



**Environment Audit Report
NRI Institute of Information Science &
Technology Bhopal(MP)Year2024-25**



**ENVIRONMENTAUDITREPORT
CONSULTATIONREPORT**



**NRI Institute of Information Science & Technology
Bhopal (MP)**

PREPARED BY

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(2024-25)



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ACKNOWLEDGEMENT

Empirical Energy Private Limited (EEPL), Indore takes this opportunity to appreciate & thank the management of **NRI Institute of Information Science & Technology, Bhopal (MP)** for giving us an opportunity to conduct environment audit for the college.

We are indeed touched by the helpful attitude and co-operation of all faculties and technical staff, who rendered their valuable assistance and co-operation the course of study.



**Rajesh Kumar Singadiya
(Director)**

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Scholar) Accredited Energy Auditor
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Chartered Engineer[M-1699118],The Institution of Engineers(India)
Member of ISHRAE[58150]



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CERTIFICATE



Empirical Exergy Private Limited

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CIN No: U74999MP2018PTC045751

Ref No.: EEPL/2024-25/C-125

Date: 09-12-2024

GREEN AUDIT CERTIFICATE

This is to certify that Empirical Exergy Private Limited (EEPL), Indore (M.P.) has conducted green audit at **NRI Institute of Information Science and Technology, Bhopal (M.P.)** for the academic year 2024-25.

We avail this opportunity to express our deep and sincere gratitude to the management for their wholehearted support and co-operations during the energy audit.

This certificate is being issued on the basis of audit conducted by EEPL.

For- Empirical Exergy Private Limited



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(Energy Management), PhD (Research Scholar)
Accredited Energy Auditor [AEA-0284]
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Empanelled Energy Auditor with MPUVNL, Bhopal M.P.

Lead Auditor ISO50001:2011 [EnMS] from FICCI, Delhi

Certified Water Auditor (NPC, Govt. of India)

Chartered Engineer [M-1699118], The Institution of Engineers (India)

Member of ISHRAE [58150]



EXECUTIVE SUMMARY

The executive summary of the Environment audit report furnished in this section briefly gives the identified water conservation measures that can be implemented in a phased manner to water conservation and increase the productivity of the college.

Green Initiative Already Taken by College

Rain Water Harvesting System:

- College has installed rain water harvesting system on main college building. It is good initiative taken by management for water conservation. **It is greatly APPRECIABLE.**

AREAS FOR IMPROVEMENT AND RECOMMENDATION

FRESH WATER MONITORING SYSTEM:

- Installation of **Cloud based (IoT based) ground water extraction monitoring system”**
For well to quantify fresh water consumption per day in the college.
- Install water flow meters (Mechanical or Electronics) in distribution network, like college building, for quantity per day water consumption and wastewater generation in the college campus.

WASTEWATER TREATMENT PLANT

- STP Plant:** - Install STP plant for treatment of waste water generated in hostel from various activities and it can be reuse for grading. It will reduce fresh water consumption of the college campus.

OVERFLOW CONTROL SYSTEM

- Install overflow control system in overhead tanks.

ARREST WATER LEAKAGES:

- Arrest Water Leakages from any pipe immediately.



