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A Green Audit of the Institution: A Step Towards Environmental Sustainability

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ABSTRACT: Green auditing of the institution is crucial in order to assess the environmental performance of educational institutions and to consider potential options for turning the educational campus into an eco-campus. The MKR Government Degree College, Devarakonda, has undergone a green audit to evaluate its environmental impact. The main focus of this green audit is on the consumption of energy in terms of electricity and fossil fuels, soil and water quality, vegetation, waste management procedures, and the campus carbon footprint. To learn more about the resources on campus and their consumption, a questionnaire survey was first carried out. Water and soil samples were taken from various sites on the college campus and analyzed for their characteristics. The gathered information was sorted, tallied, and examined to give a report on the environment with recommendations. It is observed that drinking water sources need to be routinely treated and monitored to eliminate possible threats to both human and animal health.

Keywords: Energy Management, Water Management, Plantation, Vermi compost.

INTRODUCTION

Earth is the only planet in the universe to sustain life because of its environment (Sunil *et al.*, 2019). No life can exist without a suitable environment. Increasing population, civilization, industrialization, and urbanization on the earth have brought this environment under great pressure (Anthony, 2000). The first green audit was carried out by a few American corporations in the early 1970s in line with the Clean Air and Clean Water Act. The National Environment Policy 2006 (National Environmental Policy 2006) was announced by the Indian government in 2006, and every industry is now required to do a green audit. The National Environmental Strategy of 2006 states that the strategy is a response to India's commitment to a clean environment, which is enshrined in the Constitution in Articles 48A and 51A (g), (DPSP), and bolstered by judicial interpretation of Article 21. It is acknowledged that the state does not bear sole responsibility for maintaining a healthy environment. Every citizen must take responsibility for it, so the nation's environmental management must foster a sense of cooperation. According to Arora (2017), India is the first country to require environmental audits. Environmental sustainability is undervalued by the majority of organizational management (Goodland, 1995). The auditing procedures and results are inconsistent since there are different criteria and requirements for environmental sustainability (Brunelli *et al.*, 2022). Environmental management and auditing require sufficient financial and human resources. Organizations are becoming more aware of their social responsibility and the significance of sustainable development. Earlier research on environmental auditing concentrated on companies (Simnett *et al.*, 2009; Darnall *et al.*, 2009) or the accounting profession (Chiang and Lightbody 2004). The findings show that companies use environmental audits to: identify issues; improve compliance; instruct and enlighten workers; and enhance company image (Nacanieli, 2009). Uncertainty exists about whether an environmental audit in the public sector is driven by the same factors. The continuous, uncontrolled, unscientific, and exaggerated use of pesticides is adversely affecting our lives, environment, and biosphere at every level. For sustainable development, these issues must be solved on a primary basis (Balkrishna *et al.*, 2021). In order to fill this vacuum, the current study examines the college in a global framework and looks at how environmental auditing has been implemented. The current study seems particularly relevant given the dearth of widely acknowledged standards for environmental audits.

The audit makes recommendations for various environmental protection standards, factors, techniques, and projects. Any company, institution, organization, or even housing complex can embrace it. The green audit is helpful in identifying and keeping track of environmental pollution sources, and it places a focus on managing all forms of waste, energy use, and water quality and quantity. MKR GDC Devarakonda is situated on the outskirts of the town and has a campus

of 20 acres, which consists of classrooms, virtual classrooms, a recreation room, a yoga room, administrative buildings, a playground, an auditorium, a well-equipped library, a computer lab, and a language lab. 60 percent of the campus is covered by herbs, shrubs, and trees, including valuable medicinal flora. The plants have been systematically identified by the Department of Botany. There are more than 1356 plants growing on the campus.

Water Management Audit. Water is a natural resource that is essential to all living things. Potable (drinkable) water is widely accessible in many natural situations but less in urban areas. Water poisoning and groundwater depletion are happening at an alarming rate. Therefore, it is crucial to assess the water quality and usage in the college (Alphonsa-College-Pala-Green-Audit, 2018). Water auditing is done to assess raw water facilities for treatment and reuse.

