

MAHANT LAXIMNARAYAN DAS COLLEGE, RAIPUR

GREEN & ENVIRONMENTAL AUDIT

2022-2023



CONDUCTED BY:



NATURE CONSERVATION AND COMMUNITY DEVELOPMENT
SOCIETY, RAIPUR, CHHATTISGARH-492007

PRINCIPAL
Mahant Laxminarayandas College
RAIPUR (C.G.)

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Nature Conservation and Community Development Society, Raipur, Chhattisgarh-492007


CG Govt. Registration No. 122202112995



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Acknowledgement

We express our sincere gratitude to **Mahant Laxminarayan Das College, Raipur** for given us the opportunity to be a part of their mission towards environmental awareness. We are thankful to all teaching and office staff of MLD College, Raipur with whom we have interacted during the survey for their whole-hearted support in undertaking measurements and eagerness to assess the system efficiencies and saving potential. The willingness of these key personnel to participate in this audit and acknowledge the call for solving the issues related to environment protection.


(Dr. R. P. Mishra)
President

Nature Conservation and Community
Development Society Chhattisgarh


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Ref.NCCDS/22-23/GA/Certificate

Date: 11/04/2022

AUDIT CERTIFICATE

This is to certify that Green and Environment Audit for **MAHANT LAXMINARAYAN DAS COLLEGE, Raipur** have been conducted in 2022-23 by **Nature Conservation and Community Development Society (NCCDS), Raipur, C.G.** The Green and Environmental audit was conducted in accordance with the applicable standards. The green and environmental initiatives carried out by the institution have been verified on the basis of primary data. The audit involves water, wastewater, energy, air, green inventory, solid waste, etc., and gives an 'Environmental Management Plan', which the college can follow to minimize the impact on the institutional working framework.

Hereby, the Green and Environment Audit Report are being submitted to Principal, **Mahant Laxminarayan Das College, Raipur.**


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GREEN AND ENVIRONMENT AUDIT

INTRODUCTION

Green environment practices are essential in preserving the environment and its atmosphere from harmful hazards towards all the living things in earth. Clean and green environment imply absence of pollution and a better quality of life. In respect clean and green environment 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. To evaluate the environmental conditions and green practices in the institutions green and environment audit is an important tool. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful technique for a College/college to determine how and where they are using the most of the energy or water or resources; the College 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. 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 and environment auditing also bears 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 College/college including the assessment of policies, activities, documents and records. The National Assessment and Accreditation Council, New Delhi (NAAC) has made 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, besides; 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 and environment audit aims to examine environmental practices within and outside the College campus. Green and Environmental audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of College and college 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. Students are the strength of any academic institution. Practicing green action in any educational institution will inculcate the good habit of caring for natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Bird watching no vehicle day, Rainwater harvesting, etc. will make the students good citizens of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the institution.

Objectives of Green and Environmental audit

- To study the current practices this can impact the environment such as resource utilization, waste management.
- To prepare an Environmental Statement Report on green practices followed by the institution.
- To set goals, vision, and mission for Green practices on the campus.
- To identify and analyze significant environmental issues.
- To assess for better performance in green practices and its valuation.
- To creating awareness for environmental awareness among students and staff of the institution.

About Nature Conservation and Community Development Society, Raipur

Nature Conservation and Community Development Society, Raipur, Chhattisgarh is registered under the Chhattisgarh Govt. Society Registration act. The office of NCCDS is in Mova Raipur. Exploration and conservation of Biodiversity and environment; Creating

awareness among the society for sustainable utilization of natural resources; project planning and implementation of the various govt. schemes are the main objective of the society. Director details of the society areas follows:

Chairman: Dr. M. L. Naik

President: Dr. R.P. Mishra

ABOUT THE COLLEGE

The Mahant Laxminarayn Das College (MLDC), was established in 24th October 1997 by its parent body Shiksha Pracharak samiti Raipur affiliated to PTRSU. The College is recognized under the 2f & 12B of the university Grant Commission. The College is named after Mahant Laxminarayan Das an eminent freedom fighter who encountering challenges and difficulties in the childhood became Mahant of Jaitu Sao Math at purani basti in Raipur at an early age. It was the time when the freedom movement was entering a new era of mass struggle under the dynamic leadership of Mahatama Gandhi and Mahant Ji became the true soldier dedicating his life for the cause of mother land. Currently 2133 (829 Girl's and 1304 Boys) students enrolled in 12 different multidisciplinary subjects; P.G. yoga, PGDCA, M. Com., B.B.A, B.C.A., B.A., B.Com. M.A. in English, PGDJ, BAJMC, D C A, Ph.D. in Commerce.

VISION & MISSION OF THE COLLEGE

VISION

"Transforming lives and community through learning" encapsulated in college's monogram as "Vidya-VinayVivek".

MISSION

To provide the value based education at affordable cost in all programs run by the college.

To pursue holistic development of the students through academic and extension activities.

To inculcate strong feeling for Gender Sensitivity, Social Obligation, National Value and Environmental Concern.

To instill quality of leadership and service towards the neighboring community and society.

CAMPUS INFRASTRUCTURE:

The College has 22 ICT enabled classroom

Seminar Halls: The College has 2 big Hall with a seating capacity of 500 and 100 students and it is used for academic and cultural activities.

Staff Room: Total 4 staff rooms facilitated in the college for teaching staff. There are 3 separate offices for non-teaching staff and well equipped 1 principal office is there.

Library: The college library is fully computerized and digitalized with Catalogue facility and has a collection of over 6500 books, 2 encyclopedias and a subscription of about 8 periodicals and journals. Internet browsing is also available. Total seating capacity of the library is 100.

Computer Labs: There are total 4 well-equipped computer labs and 1 computer lab associated with the Departments of Commerce.