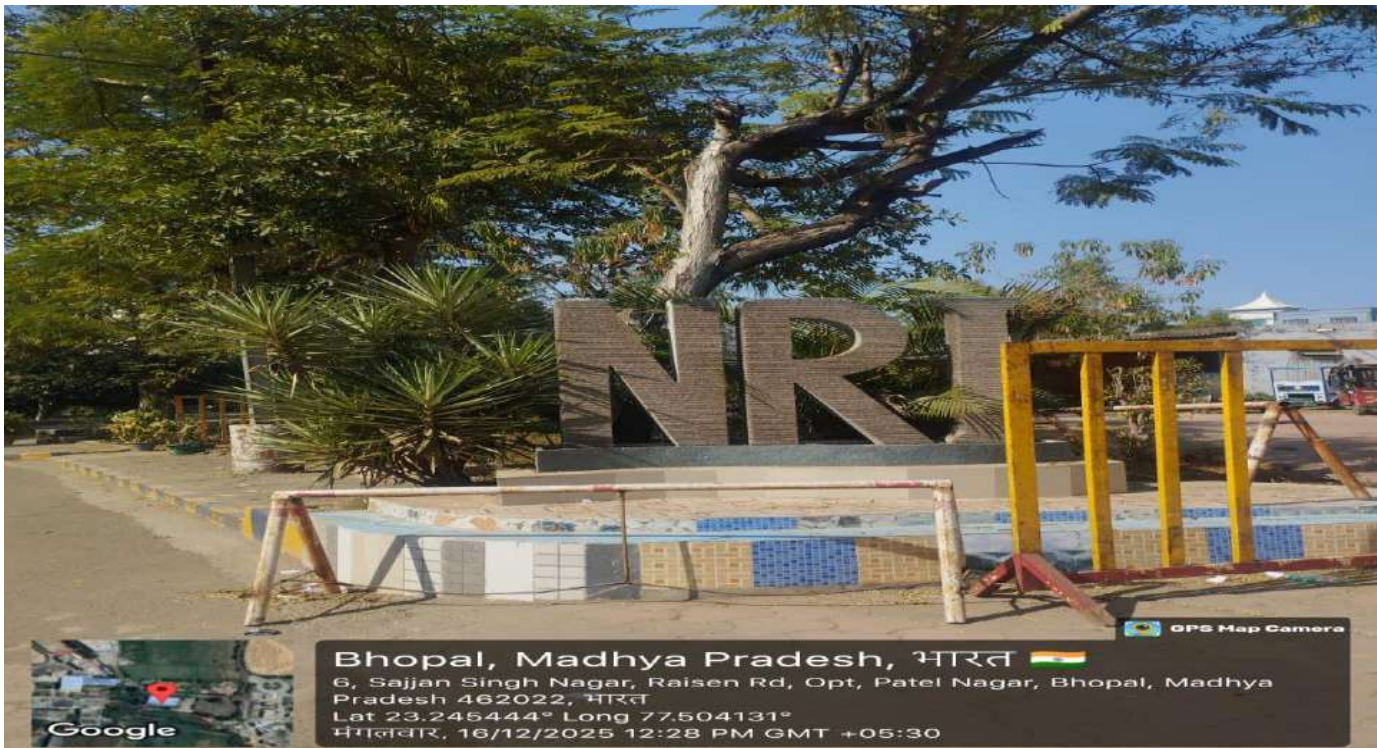
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CHAPTER-01 INTRODUCTION

About College:-

NRI Group of Institutions (NGI) was founded by Mr D. Subodh Singh a technocrat and the NRI, in the year 2000. It runs by the Taramathi Education Society formed by NRIs based in the USA and highly qualified technocrats in India. NRI Group of institutions is a leading group of educational institutions of India that is providing professional degrees in engineering, pharmacy, management, law, nursing, physiotherapy and paramedical sciences for 25 years. The institute caterstoover5000+studentsstudyingacross25acres of high-tech campus. The institute nurture students coming from all walks of society to experience quality and equal education. The college is sensitive to individual, racial, ethnic differences and seeks students from diverse cultural backgrounds. Our institute believes in providing the best of the Indian Education system with a blend of educational techniques of the USA.Apart from providing education, to develop responsible and sensitive citizen who should always be ready to serve society and country.





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Vision

- ✚ To attain global leadership in academics by exploring new frontiers of technology through innovative research and grooming future leaders as well as entrepreneurs.

Mission

- ✚ The institute mission is to build tomorrow of Indian Society by nurturing the career and lives of our students.
- ✚ The institute is dedicated to provide quality education and focus on the overall development of the student.
- ✚ The institute agenda is to prepare our students to make a difference in our society and the world by being the best in whatever field they choose.

Name of Departments:

The college offers various courses in Engineering, Science, and Management with following departments.

- ✚ Computer Science Engineering – B.Tech. & M.Tech.
- ✚ Artificial Intelligence and Machine Learning- B.Tech
- ✚ Civil Engineering- B.Tech.
- ✚ Electronics & Communication Engineering- B.Tech. & M.Tech.
- ✚ Electrical & Electronics Engineering – B.Tech. & M.Tech.
- ✚ Information Technology -B.Tech. & M.Tech.
- ✚ Mechanical Engineering – B.Tech. & M.Tech.
- ✚ Master of Business Administration- MBA
- ✚ Master of Computer Application-MCA
- ✚ Basic Science & Humanities
- ✚ Integrated (Energy Environment & Green) Policy



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N.R.I INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY

(Run by Taramathi Education Society)
(Approved by AICTE, New Delhi and Govt. of M.P. And Affiliated to R.G.P.V. Bhopal)
1, Sajjan Singh Nagar, Opp. Patel Nagar, Raisen Road, Bhopal (M.P.)
Ph. 0755 – 2684058, 2684060, 4941005, Fax. (0755) 2684059
Website: www.nrigroupindia.com



Ref: 128

Date: 24/08/2024

Integrated Energy, Environment & Green Policy

Management of our institution is committed to go green for making our nation to go green for making our nation to Atma-Nirbhar (i.e. Self-Sustainable) in the area of energy and environment.

