Female	Total
1	Admin staff	04	01	05
2	Teaching staff	22	02	24
3	Non-Teaching staff	14	02	16
Total S	taff Members	40	05	45

Table 3: Staff data of the Institution for 2021-2022

The staff data shows the College premises had a total of 45 Staff Members.

Co-Ordinator
I Q A C
Shri Siddheshwar Mahavidyalaya
Majalgaon Dist. Beed (M.S.)

Principal
Shri Siddheshwar Mahavidyalaya
Majalgaon, Dist. Beed 431

2.2 Total College Area & College Building Spread Area

The total site area is 1.3 acres and the total Built-up area of the Institute is 46,016 sq. ft. for an approximately 903 footfalls.

2.3 Institute Infrastructure

2.3.1 Establishment

The Institute was established in 15 June 1996...

2.3.2 Spatial Organisation

There are provisions for staircase for accessibility on the premises, whereas there are amenities such as CCTV, a first aid room, etc. The Institute is located prettyclose to nature and hence has a very fresh environment which is absolutely pollution free and healthy. The Building is a Reinforced Cement Concrete (RCC) framework building.

2.4 Operation and Maintenance of the premises

The interview session was held with the staff regarding the operation and working hours. The Institution is open from Monday to Saturday for around 08:00 hours to 17:30 hours.

Malaya Malalaga Andrews Andrew

Principal Shri Shrimenhwar Mahavidyalaya Mejalgaen,Dist.Beed 431 131



3. Research

3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution sustainable and healthy premises for its inhabitants.

3.2 Analysis of the Green Building Study Audit

The procedure included detailed verification as follows:

- Investigation
- Technical discussion with team
- Observations
- Inferences

3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from the admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collection, and preparation of the Report.

3.4 Activities undertaken for the Green Building Study Audit

- Discussion with the Institute
- Allotment and Initiation by the Institute
- Data collection
- Submission of the files

Co-Ordinator

I Q A C
Shri Siddheshwar Mahavidyalaya
Majalgaon Dist. Beed (M.S.)



Control.

Principal
Start Statement With Start Statement With Start St



4. Investigation

4.1 Sources analysis

The primary and secondary sources of energy consumption are based on the electrical supply through the local government.

4.2 Energy efficiency analysis

4.2.1 Energy efficient practices for alternative sources

- The premise should have solar panels installed. Additional provisions such as solar hot water heaters, solar parking etc., should be introduced in the near future.
- The premise has LED Lights contribute to 100% in terms of number and 100% of the power requirement is met through the same. As per our study we could conclude that both of these numbers should improve.

4.2.2 Energy efficient equipment

- The premise has LED Lights in multiple spaces.
- The air conditioners are BEE star labelled appliances and new.
- There are no energy efficient fans in the premises.

Co-Ordinator

Shri Siddheshwar Mahavidyalaya Majalgaon Dist. Beed (M.S.) Nasya Majalaga On Salaga Salag

Principal
Shri Siddheshwar Mahavidyalaya
Malakaon Dist Beed 431 131



5. Documentation

5.1 Primary sources of energy consumption

The premise uses following sources of energy consumption.

- Electrical (Metered) Light, Fans, Equipments, Pumps comprise these sources.
- Renewable energy There are no sources to harness solar energy in the premises.

5.2 Secondary sources of energy consumption

The premise uses batteries, inverters and UPS as backup for administrative purposes.

5.3 Actual Electrical Consumption as per Bills

The College spends a substantial amount on electricity bills every month. However, we would like to recommend the use of alternate sources of energy to harness the electrical loads and reduce the monetary expenses.

Sr. No.	Year	Units consumed	Amount
1	2020	6,000 Approximately	50,000
2	2021	7,000 Approximately	70,000
3	2022	8,475 Approximately	75,280

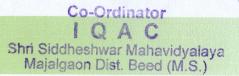
Table 4: Details of the electrical consumption

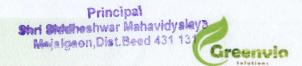
5.4 Calculated Electrical Consumption as per inventory

The electricity bills provide actual consumption data. The following is the calculated consumption. It is done to understand the percentage of energy usage in the premises by various applications. It is based on the inventory collected and interviews with the staff.

The additional data such as wattage is taken from market research. In terms of electrical consumption, the main sources are lights, fans, air conditioner, and equipment. The

MYS ()





inventory and data collection for sources of energy consumed in the premise in summarised in the following sections.

The following documentation is based on the consumption practice of the premises on a regular working day.