Canteen: The college canteen caters to the nutritional needs of the staff and students at subsidized rates. The canteen functions from 9 am. To 2pm.

Sports and Games facilities: The College has an indoor game facility and MOU has been taken for outdoor games with Balaji Vidyamandir and Raipur city sports club.

New building is proposed in Sejbahar, Raipur

CLIMATE OF THE AREA:

Climate of the area is typical monsoonic, divisible in to three seasons in a year, almost of equal duration. Summer season starts in March goes up to June, rainy season extends from about mid- June to September while the winter season, starting from November ends in February. Summer season is dry and very hot, maximum temperature very often crosses 38.00 °C to 42.0°C. The season is much testing to the survival of the plants. Rainy season also is generally hot and humid almost 90% of the rain is received during this season. The soil becomes over flooded with low to very amount of soil erosion. Very little amount of this water infiltrates as ground water. The winter season has mild cold with minimum temperate rarely going below 10°C. As representative climatic data for Raipur is being given below for one year.

Table 1. Mean monthly weather data of Raipur (C.G.), Year – 2022

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	20.1°C (67.9)°F	23.6°C (74.4)°F	28.1°C (82.4)°F	32.8°C (90.9)°F	35.1°C (95.2)°F	31.1°C (88)°F	26.6°C (80.2)°F	26.3°C (79.3)°F	29.7°C (86)°F	25.6°C (78.1)°F	22.7°C (72.9)°F	20.1°C (68.1)°F
Min. Temperature °C (°F)	13.3°C (56)°F	16.7°C (62)°F	20.7°C (69.2)°F	25.4°C (77.7)°F	28.7°C (83.7)°F	27.2°C (81)°F	24.6°C (76.2)°F	24.1°C (75.5)°F	23.8°C (74.8)°F	21.2°C (70.2)°F	17.1°C (62.7)°F	13.6°C (56.5)°F
Max. Temperature °C (°F)	28.7°C (80)°F	33.9°C (93.0)°F	34.9°C (94.7)°F	39.3°C (102.7)°F	41.3°C (105.2)°F	36.7°C (98.1)°F	32.4°C (90.2)°F	30.4°C (86.7)°F	32.4°C (90.2)°F	30.8°C (87.5)°F	25.6°C (78.1)°F	26.5°C (79.7)°F
Precipitation Rainfall mm (in)	15 (0)	11 (0)	12 (0)	16 (0)	22 (0)	213 (8)	396 (15)	379 (14)	241 (9)	69 (2)	13 (0)	12 (0)
Humidity (%)	53%	46%	35%	28%	26%	55%	81%	84%	81%	70%	61%	57%
Rainy days (d)	1	2	2	3	3	13	18	18	14	6	1	1
avg. Sun hours (hours)	9.4	10.0	10.7	11.3	11.6	10.5	7.7	7.0	9.2	9.2	9.5	9.6

Source: *world-weather.info*

Methodology

In order to perform green & environment audits, the methodology included different tools such as preparation of questionnaires, walk through 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 areas to summarize the present status of environmental management on the campus:

- Environment Management
- Water Management
- Energy Management
- Waste Management

The audit process was carried out and data required for the study was collected from various sources. The methodology of the present study is based on onsite visits, personal observations, and questionnaires survey tools. The surveyors then visited all the departments of the college and the questionnaires were filled. In green audit vegetation like trees, herbs, shrubs, climbers and grasses were recorded and identified with floras and expert of the audit team. The generated data is subsequently gathered and used for further analysis. From the outcome of the overall study, a final report is prepared.

ENVIRONMENT MANAGEMENT

This includes the plants, greenery, and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced, and reviewed using various environmental awareness programs. Environmental assessment carried out with the observations of utilization of resources and their management in the college campus. Biodiversity assessment in terms of vegetation, animal, insects, birds, reptiles etc., air quality in and around of the college campus were tried to record.

VEGETATION:

Vegetation in the campus consists of both the natural vegetation and planted vegetation. It is observed that the college campus is situated in city of the center. In College campus few planted vegetation was found although the college building is surrounded by natural vegetation. A community garden is established very near the college building. A terrace garden has been established on the top floor of the college building. Varieties of roses and other ornamental flowering plants planted in terrace garden.

Whole campus covered with tree vegetation includes avenue tree like Royal palm, Ashok, Lagerostromia, Ficus, Chhatim, Kachnar, Peltaphorum, Amaltas, Gulmohar, Karanj.

ANIMALS:

Animals in the area include Mammals, Birds, Reptiles, Amphibia, Butterflies, Dragon flies and a large variety of other insects. Honey bee comb

Mammals:

Mammals in the area are nocturnal, with a few visible during the day time also like Bat, Cat etc

BIRDS

Few bird species recorded in the terrace garden in the college building. Following birds recorded during the audit:

S.N.	Local Name	English Name	Zoological Name	Status Schedule	Part
1.	House crow		<i>Corvus splendens</i>	V	
2.	Common myna		<i>Acridotheris tristis</i>	IV	
3.	Brahminy myna		<i>Sturnus pagodarum</i>	IV	

4.	Little Green Bee-Eater	<i>Merops orientalis</i>	IV
5.	Koel, Cuckoo	<i>Eudynamys scolopacea</i>	IV
6.	Tota	<i>Psittacula krameri</i>	IV
7.	Basanti (Indian cuckoo)	<i>Cuculus micropterus</i>	IV
8.	Bater (Grey Quail)	<i>Coturnix coturnix</i>	IV
9.	Grey heron	<i>Ardea ceinerea</i>	IV
10.	Owl	<i>Bubo bubo</i>	IV