Our Emphasis is to

1. Ensure continual enhancements in our energy and water conservation methods and usage.
2. Procure and use energy efficient equipments and products.
3. Continuously monitoring the energy consumption patterns through periodic reviews and IT systems.
4. Create awareness regarding necessity of energy conservation and making environment pollution free to all staff and students. A regular buses by arranging framings, workshops seminars, competitions, etc
5. Carry out regular energy, environment and green audits by certified auditors to identify key areas of improvements.





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Audit Team

The study team constituted of the following senior technical executives from **Empirical Energy Private Limited,**

- ✚ **Mr. Rakesh Pathak,** [Director]
- ✚ **Dr. Suresh Soni** [Reviewer]
- ✚ **Mr. Sachin Kumawat** [Project Engineer]
- ✚ **Mr. Lokesh Kumar Varma** [Project Engineer]
- ✚ **Mr. Ajay Nahra,** [Site Engineer]



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About Environment Auditing

Water audits can be a highly valuable tool for institute in a wide range of ways to improve their energy, environment and economic performance. While reducing wastages and operating costs. Water audits provide a basis for calculating the economic benefits of water conservation projects by establishing the current rates of water use and their associated cost.

Objectives of Environment audit

The general objective of audit is to prepare a base line report on water conservation measures to mitigate consumption, improve quality and sustainable practices.

The specific objectives are:

- ✚ To monitor the water consumption and water conservation practices.
- ✚ To assess the quantity of water,usage,quantity of waste water generation and their education within the college.

Target Areas of Environment audit

This indicator addresses water sources, water consumption, irrigation, storm water, appliances and fixtures aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible institution should examine its water use practices.



Methodology followed for conducting Environment audit

Step 1: Walk through survey

- ✚ Understanding of existing water sourcing, storage and distribution facility.
- ✚ Assessing the water demand and water consumption areas/processes.
- ✚ Preparation of detailed water circuit diagram.

Step2:Secondary Data Collection

- ✚ Analyze historic water use and waste water generation
- ✚ Field measurements for estimating current water use ✚
Metered & unmetered supplies.
- ✚ Understanding of “base” flow and usage trend at site ✚
Past water bills
- ✚ Waste water treatment scheme & costs etc.

Step 3: Site Environment Audit Planning (based on site operations and practices)

- ✚ Preparation of water flow diagram to quantify water use at various locations
- ✚ Wastewater flow measurement and sampling plan

Step4: Conduction of Detailed Environment Audit & Measurements

- ✚ Conduction of field measurements to quantify water/ waste water streams
- ✚ Power measurement of pumps/motors
- ✚ Preparation of water balance diagram ✚
Establishing water consumption pattern
- ✚ Detection of potential leaks & water losses in the system ✚
Assessment of productive and unproductive usage of water
- ✚ Determine key opportunities for water consumption reduction, reuse & recycle.

Step5: Preparation of Environment Audit Report

- ✚ Documentation of collected & analyzed water balancing and measurement details
- ✚ Projects and procedures to maximize water savings and minimize water losses.
- ✚ Opportunities for water conservation based on reduce/recycle/ reuse and recharge options



CHAPTER-2 WATER CONSUMPTION AND WASTE WATER SOURCES

Details of Source of Fresh Water:

The main source of water for college is bore well. The major water requirement of college is drinking water and non-potable uses. There are total 2 no bore well.

Sr. No	Source of Water (Bore well/Open well/Municipality)	Depth (ft/m)	Type of Pumps	Rated (HP)	Rated Flow (m ³ /hr)	Running Hr per day
1	Bore well	200	Submersible	7.5	6.5	4
2	Bore well	200	Submersible	7.5	6.5	4



BorwallNo.-1



BorwallNo.-2

Observation:

Bore well No-1 & 2 used for water supply in college building. Water Audit team was measured the flow rate of each bore-well and estimated water consumption per day on the basis of ground water extracted from above water sources.



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Water flow Measurement on Bore-well

Audit team was measures water flow with the help of ultrasonic flow meter at main line of Bore wells. Estimated fresh water consumption is 10.2 m³ per day. It was observed that there is no water flow meter available for water measurement.

Table2.1:-Water Flow Measurements at different Bore well.

