



ଦୁତିକା ସାହୁ ମହାବିଦ୍ୟାଳୟ, ଲାଇଡା, ସମ୍ବଲପୁର, ଓଡ଼ିଶା
D.S COLLEGE, LAIDA, SAMBALPUR, ODISHA



DUTIKA SAHU COLLEGE
LAIDA - SAMBALPUR

GREEN AUDIT REPORT

2022-2023

PREPARED BY
EHS ALLIANCE SERVICES

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CERTIFICATE



AUDIT CERTIFICATE

PRESENTED TO

DUTIKA SAHU COLLEGE

Laida, Sambalpur, Odisha, 768214

Has been assessed by EHS Alliance Services for the comprehensive study of environmental impacts on institutional working framework to fulfill the requirement of

GREEN AUDIT

The green initiatives carried out by the institution have been verified on the report submitted and was found to be satisfactory.

The efforts taken by the management and the faculty towards environment and sustainability are appreciated and noteworthy.

A handwritten signature in blue ink, appearing to read 'H. Das', written over a horizontal line.

AUDITOR SIGNATURE



11.10.2023

DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
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ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Dutika Sahu College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.

First of all, we would like to thank **Dr. Basanta Kumar Naik - Principal** for giving us an opportunity to evaluate the environmental performance of the campus.

We would also like to thank **Ms. Gayatri Patel – Audit Coordinator and Member, Green campus monitoring committee (GCMC)**, for her continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Dr. Nibedita Nath	<i>Member, Green campus monitoring committee (GCMC)</i>
Mr. S.K. Sirajul Haque	<i>Member, Green campus monitoring committee (GCMC)</i>
Ms. Namrata Pradhan	<i>Member, Green campus monitoring committee (GCMC)</i>
Ms. Chandini Pujari	<i>Member, Green campus monitoring committee (GCMC)</i>



DISCLAIMER

EHS Alliance Services Audit Team has prepared this report for Dutika Sahu College based on input data submitted by the representatives of college complemented with the best judgment capacity of the expert team.

While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express 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.

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Signature

LEAD AUDITOR

CONCEPT AND CONTEXT

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2019–20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In view of the NAAC circular regarding Green auditing, the College management decided to conduct an external environment assessment study by a competent external professional auditor. The green audit aims to examine environmental practices within and outside the college campus, which impact directly or indirectly on the atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of college environment. It was initiated with the intention of reviewing the efforts within the institutions whose exercises can cause risk to the health of inhabitants and the environment.

Through the green audit, a direction as how to improve the structure of environment and inclusion of several factors that can protect the environment can be commenced. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the institution. The concepts, structure, objectives, methodology, tools of analysis, objectives of the audit as below:



INTRODUCTION

Now a days, the educational institutions are becoming more thoughtful towards the environmental aspects and as a result new and innovative concepts are being introduced to make them sustainable and eco-friendly. To preserve the environment within the institution, a number of viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the saving the energy, waste recycle, water consumption reduction, water harvesting and many more...

The activities carried out by the institution can also create adverse environmental impacts. Green audit is defined as an official inspection of the effects a college has on the environment. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful tool for a university /college to determine how and where they are using the most of the energy or water or resources; the institution can then decide how to implement changes and make savings. It can also be used to determine the nature and volume of waste, which can be used for a recycling project or to improve waste minimization plan.

Green auditing and the application of mitigation measures is a win-win situation for all the institutions, the learners and the mother earth. It can also result in health awareness and can promote the environmental awareness, values and beliefs. It provides a better understanding to staff and students about the Green impact on institution. Green auditing also upholds financial savings through reduction of resource usage. It gives an opportunity to the students and teachers for the development of ownership of the personal and social responsibility. The audit process involves primary data collection, site walk through with the team of university /college including the assessment of policies, activities, documents and records.



OVERVIEW OF THE COLLEGE

D.S College, Laida is situated in the District of Sambalpur, Odisha which has been registered under Govt of Odisha Education and youth Services Department, Oder No. IVE/C.226/90. 45466/EYS. Dt. 16/10/1990 for three-year Degree Courses in Arts in Dutika Sahu College, Laida in the Dist. of Sambalpur and permanent affiliated with Sambalpur University, Order No. 9563/ASW, Dt-04/06/1992 and registered under the Societies Act XXI OF 1860, Regd No- 16907/1741 of 1979-1980.



Due to poverty and lack of guidance many pass outs from matriculation had no access to be admitted in G.M College, Sambalpur. With the Leadership of Combrade, Iswar Chandra Naik and financial help from Smt. Dutika Sahu, the child of the Soil, and with the co-operation of villagers this college has been established in 1979 and named as Dutika Sahu College, Laida.