Reptiles: Following reptiles observed during the audit

S.N.	Local Name	English Name	Zoological Name	Status	WL(Protection
				Act, 1972)	
				Schedule	Part
1.	Dhaman/Indian Rat snake		<i>Ptyas mucosus</i>	II	II
2.	Dhondwa/Water sanke		<i>Enhydris enhydris</i>	IV	
3.	Garden lizard		<i>Calotes versicolor</i>	-	-

Butterflies

More than 6 species of butterfly have been recorded in from terrace garden of the college building some of them have been identified clearly as given below:

Table: List of Butterflies

SN	Species
1.	<i>Acraea violae</i>
2.	<i>Eurema andersoni</i>
3.	<i>Eurema brigitta</i>
4.	<i>Eurema laeta</i>
5.	<i>Euthalia nais</i>
6.	<i>Gandeca harina</i>
7.	<i>Hypolimnna bolina</i>
8.	<i>Acraea violae</i>

GREEN INITIATIVES

Many plantation drives are taken by the college in its proposed new campus in Sejbahar.

Every year on 5th June i.e. World Environment Day, Earth Day the college takes Plantation activity.

CAMPUS INVOLVEMENT IN ENVIRONMENTAL AWARENESS

For sustainable use of resources and keeping in mind for the mission of "Nature Club" constitute in the campus to create environmental awareness among students, faculty, and administrations.

AIR QUALITY IN THE CAMPUS

Central Pollution Control Board, New Delhi initiated National Ambient Air Quality Monitoring (NAAQM) program in the year 1984 to get a spatial and temporal variation of ambient air concentrations for a wide range of pollutants that are considered relevant for evolving strategic management plan. The program was subsequently renamed NAMP (National Air Quality Monitoring Program). Ambient air quality has been checked. It is found that the range of AQI range is 90.23 to 130 which is sensitive. NO₂ range was 83 shows unfair air quality. Campus's air quality status is moderate.

WATER CONSERVATION IN THE CAMPUS:

Water is a precious natural national resource, the availability of water is decreasing due to the increasing population of the nation; as per capita availability of utilized water is going down due to rapid industrialization, urbanization, demand for freshwater is increasing day by day. Water conservation in the campus can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing, and recycling water. Water management is nothing but an effective measure for minimizing losses, optimizing various uses. A water audit is a technique or method which makes it possible to identify ways of conserving water by determining any inefficiency in the system

of water distribution. It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology determine the requirement of water. As per the standards provided by WHO Regional Office for Southeast Asia Schools require 2 liters of water per student for drinking purposes; 10-15 liters per student for Water-flush toilets. Administration requires (Staff Accommodation not included) 50 liters per person per day, In the College campus bore well water is the source of drinking water and for other utility. Following observation was taken:

SOURCE OF WATER

SL. No.	Resource	Quantity
1	No of Bore-well	01
2	Water reserve tank	02

WATER USERS IN CAMPUS (In average per day)

Sl.No.	Person in different section	Strength (No. of person)
1	Staff	37
2	Students	2133
3	Office Staff	20
4	Visitors	50
5	Servicing people	03

The students, staff and visitors of the college vary with respect to different activities conducted in the college campus. During admission and different competitive exam conducted in the college campus. The total number of visitors of the college increases up to 60 on such day. There are good numbers of visitor inflow to the college for courses inquiry and study purpose. Thus, average visitors per day approximately 50- 60.

QUANTITY OF WATER USED IN DIFFERENT SECTIONS OF THE CAMPUS

Sl. No.	Sections	Water Use (Litter/day)
1	Academic building	1500
2	Urinals and Toilets	2000

3	Departments	1000
4	Garden	2000
5	Drinking	1000
6	Leakage	00
7	Construction Work	-----

In the college campus rainwater harvesting system is adopted for water conservation.

SOLID WASTE MANAGEMENT:

In the College campus solid waste data is collected from overall the Building areas and the same is directly handed over to the Nagar Nigam/Municipalities' Bin for further segregation and recycling purpose. There are different types of waste are recorded such as paper waste, plastic waste, construction waste, glass waste, etc. The college has taken initiatives for E waste management practice.

OVERALL OBSERVATIONS

- Lack of greenery in the college building due to shortage of open area is observed although small beautiful terrace garden is marinating in the top floor of the building.
- Rain water harvesting systems is found in the campus is very good water resource management in the campus.
- A remarkable initiative of solar panel has been installed in the building.
- It was found quality of water is safe to drink for all, it should be maintained.
- Waste bins of different waste in the class rooms, corridors and campus were inadequate.
- Air quality in and around the campus is found satisfactory.
- To educate and create awareness among the staff and students of the college one Nature Club constituted is good initiative.
- In Terrace garden small medicinal plant garden is lacking.

KEY RECOMMENDATIONS & ENVIRONMENT MANAGEMENT PLAN (EMP)

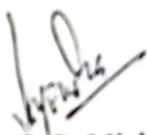
Following are some of the key recommendations for improving the campus environment and to be considered as Environment Management Plan (EMP)

- More greenery is required in the campus un-utilized space can be used in developing green zones in the building.
- Environmental awareness inadequate among the students, environmental education programs should be strengthened.
- An environmental policy document has to be prepared with all the recommendations and current practices carried out by the college.
- A frequent visit should be conducted to ensure that the generated waste is measured, monitored, and recorded regularly and information should be made available to the administration.
- The college should develop internal procedures to ensure its compliance with environmental legislation and responsibility should be fixed to carry out it in practice.
- The solid waste should be reused or recycled at maximum possible places.
- Installation of sensor-based electrification items like fans, lights, etc. can save electricity.
- Regular checkups and maintenance of pipes, overhead tanks, and plumbing systems should be done by the engineering section to reduce overflow, leakages, and corrosions.
- Environmental Statement Report on green practices followed by different departments should be prepared annually.
- Green audit report should be published in annual report of the college and uploaded in the college website.