Sr. No	Parameter	Unit	Result
Borwall-01	Flow	m ³ /hr	5.2
Borwall-02	Flow	m ³ /hr	5.0
			Total=10.2m ³ /hr

List of Storage Tank:

There is sufficient water storage capacity in the college campus. Details of water tanks are given below:

Type of Storage System (Over Head Tank, Underground Tanks, Reservoir etc.)	Location	Storage Capacity (m ³)	Dimensions (Meter)	Remark
Under ground	Beside NIIST store	53	6x3.7x2.4	RCC tank
Over head tank	NIIST roof	10	Dia.=5.8,h=2	PVC
Over head tank	NIIST roof	10	Dia.=5.8,h=2	PVC
Over head tank	NIIST roof	10	Dia.=5.8,h=2	PVC
Over head tank	NIIST roof	10	Dia.=5.8,h=2	PVC
Over head tank	NIIST roof	5	Dia.=4.2,h=1.5	PVC
Over head tank	NIIST roof	5	Dia.=4.2,h=1.5	PVC
Over head tank	NIIST roof	5	Dia.=4.2,h=1.5	RCC
Under ground tank	Power station	2	2x1x1	RCC



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Fresh Water and Major Uses:

It is observed that fresh water is major uses for drinking water, service water, gardening & new construction work.

Table: Details of No. of Tap

Sr. No	Name of Building/Department/Section	No. of taps Drinking Water	No. of taps Service Water
1	NIIST	15	39
2	Workshop	02	05

Some application with photograph:





Recommended Water System for Gardening

There is good potential for water saving by adopt “Automatic Watering 360 adjustable misting nozzle irrigation Dripper’s system” for plants. adjustable drip irrigation tools to provide different amounts of water depending on the water requirements of different plants. The drip speed can be set as for indoor and outdoor plants.



Adjustable Misting Nozzle Irrigation Drippers

Automatic Water Timer Unit

Technology for Drip Water Irrigation for plant



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Wastewater Generation sources:



Details of Hand Wash and Urinals/Toilets

Sr. No		Hand Wash	Urinals	Toilets
1	NIIST	39	59	25
2	Workshop	05	05	04

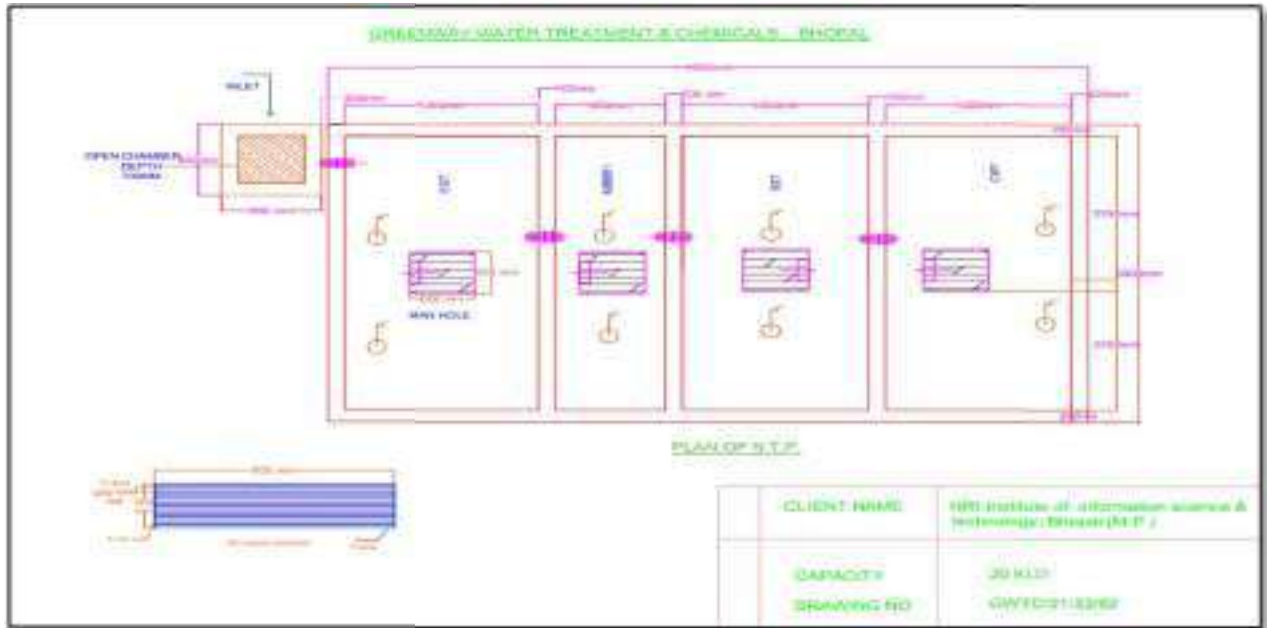


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STP plant:

It was observed that college has 20KLD STP plant under construction. Detailed plant layout is given below.





