



GOOD EARTH ORGANIZATION

An NGO dedicated to restore human bonds with our only home, The Earth.



ENVIRONMENT AUDIT REPORT NASRA COLLEGE OF ARTS AND SCIENCE TIRURKAD



Dr. P. Zubair
Principal

Nasra College of Arts and Science
Tirurkad

HAMIDALI. O
President
GOOD EARTH ORGANISATION
Tirurkad PO, Kerala - 678 640
Mob: 9496 36 39 00

Registered under Indian Societies Registration Act XXI of 1860, Reg No: MPM/CA/223/2020

goodearthorganization.com



+91 9496363900



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Preface

Institutional self-examination emerges organically as an essential aspect of higher education quality. The concern for environmental preservation and the acknowledgment of environmental values naturally stem from the processes of research, teaching, and learning. In its commitment to enhancing environmental standards and preserving a pristine environment for forthcoming generations of students, Nasra College of Arts and Science conducted an environmental audit of its campus with the following objectives:

1. Establishing a baseline of current environmental conditions, particularly focusing on the natural and physical environment.
2. Understanding current sustainability practices related to water and energy usage, waste generation, goods procurement, transportation, etc.
3. Promoting environmental awareness through a participatory auditing process.
4. Creating a comprehensive report that documents baseline data of commendable practices and presents future strategies and action plans aimed at enhancing environmental quality.

This report has been compiled by a committee formed by the Institutional Quality Assurance Cell (IQAC). Student volunteers played a crucial role in collecting the majority of the data, which was subsequently analyzed by the committee. Additionally, expert assistance was sought during the preparation of this report.

The committee has put forth both short-term and long-term recommendations to elevate environmental protection efforts, with the expectation that these suggestions will receive due consideration from all stakeholders within the college community.

Audit Team

The Nasra College of Arts and Science, Tirurkad has decided to conduct the Environmental Audit in association with a competent agency with active involvement of student and teachers in the College. With this aim it was decided to conduct the Environmental Audit of the College jointly with a team from the College in association with an external competent Organization Viz; The Good Earth Organisation, Vaazhakkad.


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Internal Audit Team

A team of faculty and students of Nasra College of Arts and Science, Tirurkad involved in collection of baseline data for the Audit by involving Nature Club and NSS club functioning the College. Shahin Ajmal and Adeeb from the department of Commerce, Farsana.AK and Shukroof from the department of Sociology were the members of the internal Green Audit Team.


External Audit Team

The Good Earth Organization, a dedicated environmental non-profit organization in Kerala, is committed to promoting sustainability and raising awareness about environmental and wildlife issues. In alignment with our mission, we propose to initiate an Environmental Auditing awareness program in collaboration with ten selected educational institutions situated in the Kozhikode and Malappuram districts of Kerala. This program's overarching goal is to empower these institutions and their volunteers with the knowledge and skills required for conducting environmental audits. By doing so, we aim to foster a culture of sustainability and responsible environmental practices within their campuses and the wider community.

Address : Good Earth Organisation
Vazhakkad PO
Malappuram dist
673640
Email
goodearthorganisation@gmail.com

Brief Report

- a. Water management: As such, wise use of water is a general practice in the college. Rain water harvesting is given utmost importance.
- b. Waste management: Biogas plants for effectively managing organic wastes are established in facilities that produce more organic wastes such as canteen and hostel.


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The campus is declared free from plastic carry bags and this is put into practice strictly. Flex banners and plastic carry bags and cups for social functions and academic programmes are avoided.

c. Energy management: A Grid connected Solar Power Plant at the roof-top of the college is set up. We also used solar powered lights.

d. Landscape/environment: The college maintains gardens and the campus is greener with fair biodiversity around and gardens.

e. Built-up Environment: In general, the built-up environment is eco-friendly and still, there is a need for adopting green habitat concept in future planning of buildings.

f. Transportation: Majority of the students in the campus rely on public transport, indicating a lesser carbon footprint of the student community.

g. Green Agenda in Syllabus: Green agenda form part of the curriculum in many departments and eco/nature clubs remain active for the cause of environmental protection, though it is not a common practice in all the departments in the campus. A mandatory audit course on Environmental Studies was introduced for UG students.

h. Water Quality: In general, it is within the stipulated standards. Water purifiers and water treatment facility are in place.

Thrust Areas of Environmental Audit

1. Water Management Audit
2. Waste Management Audit.
3. Energy Management Audit
5. Using Renewable Energy Audit
6. Carbon Footprint Audit.