CONCLUSIONS

Green and Environment Audit is one of the important tools to check the balance of natural resources and their judicious use. It is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. The main objective to carry out a green

and environment audit is to check the green practices followed by the college and to conduct a well-defined audit report to understand whether the college is on the track of sustainable development. After completing the audit procedure of the college for green practices, Observations, recommendations, and Environmental Management Plan (EMP) which can be followed by the college in the future for keeping campus environment friendly.



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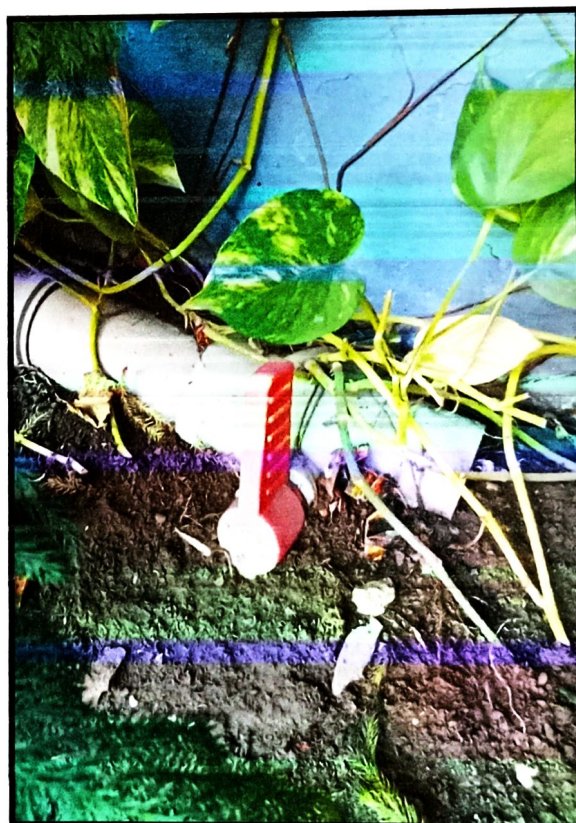


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PHOTOPLATE



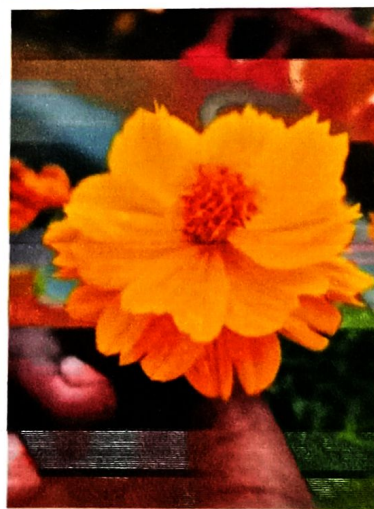
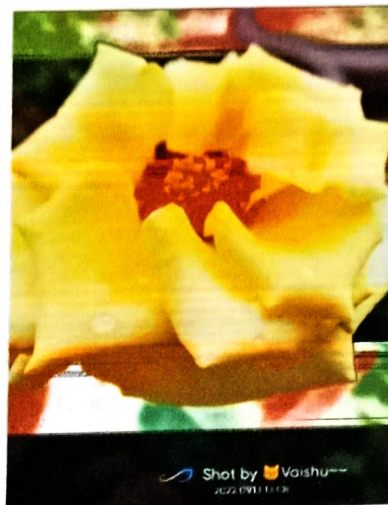
Solar panel in the College building