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2.7. Details of Water Conservation/Measures Undertaken By Collage in past

S. No.	Water Conservation/Saving Measure Undertaken	Annual Water Saving (cubic meter)	Annual Monetary Saving(Rs)	Investments (Rs)	Pay Back Period (Year/s)
1	RCC tank constructed	20	1,00,000	75000Rs.	One year
2	PVC tank	5	25000	35000Rs.	One year
3	PVC tank	5	25000	35000Rs.	One year

2.8 Rainwater harvesting (RWH):

It was observed that college management has install 59 ML Drain water harvesting system for college building. **It is appreciable:**

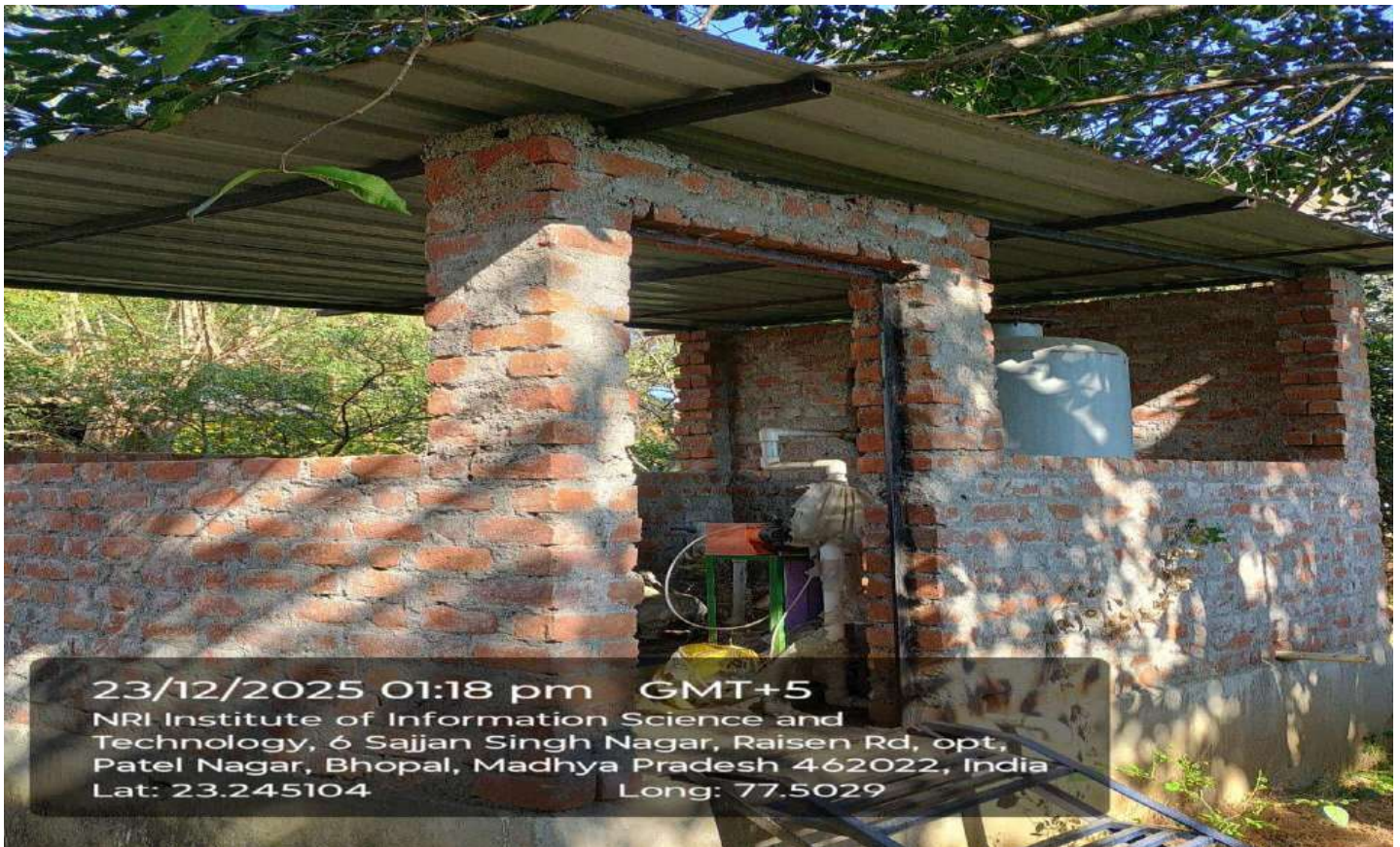


Fig.-: Rainwater harvesting system