The college Started with Arts wings. In the year 1979 and +3 Arts +3 Science (started in 2019-20 session with all Honours program in Botany, Chemistry, Mathematica, Physics, and Zoology) in the year 1981 with Political Science, History, Odia, Education and Economics. +2 Science was added as an extremism using from the year 1993. Now the College has a student strength of 968. The College is running properly with the said subjects.

MISSION, VISION & VALUES

MISSION

The Mission of Dutika Sahu College, Laida, a rural based college is to enhance inventive educational atmosphere and facilitate to enable students to develop personality and acquiring jobs and to become a good citizen of the nation.

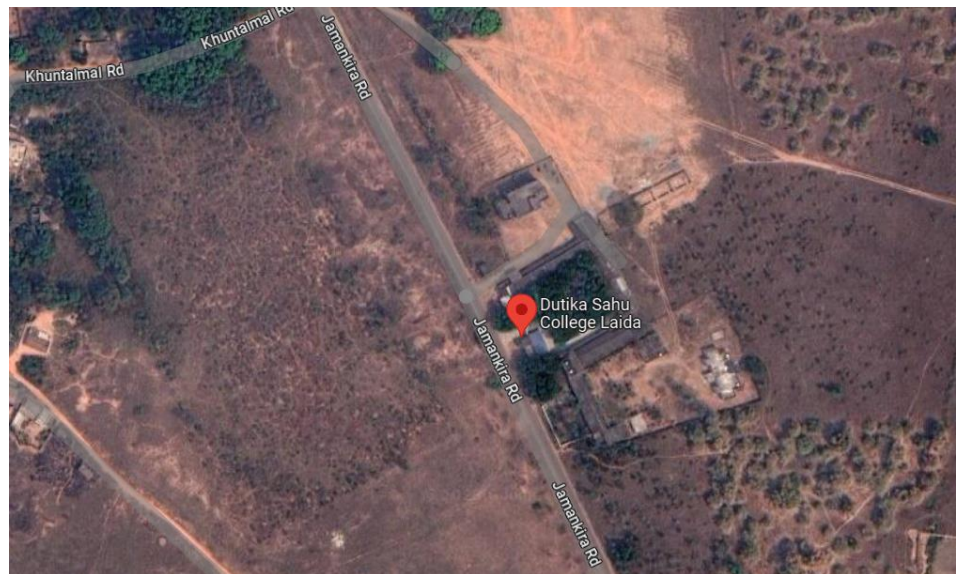
VISION

The culture of Excellence The Culture of Innovation The Culture of Quality The Culture of Flexibility and Dynamism The Culture of Sustainability Vision We envision a College that leads the campus and the capital region as the centre for cross-disciplinary exchange and programming, and ranks as an acknowledged innovator in research and teaching in the Arts and Humanities

VALUES

Dutika Sahu College, Laida will facilitate best education that would be responsible for the necessity of the society and enable them to face with their social, economic and national problems. The college would draw out the best of the students' body, mind and soul.

Geo Location
Geo Coordinates from Google maps:
21.7249869, 84.2347336



AUDIT PARTICIPANTS

On behalf of Dutika Sahu College

Name	Designation
<i>Dr. Basanta Kumar Naik</i>	<i>Principal</i>
<i>Ms. Gayatri Patel</i>	<i>Audit Coordinator and Member, Member, Green campus monitoring committee (GCMC)</i>
<i>Mr. Prasanta Patel</i>	<i>Member, Green campus monitoring committee (GCMC)</i>
<i>Mr. Kailash Behera</i>	<i>Member, Green campus monitoring committee (GCMC)</i>
<i>Ms. Namrata Pradhan</i>	<i>Member, Green campus monitoring committee (GCMC)</i>
<i>Ms. Chandini Pujari</i>	<i>Member, Green campus monitoring committee (GCMC)</i>

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead Auditor	<i>Ph.D., PDIS, QCI – WASH, Lead Auditor ISO 14001:2015</i>
Ms. Pooja Kaushik	Co-Auditor	<i>M.Sc., Field Expert, QCI – WASH</i>

EXECUTIVE SUMMARY

Green auditing is an essential step to identify and determine whether the institutional practices are sustainable and ecological. Traditionally, we were upright and efficient users of natural resources. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. It is actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardizes all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert them into green and sustainable. Green audit provides an approach for the same. It also increases overall awareness among the folks working in institution towards the eco-friendly environment.

This is the first attempt to conduct green audit of this campus for fulfilment of NAAC criteria. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil, water usage, vegetation, waste management practices and carbon foot print of the campus. Initially a questionnaire was shared to know about the existing resources of the campus and resource consumption pattern of the students and staff in the campus.