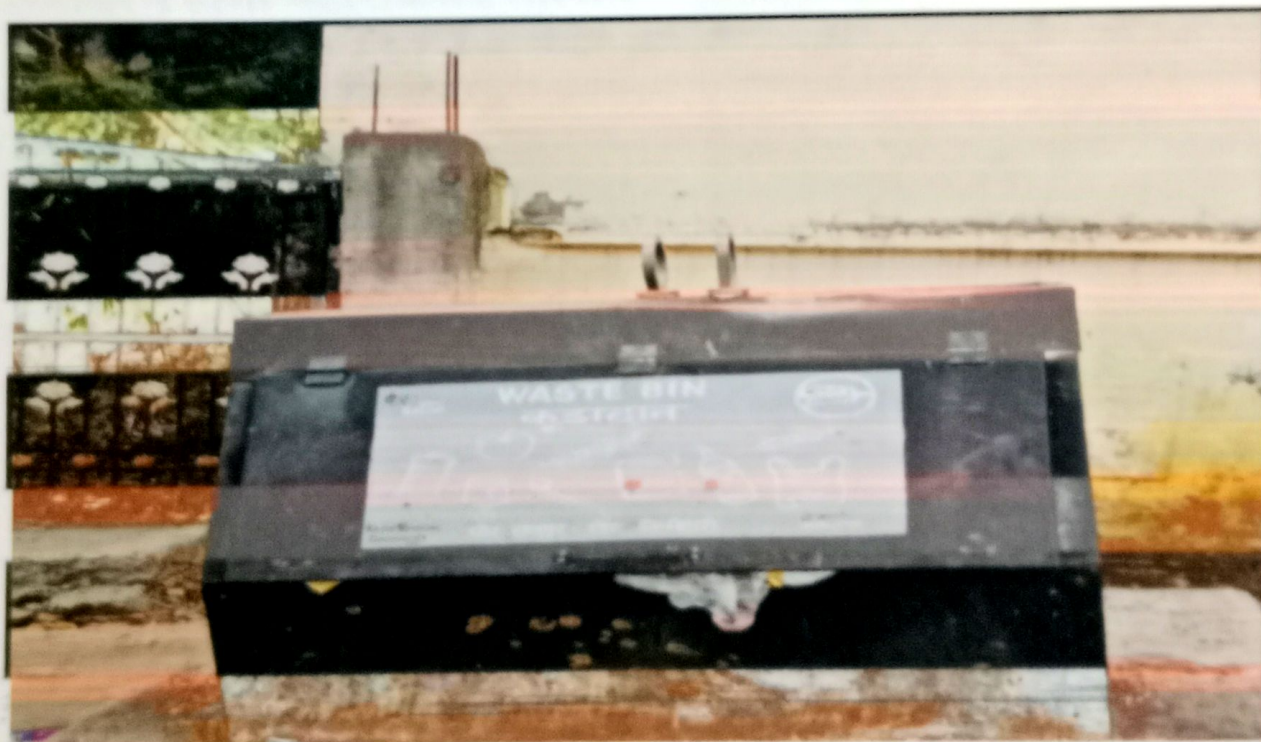
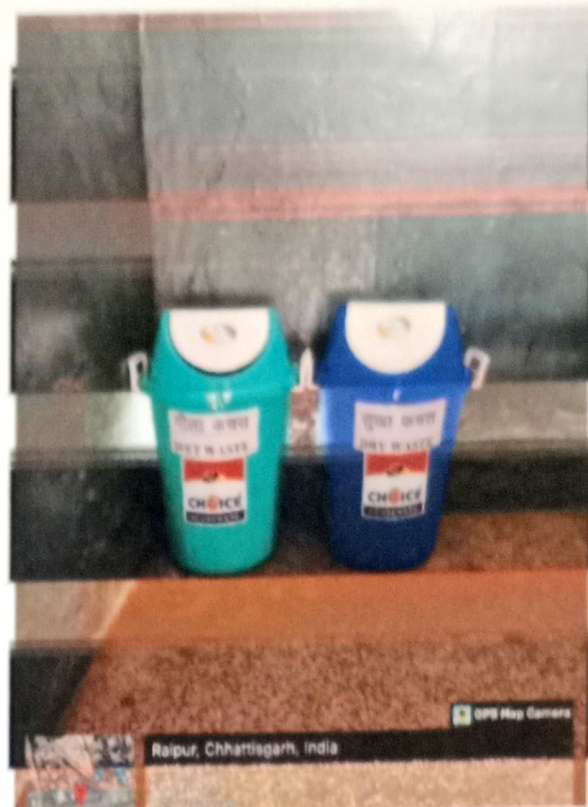
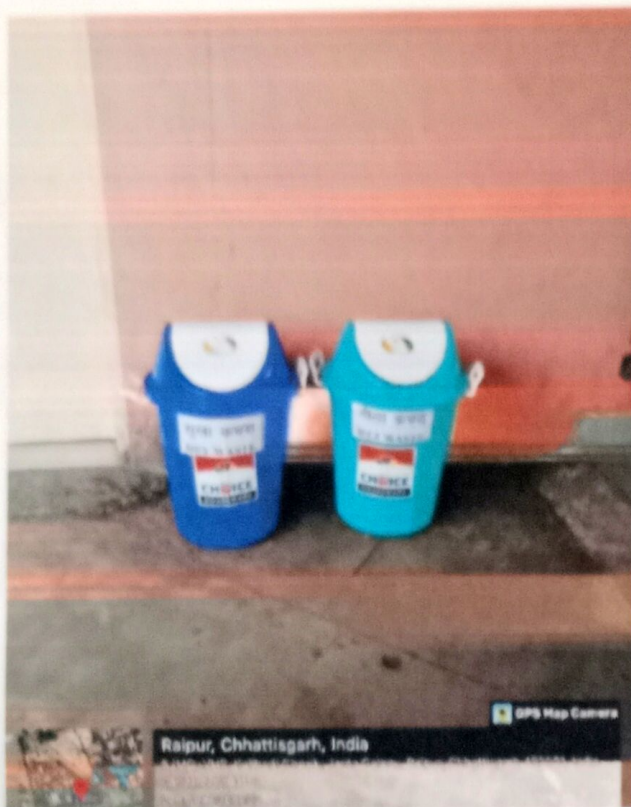
Rain Water Harvesting system in College Building



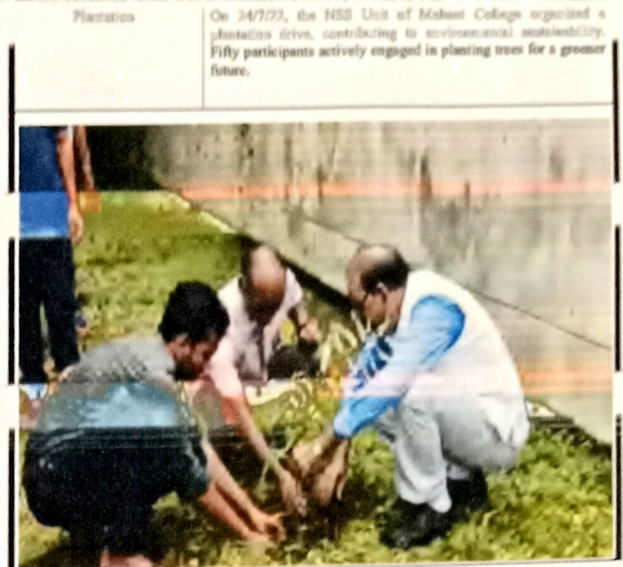
Terrace Garden in College Building



Beautiful seasonal flowers with full bloom in terrace Garden



Waste Management Practices in College building



Environmental Awareness Activities of the College



Planation activates in new proposed college building at Sejbahar, Raipur



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AUDIT CERTIFICATE

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GREEN AND ENVIRONMENT AUDIT

INTRODUCTION

Green environment practices are essential in preserving the environment and its atmosphere from harmful hazards towards all the living things in earth. Clean and green environment imply absence of pollution and a better quality of life. In respect clean and green environment 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. To evaluate the environmental conditions and green practices in the institutions green and environment audit is an important tool. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful technique for a College/college to determine how and where they are using the most of the energy or water or resources; the College 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. 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 and environment auditing also bears 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 College/college including the assessment of policies, activities, documents and records. The National Assessment and Accreditation Council, New Delhi (NAAC) has made 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, besides; 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 and environment audit aims to examine environmental practices within and outside the College campus. Green and Environmental audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of College and college 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. Students are the strength of any academic institution. Practicing green action in any educational institution will inculcate the good habit of caring for natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Bird watching no vehicle day, Rainwater harvesting, etc. will make the students good citizens of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the institution.