Rain water harvesting structures and utilisation in the campus:

Kerala experiences an average annual rainfall of 3107mm, and within this context, Malappuram district receives an average yearly precipitation of 1446 mm, distributed across approximately 240 days. The availability of a consistent water supply for various purposes such as drinking, personal use, gardening, agriculture, and animal husbandry is uncertain in several Kerala districts, particularly in the northern regions, including Malappuram. Consequently, water conservation emerges as a crucial undertaking, forming an integral part of greening initiatives.

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Nasra College of Arts and Science
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goodearthorganization.com

M goodearthorganisation@gmail.com

Instagram goodearthorg

Facebook GEO Nature Club

Phone +919496363308



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Nasra College, accommodating a population of 958 on its campus, meets its water needs through a combination of an open well and a borewell dedicated to rainwater harvesting. The college deliberately refrains from relying on municipal water supply. Despite this, the institution remains proactive in averting potential water scarcity issues in the future. Rainwater harvesting stands out as a primary water conservation method championed by the college, with the *management placing significant emphasis on such initiatives.*

This harvested water serves as a perpetual source for various campus activities, including the numerous toilets. Furthermore, the college has implemented a well-maintained water purification system within the campus and canteen, ensuring hygienic conditions in the dining area. The campus also boasts a well-maintained well, equipped with a purification mechanism, serving as the primary drinking water source for students.


The college features a dedicated water harvesting system, and its overall infrastructure is designed to effectively retain water within the campus. Rather than opting for concrete surfaces, the courtyard is covered with bricks, allowing water to flow through the gaps and aiding in rainwater management. The institution's grounds play a vital role in preserving rainwater and replenishing the wells mentioned earlier.

Beyond these infrastructural measures, various clubs and forums within the college, such as the Nature Club and NSS, actively organize programs and seminars. These initiatives aim to instill in students the significance of water preservation for a better future, contributing to a heightened awareness of environmental responsibility.

Drinking Water Treatment Systems:

Apart from relying on traditional water sources, the campus enhances its water supply by actively harvesting rainwater from rooftops. A designated rainwater harvesting unit has been installed near Queen's Park within the campus. This unit plays a pivotal role in recharging the well, employing multiple stages of water filtration to ensure its quality.

Within our college, advanced treatment technologies, including Filtration, Ion exchange, and Reverse Osmosis (R.O.), are employed to purify drinking water. Three operational R.O. plants are strategically placed to meet the drinking water requirements of students, staff members, supporting staff, and visitors. This ensures a reliable and purified water supply throughout the college campus.


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Nasra College of Arts and Science
Tirunelveli

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 goodearthorganisation@gmail.com  [goodearthorg](https://www.instagram.com/goodearthorg)  [GEO Nature Club](https://www.facebook.com/GEO.Nature.Club)

 +919496363308



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WasteWater Treatment Systems:

Liquid Waste: The primary sources of liquid waste on the campus include effluents from toilets, washing basins, and the canteen. These waste streams are directed to distinct septic pits, where they undergo settling into the soil. Due to the strategic placement of the effluent pits away from water bodies and the campus being situated in a soil-rich area, the effluent water undergoes natural filtration. Additionally, a biogas plant is employed to ensure the proper disposal of wastewater in an environmentally friendly manner.

Observations and area of improvements:

The college is adorned with a canopy of trees, a garden, and a lawn situated in front of the main building, necessitating a significant volume of water for irrigation. Implementing a new water harvesting system and adopting efficient garden watering practices, such as drip irrigation, becomes essential to monitor and minimize water usage. Within the campus, it is imperative to establish small-scale, medium-scale, and large-scale systems for reusing and recycling water, including the implementation of wastewater recycling plants.

While conducting verification and site inspections of the infrastructure, a relatively low number of leakages were identified. However, to prevent water wastage, regular surveys and maintenance of water supply lines and appliances are crucial. Periodic supervision drills should be organized to ensure the proper functioning of the water supply system. Additionally, controlling the water supply after the designated occupancy time and incorporating pressure valves or sensor valves *can effectively manage potential overflow issues.*

Creating awareness among students about the judicious use of water is crucial to reduce water wastage. Promoting responsible water consumption practices can significantly contribute to the overall conservation efforts within the campus.

Waste Management Audit





Waste Management steps including:

- Solid waste management
- Liquid waste management
- E-waste management


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The effective management of waste is an essential aspect of ensuring the seamless functioning of the institution. The primary focus of the college is to control the generation of waste and ensure its proper disposal or recycling. Collaborative efforts between the College Management and various clubs such as NSS and the Nature Club are directed towards the shared goal of minimizing waste generation on the campus.