GREEN AUDIT - ANALYSIS

1.1 GENERAL INFORMATION

1. Does any Green Audit conducted earlier?

No, this is the first external audit organized by the College

2. What is the total strength (people count) of the Institute?

Students

Male: 462 Female: 485 Total: 538

Teachers (including guest faculty)

Male: 18 Female: 10 Total: 45

Non-Teaching Staff

Male: 7 Female: 6 Total: 37

Total Strength

Male: 487 Female: 501 Total: 988

3. What is the total number of working days of your campus in a year?

There are two hundred and forty working days in a year.

4. Where is the campus located?

The campus is located Laida, Sambalpur, Odisha (India)

5. Which of the following are available in your institute?

<i>Garden area</i>	<i>Available</i>
<i>Playground</i>	<i>Available</i>
<i>Kitchen</i>	<i>Available</i>
<i>Toilets</i>	<i>Available</i>
<i>Garbage Or Waste Store Yard</i>	<i>Available</i>
<i>Laboratory</i>	<i>Available</i>
<i>Canteen</i>	<i>Available</i>
<i>Hostel Facility</i>	<i>Not Available</i>
<i>Guest House</i>	<i>Not Available</i>

6. Which of the following are found near your institute?

<i>Municipal dump yard</i>	<i>Not in vicinity of institute</i>
<i>Garbage heap</i>	<i>No Garbage heaps</i>
<i>Public convenience</i>	<i>Public convenience is available</i>
<i>Sewer line</i>	<i>Approximately 1.0 KM sewer line within campus</i>
<i>Stagnant water</i>	<i>No stagnant water</i>
<i>Open drainage</i>	<i>No</i>

Industry – (Mention the type)	No
Bus / Railway Station	Laida Bus Stop
Market / Shopping complex	Available

1.2 WASTE MINIMIZATION AND RECYCLING

1. Does your institute generate any waste? If so, what are they?

Yes, Solid waste, Canteen waste, paper, plastic, horticulture, laboratories waste, e-waste, etc.

2. What is the approximate amount of waste generated per day? (in Kg approx.)

*Biodegradable waste - 20 Kg
Non-biodegradable waste -1 Kg
Hazardous Waste - <1 Kg
Others < 2 Kg*

3. How is the waste managed in the institute? By Composting, Recycling, Reusing, Others (specify)

Dutika Sahu College is using composting and soak pits for solid waste management. Lab waste is managed through diluting and dumping.

4. Do you use recycled paper in institute?

No

5. How would you spread the message of recycling to others in the community?

College is spreading the awareness about recycling through different activities and campaigns to students, staff and local nearby villages

6. Can you achieve zero garbage in your institute? If yes, how?

Not yet achieved.

1.3 GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 304920 sq. ft areas are developed as Gardens.

2. Do students spend time in the garden?

Yes, students spend around 2-4 Hours during winters.

3. Total number of Plants in Campus?

<i>Plant type with approx. count</i>	
<i>Full grown Trees</i>	<i>98</i>
<i>Small Trees</i>	<i>105</i>
<i>Hedge Plants</i>	<i>1,007</i>
<i>Grass Cover sqm</i>	<i>3,04,920 sq. ft</i>

4. Is the College campus having any Horticulture Department? (If yes, give details)

Yes, 1 staff (maali) deployed in horticulture department

5. How many Tree Plantation Drives organized by campus per annum?

*Plantation Drive is carried out annually.
Survival rate is more than 50%.*

6. Is there any Plant Distribution Program for Students and Community?

Yes

8. Is there any Plant Ownership Program?

No

1.4 WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking – 23.81 KL/month

Gardening – 191.21 Kl/month

Kitchen and Toilets – 187.62 KL/month

Others – 72.19 KL/month

Hostel – 0.00 KL/Month

Total = 474.83 KL/Month

2. How does your institute store water? Is there any water saving techniques followed in your institute?

College stores water in overhead tanks.

Saving Techniques

- *Avoid overflow of water-controlled valves are provided in water supply system.*
- *Close supervision for water supply and water flow system.*

3. Locate the point of entry of water and point of exit of waste water in your institute.

Entry - Water comes from borewells.

Exit- From Canteen, Toilets, bathrooms and Labs through covered drainage which is connected to soak-pits.

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- Close the taps after usage
- Water Conservation awareness for new students
- Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage

1.5 ANIMAL WELFARE

1. List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)

4-5 dogs, 1 Cats, 20+ butterfly species, 50+ Squirrels and 30+ Birds are found in campus. A variety of bird's species and other flora and fauna are available, so institute is doing their bit for bio diversity conservation.

2. Does your institute have a Biodiversity Program or a KARUNA CLUB?

Yes, Dutika Sahu College's **Eco club** "Youth Red Cross" actively organizes awareness through various campaigns and activities including seminars, poster competition, etc.