Objectives of Green and Environmental audit

- To study the current practices this can impact the environment such as resource utilization, waste management.
- To prepare an Environmental Statement Report on green practices followed by the institution.
- To set goals, vision, and mission for Green practices on the campus.
- To identify and analyze significant environmental issues.
- To assess for better performance in green practices and its valuation.
- To creating awareness for environmental awareness among students and staff of the institution.

About Nature Conservation and Community Development Society, Raipur

Nature Conservation and Community Development Society, Raipur, Chhattisgarh is registered under the Chhattisgarh Govt. Society Registration act. The office of NCCDS is in Mova Raipur. Exploration and conservation of Biodiversity and environment; Creating

awareness among the society for sustainable utilization of natural resources; project planning and implementation of the various govt. schemes are the main objective of the society. Director details of the society areas follows:

Chairman: Dr. M. L. Naik

President: Dr. R.P. Mishra

ABOUT THE COLLEGE

The Mahant Laxminarayn Das College (MLDC), was established in 24th October 1997 by its parent body Shiksha Pracharak samiti Raipur affiliated to PTRSU. The College is recognized under the 2f & 12B of the university Grant Commission. The College is named after Mahant Laxminarayan Das an eminent freedom fighter who encountering challenges and difficulties in the childhood became Mahant of Jaitu Sao Math at purani basti in Raipur at an early age. It was the time when the freedom movement was entering a new era of mass struggle under the dynamic leadership of Mahatama Gandhi and Mahant Ji became the true soldier dedicating his life for the cause of mother land. Currently 2133 (829 Girl's and 1304 Boys) students enrolled in 12 different multidisciplinary subjects; P.G. yoga, PGDCA, M. Com., B.B.A, B.C.A., B.A., B.Com. M.A. in English, PGDJ, BAJMC, D C A, Ph.D. in Commerce.

VISION & MISSION OF THE COLLEGE

VISION

"Transforming lives and community through learning" encapsulated in college's monogram as "Vidya-VinayVivek".

MISSION

To provide the value based education at affordable cost in all programs run by the college.

To pursue holistic development of the students through academic and extension activities.

To inculcate strong feeling for Gender Sensitivity, Social Obligation, National Value and Environmental Concern.

To instill quality of leadership and service towards the neighboring community and society.

CAMPUS INFRASTRUCTURE:

The College has 22 ICT enabled classroom

Seminar Halls: The College has 2 big Hall with a seating capacity of 500 and 100 students and it is used for academic and cultural activities.

Staff Room: Total 4 staff rooms facilitated in the college for teaching staff. There are 3 separate offices for non-teaching staff and well equipped 1 principal office is there.

Library: The college library is fully computerized and digitalized with Catalogue facility and has a collection of over 6500 books, 2 encyclopedias and a subscription of about 8 periodicals and journals. Internet browsing is also available. Total seating capacity of the library is 100.

Computer Labs: There are total 4 well-equipped computer labs and 1 computer lab associated with the Departments of Commerce.

Canteen: The college canteen caters to the nutritional needs of the staff and students at subsidized rates. The canteen functions from 9 am. To 2pm.

Sports and Games facilities: The College has an indoor game facility and MOU has been taken for outdoor games with Balaji Vidyamandir and Raipur city sports club.

New building is proposed in Sejbahar, Raipur

CLIMATE OF THE AREA:

Climate of the area is typical monsoonic, divisible in to three seasons in a year, almost of equal duration. Summer season starts in March goes up to June, rainy season extends from about mid- June to September while the winter season, starting from November ends in February. Summer season is dry and very hot, maximum temperature very often crosses 38.00 °C to 42.0°C. The season is much testing to the survival of the plants. Rainy season also is generally hot and humid almost 90% of the rain is received during this season. The soil becomes over flooded with low to very amount of soil erosion. Very little amount of this water infiltrates as ground water. The winter season has mild cold with minimum temperature rarely going below 10°C. As representative climatic data for Raipur is being given below for one year.

Table 1. Mean monthly weather data of Raipur (C.G.), Year – 2022

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	26 °C (79 °F)	23.8 °C (74.8 °F)	28 °C (82.4 °F)	32.8 °C (91 °F)	35.3 °C (95.5 °F)	37.3 °C (99.1 °F)	36.8 °C (88.2 °F)	29.3 °C (84.7 °F)	26.7 °C (80 °F)	25.6 °C (78.1 °F)	22.7 °C (72.9 °F)	20 °C (68 °F)
Min. Temperature °C (°F)	13.3 °C (56 °F)	16.7 °C (62 °F)	20.7 °C (69.2 °F)	25.4 °C (77.7 °F)	28.7 °C (83.7 °F)	27.2 °C (81 °F)	24.8 °C (76.6 °F)	24.1 °C (75.3 °F)	23.8 °C (74.8 °F)	21.2 °C (70.2 °F)	17.1 °C (62.7 °F)	13.8 °C (56.8 °F)
Max. Temperature °C (°F)	28.7 °C (83.7 °F)	32.8 °C (91 °F)	34.9 °C (94.8 °F)	36.2 °C (97.2 °F)	37.3 °C (99.1 °F)	38.3 °C (101 °F)	38.3 °C (101 °F)	35.3 °C (95.5 °F)	32.8 °C (91 °F)	30.3 °C (86.5 °F)	25.6 °C (78.1 °F)	20.8 °C (69.4 °F)
Precipitation Rainfall mm (in.)	15 (0.6)	11 (0.4)	12 (0.5)	16 (0.6)	22 (0.9)	213 (8.4)	398 (15.7)	379 (14.9)	241 (9.5)	89 (3.5)	12 (0.5)	12 (0.5)
Humidity (%)	53%	48%	35%	28%	26%	55%	81%	84%	81%	70%	61%	57%
Rainy days (d)	1	2	2	3	3	13	16	16	14	6	1	1
avg. Sun hours (hours)	9.4	10.0	10.7	11.3	11.6	10.5	7.7	7.0	8.2	9.2	9.5	9.5