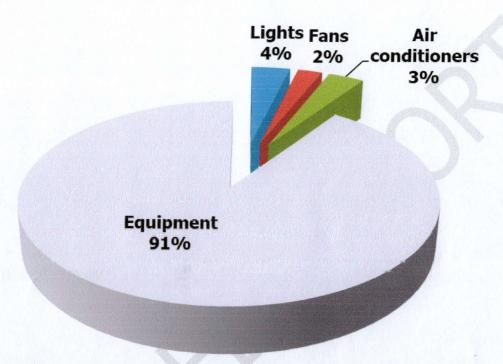


Figure 1: Summary of the calculated electrical consumption as per inventory

The above graph shows that equipment consumes 91% whereas the lights consume 4% while the air conditioners consume 3% and the fans consume 2% of the total calculated electrical energy.

5.5 Lights

5.5.1 Types of lights based on the numbers

There are a total of **101 LED lights on the premises;** the following table shows the various types of lights on the premises.

SHYS .

5.5.2 Types of lights based on the power consumption

The energy consumption of lights is 3,866 kWh of energy

Principal Steri Sterimentwar Mahavidyalaya Majalgeon, Dist. Beed 431 131

Greenvia

Shri Siddheshwar Mahavidyalaya Majalgaon Dist. Beed (M.S.)

Co-Ordinator

5.6 Fans

5.6.1 Types of fans based on the numbers

There are a total of **53 fans** on the premises as follows:

S. No.	Туре	Nos.
1	Ceiling fans	37
2	Exhaust fans	4
3	Table fans	3
4	Wall mounted fans	9

Table 5: Summary of the types of fans in the premises

5.6.2 Types of fans based on the power consumption

The energy consumption of fans is 2,492 kWh of the energy.

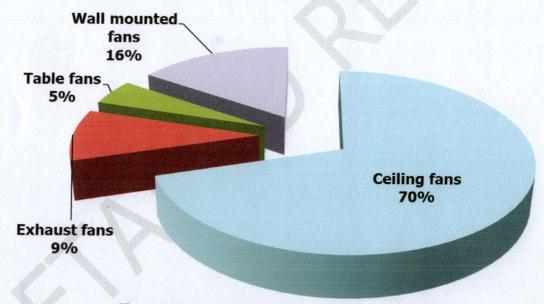


Figure 2: Types of fans based on power consumption

The above analysis shows the **Ceiling fans consume 70%** whereas the **wall mounted fans consume 16%** while the **exhaust fans consume 9%** and the **table fans consumes 5%** of the total power.

ava Mars

5.7 Air conditioners

5.7.1 Types of air conditioners based on the numbers

There is 1 air conditioner in the entire premises.

Principal
Shri Siddheshwar Mahavidyalaya
Majalgaon,Dist.Beed 431 131





5.7.2 Building-wise consumption analysis

The energy consumption of air conditioners is **3,630 kWh** of energy.

5.7.3 About the replacement of current air conditioners

The current air conditioners are well maintained, though there is not an immediate requirement for replacement however, whenever the College undergoes redevelopment there can be provisions for replacement with energy-efficient appliances or new air conditioners that require less power consumption.

5.8 Equipment

5.8.1 Types of Equipment

There are 87 nos. of equipment in the Educational sector.

5.8.2 Types of equipment as per their energy contribution

The energy consumption of equipment is **96,893 kWh** of energy.

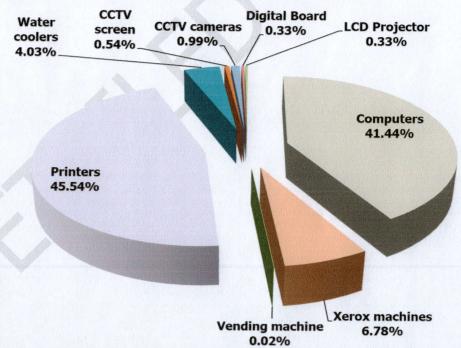


Figure 3: Energy consumed by types of equipment in the educational sector based on the usage study

The above summary shows that the **printers consumes more energy at 45.54%** while the **desktop computers consumes 41.44%** the **Xerox machines consumes 6.78%** and the **water cooler consumes 4.03%** these are the maximum consumers as compared to other equipment.

Principal
Starl Statement Wahavidy alaya
Maisigeen, Dist. Beed 431 131

Greenvio

Shri Siddheshwar Mahavidyalaya Majalgaon Dist. Beed (M.S.)