1.6 CARBON FOOTPRINT - EMISSION & ABSORPTION

1. Electricity used per year - CO₂ emission from Electricity

(electricity used per year in kWh/1000) x 0.84

4086 kWh/1000 x 0.84

= 4086/1000x0.84

= 3.43 tons

2. LPG/PNG used per year - CO₂ emission from LPG/PNG

(LPG/PNG used per year in KG) x 2.99

954.60 x 2.99

=954.60 x 2.99

=2.56 tons

3. Diesel used per year CO₂ emission from HDS (Diesel)

(Diesel used per year in litres) x 2.68

=169 x 2.68

= 169 x 2.68

=0.51 tons

4. Transportation per year (car) CO₂ emission from transportation (Bus and Car)

There are zero college owned vehicles.

=0 tons

Total CO₂ emission per is 6.50 tons

After considering carbon absorption capacity of campus, the total carbon emission is negative. In other words, we can say that this college campus is carbon neutral.

CARBON ABSORPTION BY FLORA IN THE INSTITUTION

There are 98 full grown trees and 105 semi grown trees of different species, on the campus spread over 304920 sq ft.

Carbon absorption capacity of one full grown tree 22 kg CO₂ Therefore Carbon absorption capacity of 98 full-grown trees 98 x 22 kg CO₂ = 2.16 tons of CO₂.

The carbon absorption capacity of 105 semi-grown trees is 30% of that of full-grown trees. Hence the carbon absorption 105 x 6.8 kg of CO₂ = 0.71 tons of CO₂

There are approximately Hedge Plants 1007 of various species being raised in the gardens and grown in the areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high level of Co₂ where as some others absorb very low levels of CO₂. In the absence of a detailed scientific study, 200g of CO₂, absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, total carbon absorption of bushes is 1007 x 200 g = 0.20 ton of Co₂

The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 304920 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area $304920 \times 365 \times 0.1 \text{ g Co}_2 = 11.13 \text{ tons Co}_2$ per year.

Grand total of carbon absorption capacity of the campus is 14.20 tons.

GREEN INITIATIVES

- The institution has functional compost machines for organic solid waste management.
- There is ban on single use plastic and plastic crockery in the campus.
- College has a separate storeroom for the safe storage of electronic waste. After a certain interval of time college disposes of the E-waste to concerned agencies through the auction process.
- Personal Vehicles (Students) are not allowed in the campus.
- College organizes cleaning drive of the campus and also participating in Swachhata Abhiyan.
- College has adopted few villages for environment friendly activities.
- NSS team and YRC are organizing awareness campaigns in local area/ nearby villages.

RECOMMENDATIONS

- Environmental parameters shall be included in purchase policy to achieve a cradle to grave approach for sustainability.

- College should start the use of Sprinklers gardening purpose
- Arrange training programmes on environmental management system and nature conservation for schools and local people.
- Increase in Environmental promotional activities for spreading awareness at the campus.
- Regular workshops related to Plastic free campus, plantation drives, 3R implementation, e-waste collection, menstrual hygiene, etc. should be carried out
- Messages should be displayed at various locations to Aware People of Energy Savings

CONCLUSION

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics. The eco club of Dutika Sahu College promotes conservation of resources.

Overall 70% of Dutika Sahu College is for landscaping. The college makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggests some more ways in which the college can work to improve its practices and develop into a more sustainable institution.

It's important to begin a few things, such as initiating sprinklers for irrigation and a conservation awareness message display at different locations on campus. Additionally, we strongly advise to increase awareness amongst the students, staff, and local societies for 3R principle and conservation of water and energy.

REFERENCE

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)

- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices



ANNEXURE –ENVIRONMENT CONSCIOUSNESS PHOTOS



Well ventilated building structure



Well maintained college campus



Lush green campus



Sports Ground



Library



Well ventilated Classroom



Well equipped labs



Auditorium



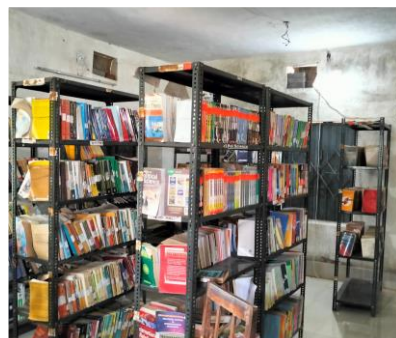
Multi-Use posters



Water Storage



Womens hostel



Library



Active participation by students in Plantation drive



Plantation drive



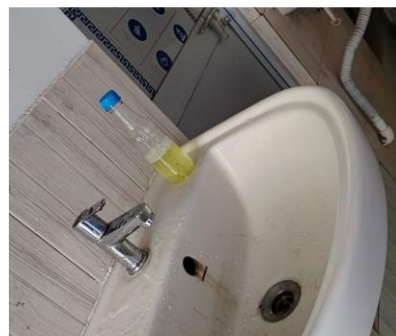
Plantation in villages



Flyash Bricks for construction



Cleanliness drive



Plastic bottle reused

***** END OF THE REPORT *****