Source: *world-weather.info*

Methodology

In order to perform green & environment audits, the methodology included different tools such as preparation of questionnaires, walk through 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 areas to summarize the present status of environmental management on the campus:

- Environment Management
- Water Management
- Energy Management
- Waste Management

The audit process was carried out and data required for the study was collected from various sources. The methodology of the present study is based on onsite visits, personal observations, and questionnaires survey tools. The surveyors then visited all the departments of the college and the questionnaires were filled. In green audit vegetation like trees, herbs, shrubs, climbers and grasses were recorded and identified with floras and expert of the audit team. The generated data is subsequently gathered and used for further analysis. From the outcome of the overall study, a final report is prepared.

ENVIRONMENT MANAGEMENT

This includes the plants, greenery, and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced, and reviewed using various environmental awareness programs. Environmental assessment carried out with the observations of utilization of resources and their management in the college campus. Biodiversity assessment in terms of vegetation, animal, insects, birds, reptiles etc., air quality in and around of the college campus were tried to record.

VEGETATION:

Vegetation in the campus consists of both the natural vegetation and planted vegetation. It is observed that the college campus is situated in city of the center. In College campus few planted vegetation was found although the college building is surrounded by natural vegetation. A community garden is established very near the college building. A terrace garden has been established on the top floor of the college building. Varieties of roses and other ornamental flowering plants planted in terrace garden.

Whole campus covered with tree vegetation includes avenue tree like Royal palm, Ashok, Lagerostromia, Ficus, Chhatim, Kachnar, Peltaphorum, Amaltas, Gulmohar, Karanj.

ANIMALS:

Animals in the area include Mammals, Birds, Reptiles, Amphibia, Butterflies, Dragon flies and a large variety of other insects. Honey bee comb

Mammals:

Mammals in the area are nocturnal, with a few visible during the day time also like Bat, Cat etc

BIRDS

Few bird species recorded in the terrace garden in the college building. Following birds recorded during the audit:

S.N.	Local Name	English Name	Zoological Name	Status
				Schedule Part
1.	House crow		<i>Corvus splendens</i>	V
2.	Common myna		<i>Acridotheris tristis</i>	IV
3.	Brahminy myna		<i>Sturnus pagodarum</i>	IV

4.	Little Green Bee-Eater	<i>Merops orientalis</i>	IV
5.	Koel, Cuckoo	<i>Eudynamys scolopacea</i>	IV
6.	Tota	<i>Psittacula krameri</i>	IV
7.	Basanti (Indian cuckoo)	<i>Cuculus micropterus</i>	IV
8.	Bater (Grey Quail)	<i>Coturnix coturnix</i>	IV
9.	Grey heron	<i>Ardea ceneria</i>	IV
10.	Owl	<i>Bubo bubo</i>	IV

Reptiles: Following reptiles observed during the audit

S.N.	Local Name	English Name	Zoological Name	Status	WL(Protection
				Act, 1972) Schedule	Part
1.	Dhaman/Indian Rat snake		<i>Ptyas mucosus</i>	II	II
2.	Dhondwa/Water sanke		<i>Enhydris enhydris</i>	IV	
3.	Garden lizard		<i>Calotes versicolor</i>	-	-

Butterflies

More than 6 species of butterfly have been recorded in from terrace garden of the college building some of them have been identified clearly as given below:

Table: List of Butterflies

SN	Species
1.	<i>Acraea violae</i>
2.	<i>Eurema andersoni</i>
3.	<i>Eurema brigitta</i>
4.	<i>Eurema laeta</i>
5.	<i>Euthalia nais</i>
6.	<i>Gandeca harina</i>
7.	<i>Hypolimnas bolina</i>
8.	<i>Acraea violae</i>

GREEN INITIATIVES

Many plantation drives are taken by the college in its proposed new campus in Sejbahar.

Every year on 5th June i.e. World Environment Day, Earth Day the college takes Plantation activity.

CAMPUS INVOLVEMENT IN ENVIRONMENTAL AWARENESS

For sustainable use of resources and keeping in mind for the mission of "Nature Club" constitute in the campus to create environmental awareness among students, faculty, and administrations.

AIR QUALITY IN THE CAMPUS

Central Pollution Control Board, New Delhi initiated National Ambient Air Quality Monitoring (NAAQM) program in the year 1984 to get a spatial and temporal variation of ambient air concentrations for a wide range of pollutants that are considered relevant for evolving strategic management plan. The program was subsequently renamed NAMP (National Air Quality Monitoring Program). Ambient air quality has been checked. It is found that the range of AQI range is 90.23 to 130 which is sensitive. NO₂ range was 83 shows un fair air quality. Campus's air quality status is moderate.