Co-Ordina

6. Suggestion

6.1 Section-wise suggestions

The following suggestions are to be considered as a *first priority* for implementation. These **should be executed within the next 1.5 to 2.5 years from the date of the Report submission.** The Institute can execute a plan after discussion with Project Head.

6.1.1 Electromechanical systems - Electrical and Lighting Section 1 - Non-LED lights

The current light analysis shows that Non-LED lights consume anywhere between 50W to 54W and even more when in use; these should be replaced with LED lights which consume on an average 12-16W when in use. Our technical analysis shows that there would be a reduction of an average of 67% reduction in energy consumption through lights specifically as a part of the electro -mechanical system if all Non-LED lights on all floors are replaced with an energy efficient appliance whenever the College undergoes renovation.

Section 2 - Ceiling fans

The current Fans are in proper working conditions and maintained well. The ceiling fans are in more quantity and consume at least 45W when in use. These should be replaced with energy efficient fans consuming 14W when in use. Our detailed study states that is all the **ceiling fans on all floors** if replaced with star rated appliance results in a reduction of average of **69% reduction** in energy consumption if replaced with energy efficient appliance. It will be suggested to either replace these now if College can have certain plans else the replacement can be done when fans get damaged or are not in working condition.

BHUS @

Principal Shri Shidheshwar Mahavidyslaya Maiskaen,Dist.Beed 431 131

I Q A C
Shri Siddheshwar Mahavidyalaya
Majalgaon Dist. Beed (M.S.)

Co-Ordinator



6.2 General suggestions

The following details are consolidated study recommendations related to 'entire Institute' and should be considered as **second priority** for implementation, once the section wise recommendations are implemented. The following recommendations should be **implemented within 2.5 to 3.5 years from the date of the Report submission.**

6.1.1 Alternatives to increase renewable energy – Solar farms

This option can be explored with due discussion with the surrounding and adjacent farmland owners. This will serve as a noble project and will provide dual benefits to farm land and University w.r.t to electricity bill power reduction.



Plate 1: Solar farm concept for the Institute (For reference purpose only)

Image source: Zsuzsa Bóka from Pixabay

6.2.2 Alternatives to increase renewable energy – Solar parking

The College can turn its existing parking areas into solar panel powered parking areas. This will provide shade and renewable energy benefit to the College.



Plate 2: Solar parking concept for the Institute (For reference purpose only)

Source: Image by https://solarpowerproject.in/solar-panels-for-parking-lots.php

S.MAS @

Co-Ordinator

Shri Siddheshwar Mahavidyalaya Majalgaon Dist. Beed (M.S.) Principal
Shri Shidheshwar Mahavidyakeya Maialgaen, Dist. Beed 431 131

Greenvia

6.2.3 Alternatives towards Smart premises – Smart gardening

The College can undertake a Smart Gardening system using IoT Technology. This will result in saving time by scheduling time for watering; saving money through automated water schedules tracking dampness of soil to know when, how much water garden needs.



Plate 3: Solar farm concept for the Institute (For reference purpose only)

Image source: https://housing.com/news/smart-gardening/

Data source: https://www.happysprout.com/inspiration/what-is-smart-gardening/

A Majalogo M

Co-Ordinator

Shri Siddheshwar Mahavidyalaya Maialgaon Dist. Beed (M.S.) (25%)

Principal
Shri Stedheshwar Mahavidyaleya
Maiataean,Dist Reed 431 131





The campus building in the premises







Investigative parameters – Ecological Management – Plantations, ramp and shaded parking stand







Investigative parameters – Water Management – Water usage and sources







Investigative parameters – Waste Management – Under process compost pit, dustbins and clean premises

Principal

Shri Skidheshwar Mahavidyalaya

Shri Skidheshwar Mahavidyalaya

Mejalgeen, Dist. Beed 431 131



7. References

The study is based on the data collected, analyzed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyze and study the data collected.

Specific references for study related to energy

- https://www.energy.gov/eere/buildings/zero-energy-buildings
- https://www.dsaarch.com/zero-net-positive-energy
- U.S. Energy Information Administration
- https://www.happysprout.com/inspiration/what-is-smart-gardening/
- https://housing.com/news/smart-gardening/
- Inference study reference image Zsuzsa Bóka from Pixabay
- Inference study reference image https://solarpowerproject.in/solar-panels-for-parking-lots.php

aya Maja

Pr

Q A C
Shri Siddheshwar Mahavidyalaya
Maialgaon Dist. Beed (M.S.)

Principal
Shri Siddheshwar Mahavidyaleya
Majalgeon, Dist. Beed 431 131