To achieve this mission, the generated waste is systematically separated into categories, including Solid, Liquid, and E-Waste. The college employs efficient disposal methods to maintain a clean and healthy campus environment. Several strategies are implemented by the college to manage these diverse types of waste. These strategies encompass:


Solid waste:

To uphold cleanliness and ecological balance, the institution consistently implements diverse measures to minimize waste through reuse and recycling. Initiatives such as promoting a paperless office through office automation, persistent efforts to reduce the use of plastic carry bags, and the utilization of public addressing systems and notice boards contribute significantly to the reduction of various forms of solid waste on the campus.

To achieve a paperless administrative environment, all teachers strictly adhere to a software system called TCS (Total Campus Solution). This software efficiently handles tasks such as recording student attendance, managing internal marks, and maintaining student profiles, thereby reducing the need for traditional paperwork.

In the commitment to establishing a plastic-free zone on the campus, the institution has introduced a Green and Environment Policy. This policy actively discourages the use of plastic and flex boards in various programs, further contributing to the preservation of a sustainable and eco-friendly campus environment.

Solid waste in the college mainly comprises food waste, plastic, and papers. The Nature Club, guided by proper instructions, ensures the responsible handling of waste materials by students. To facilitate this, distinctively colored waste bins with separate labels are strategically placed at various locations across the campus for the segregation of plastic and non-plastic wastes. The food waste generated in the college canteen is directed to biogas plants for efficient disposal. Aligning with the Green and Environmental Policy, the college encourages students to bring their lunches in reusable containers and water in steel bottles, effectively curbing the accumulation of waste paper and plastic.


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In a proactive measure to reduce paper waste, departments promote the online submission of assignments. Additionally, the college undertakes the sale of plastic and paper waste to scrap dealers, contributing to both waste reduction and recycling efforts. This comprehensive approach underscores the institution's commitment to sustainable waste management practices.

E-Waste:

Electronic goods are utilized optimally through proper usage and maintenance practices. With a dedicated Department of Computer Science equipped with a computer lab, the institution employs non-teaching staff known as Technical Assistance. Their responsibility is to ensure the effective maintenance and functioning of computers across all departments, offices, and the computer lab.

Additionally, the college has entered into an Annual Maintenance Contract (AMC) with Exxon IT Solution, Perinthalmanna. This agreement guarantees proper installation, maintenance, periodic checks, and the appropriate disposal of non-functioning electronic items. Regular checks ensure the identification and proper disposal of non-working or outdated electronic equipment. The renewal of this contract is an annual practice adhering to established guidelines. The institution places significant emphasis on providing students with proper guidelines to prevent damage to electronic goods.

For electronic waste (e-waste) that is not accepted by companies, a systematic collection and disposal process is in place through scrap dealers. Tenders are invited at regular intervals to facilitate the proper disposal of e-waste.

E-waste constitutes approximately 5% of global municipal solid waste and is more hazardous due to the presence of cadmium, lead, mercury, and other electronic components. To address this concern, minor repairs to electronic goods are managed by staff and laboratory assistants, while major repairs are handled by professional technicians, facilitating their reuse.





The college has also engaged in a contract with Techno Services, an agency specializing in the maintenance and disposal of e-wastes. This arrangement ensures that any generated e-waste is collected by the agency in compliance with e-waste management regulations mandated by the Government. This proactive approach effectively addresses the critical issue of safe e-waste disposal within the institution. However, the non-functioning instruments acquired under various UGC plans pose challenges in disposal.


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Thiruvananthapuram

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 goodearthorganisation@gmail.com  [goodearthorg](https://www.instagram.com/goodearthorg)  GEO Nature Club  +919496363308



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Recommendations

1. An annual environmental audit, overseen by government agencies, should be conducted to ensure ongoing monitoring.
2. Enhancements to rainwater harvesting facilities are recommended to reduce reliance on well water.
3. The adoption of specific waste management plans, in collaboration with the State Suchitwa Mission, is crucial for effective solid waste management on the campus.
4. Transitioning public lighting within the campus exclusively to solar panels and replacing existing lights with LED lamps is advised.
5. Embracing the Green Habitat concept for future college construction projects can significantly reduce energy consumption, enhance the aesthetic appeal of buildings and classrooms, and minimize the carbon footprint. Additionally, creating more green spaces around larger trees and shades is proposed for the benefit of students.
6. Installing fire safety instruments in all buildings is imperative.
7. The establishment of additional public toilets/e-toilets in the campus and hostels, including separate facilities for differently-abled students, is necessary.
8. Further promotion of vehicle pooling among students and faculty, along with advocating bicycle use as a college policy, is encouraged.





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GOOD EARTH ORGANISATION
Vazhakkad PO, Kerala - 673 640
Mob: 9496 36 33 08