WATER CONSERVATION IN THE CAMPUS:

Water is a precious natural national resource, the availability of water is decreasing due to the increasing population of the nation; as per capita availability of utilized water is going down due to rapid industrialization, urbanization, demand for freshwater is increasing day by day. Water conservation in the campus can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing, and recycling water. Water management is nothing but an effective measure for minimizing losses, optimizing various uses. A water audit is a technique or method which makes it possible to identify ways of conserving water by determining any inefficiency in the system

of water distribution. It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology determine the requirement of water. As per the standards provided by WHO Regional Office for Southeast Asia Schools require 2 liters of water per student for drinking purposes; 10-15 liters per student for Water-flush toilets. Administration requires (Staff Accommodation not included) 50 liters per person per day, In the College campus bore well water is the source of drinking water and for other utility. Following observation was taken:

SOURCE OF WATER

SL. No.	Resource	Quantity
1	No of Bore-well	01
2	Water reserve tank	02

WATER USERS IN CAMPUS (In average per day)

Sl.No.	Person in different section	Strength (No. of person)
1	Staff	37
2	Students	2133
3	Office Staff	20
4	Visitors	50
5	Servicing people	03

The students, staff and visitors of the college vary with respect to different activities conducted in the college campus. During admission and different competitive exam conducted in the college campus. The total number of visitors of the college increases up to 60 on such day. There are good numbers of visitor inflow to the college for courses inquiry and study purpose. Thus, average visitors per day approximately 50- 60.

QUANTITY OF WATER USED IN DIFFERENT SECTIONS OF THE CAMPUS

Sl. No.	Sections	Water Use (Litter/day)
1	Academic building	1500
2	Urinals and Toilets	2000

3	Departments	1000
4	Garden	2000
5	Drinking	1000
6	Leakage	00
7	Construction Work	-----

In the college campus rainwater harvesting system is adopted for water conservation.

SOLID WASTE MANAGEMENT:

In the College campus solid waste data is collected from overall the Building areas and the same is directly handed over to the Nagar Nigam/Municipalities' Bin for further segregation and recycling purpose. There are different types of waste are recorded such as paper waste, plastic waste, construction waste, glass waste, etc. The college has taken initiatives for E waste management practice.

OVERALL OBSERVATIONS

- Lack of greenery in the college building due to shortage of open area is observed although small beautiful terrace garden is marinating in the top floor of the building.
- Rain water harvesting systems is found in the campus is very good water resource management in the campus.
- A remarkable initiative of solar panel has been installed in the building.
- It was found quality of water is safe to drink for all, it should be maintained.
- Waste bins of different waste in the class rooms, corridors and campus were inadequate.
- Air quality in and around the campus is found satisfactory.
- To educate and create awareness among the staff and students of the college one Nature Club constituted is good initiative.
- In Terrace garden small medicinal plant garden is lacking.

KEY RECOMMENDATIONS & ENVIRONMENT MANAGEMENT PLAN (EMP)


Following are some of the key recommendations for improving the campus environment and to be considered as Environment Management Plan (EMP)

- More greenery is required in the campus un-utilized space can be used in developing green zones in the building.
- Environmental awareness inadequate among the students, environmental education programs should be strengthened.
- An environmental policy document has to be prepared with all the recommendations and current practices carried out by the college.
- A frequent visit should be conducted to ensure that the generated waste is measured, monitored, and recorded regularly and information should be made available to the administration.
- The college should develop internal procedures to ensure its compliance with environmental legislation and responsibility should be fixed to carry out it in practice.
- The solid waste should be reused or recycled at maximum possible places.
- Installation of sensor-based electrification items like fans, lights, etc. can save electricity
- Regular checkups and maintenance of pipes, overhead tanks, and plumbing systems should be done by the engineering section to reduce overflow, leakages, and corruptions.
- Environmental Statement Report on green practices followed by different departments should be prepared annually.
- Green audit report should be published in annual report of the college and uploaded in the college website.

CONCLUSIONS

Green and Environment Audit is one of the important tools to check the balance of natural resources and their judicious use. It is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. The main objective to carry out a green

and environment audit is to check the green practices followed by the college and to conduct a well-defined audit report to understand whether the college is on the track of sustainable development. After completing the audit procedure of the college for green practices, Observations, recommendations, and Environmental Management Plan (EMP) which can be followed by the college in the future for keeping campus environment friendly.



(Dr. R. P. Mishra)
President

*Higher Education and Community
Development Society Chhattisgarh*



PRINCIPAL
Mahant Laxminarayandas College
RAIPUR (C.G.)

PHOTOPLATE



Solar panel in the College building



Rain Water Harvesting system in College Building



Terrace Garden in College Building



Beautiful seasonal flowers with full bloom in terrace Garden



Waste Management Practices in College building



Planation activates in new proposed college building at Sejbahar, Raipur



**Nature Conservation and Community Development Society,
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Date: 11/04/2022

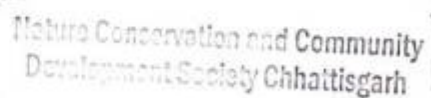
AUDIT CERTIFICATE

This is to certify that Green and Environment Audit for **MAHANT LAXMINARAYAN DAS COLLEGE, Raipur** have been conducted in 2022-23 by **Nature Conservation and Community Development Society (NCCDS), Raipur, C.G.** The Green and Environmental audit was conducted in accordance with the applicable standards. The green and environmental initiatives carried out by the institution have been verified on the basis of primary data. The audit involves water, wastewater, energy, air, green inventory, solid waste, etc., and gives an 'Environmental Management Plan', which the college can follow to minimize the impact on the institutional working framework.

Hereby, the Green and Environment Audit Report are being submitted to Principal, **Mahant Laxminarayan Das College, Raipur.**


PRINCIPAL
Mahant Laxminarayan Das College
Raipur (C.G.)


(Dr. R. P. Mishra)
President


Nature Conservation and Community
Development Society Chhattisgarh