Waste Management Audit. Waste is produced by human activity; this is how it is handled, stored, collected, and disposed of, which has an impact on the environment and public health. Littering in our neighborhood is a result of pollution from trash, which can be unhealthy and ugly (Christian et al., 2002). Plastic poisoned our ecosystem, caused aquatic animals to die, and did many other things (Mehvish *et al.*, 2021). Solid waste can be separated into biodegradable, non-biodegradable, and hazardous waste. Unscientific methods of handling this waste, such as burning or dumping it in pits, may be result in the release of dangerous chemicals into the soil and water supplies, as well as the production of greenhouse gases that contribute to global warming. The handling and management of hazardous waste produced by the college should receive special attention. Its output of solid trash is decreased by recycling and reusing non-biodegradable material.

Carbon Footprint Audit. The burning of fossil fuels, such as gasoline; releases green house gases (GHG) into the atmosphere, which have an effect on the environment. The most prevalent greenhouse gases include ozone, nitrous oxide, methane, water vapour, and carbon dioxide. The most noticeable greenhouse gas is carbon dioxide, which makes up 402 ppm of the Earth's atmosphere. The term "carbon emissions" refers to the release of carbon dioxide gas into the atmosphere as a result of human activity. Since the largest source of carbon emissions on campus is from vehicles; it's critical to evaluate the preferred mode of transportation used by the students. Plantations can help reduce GHG emissions.

OBJECTIVES:

This green audit's primary objective is to evaluate an institution's management practices and environmental quality. Assessment of environmental risks, including legal compliance, water, energy, and other natural resources, is used effectively.

- Ascertain whether the institution's extracurricular activities support the collection, recovery, reuse, and recycling of solid waste.
- To honour the environmental initiatives, made by the institution.
- To recommend the best practices for institutional and environmental sustainability.
- To make sure that the natural resources are used appropriately in accordance with national environmental policy.
- To prefer energy-efficient and environmentally friendly appliances.

METHODOLOGY

The following elements made up the methodology used to carry out the institution's green audit. The basic data is utilized in the following manner.

Visit on-site. The Green Audit Team made frequent and routine field visits. The main goal of the visit was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of a green audit. We gathered soil samples from different locations on campus and water samples from a bore well and a municipal tap. The protocols for standard sample collection, preservation, and analysis were followed in a scientifically sound manner.

Focus Group Discussion. Focus Group discussions on several facets of the Green Audit were done with the environmental club, College Planning and Development Committee, Alumni committee, and staff members. The primary subjects of discussion are the identification of attitudes and awareness towards environmental challenges at the institutional and local levels.

Analysis of the energy, waste, and carbon footprint survey. The entire amount of GHGs that the institute emits in terms of carbon dioxide is known as its carbon footprint. The audit team evaluated the college's waste creation, disposal, and treatment, as well as its pattern of energy usage. A comprehensive questionnaire survey method was used to carry out the GHG monitoring.

AUDIT STAGE

Evaluating the institution's level of green cover was the first step in the MKR Government Degree College Devarakonda's green auditing procedure (NREP 2020). Then came methods for using energy, water, and garbage disposal efficiently. The team observed different college facilities, recognized different utility types (lights, taps, toilets, refrigerators, etc.), measured usage per item (Watts indicated on the appliance or measuring water from a tap), and identified relevant consumption patterns (such as how frequently an appliance is used) and their effects. The staff and students were questioned in order to find out more about how specific appliances are used, when they occur, or how they are used generally.

Sectors like energy, waste, greening, carbon footprint, and water consumption were the subjects of data collection. College records and documents were checked multiple times in order to clarify the information gathered through surveys and talks. Water samples from different campus locations were gathered for environmental analysis in the college laboratories.

The green audit report has been discussed with the green audit committee, along with recommendations to

increase the amount of vegetation on campus. The college has made extra efforts to instill environmental awareness in its students. The vast plantation program run by NSS, NCC, Eco-club, Green Audit Committee, and students is a significant step in this direction. The Principal and all department faculty members support plantations as a way to improve greenery and lessen the consequences of carbon dioxide emissions. Existing gardens are also maintained, and outreach programs are also planned in order to promote biodiversity conservation and raise environmental awareness among students and the general public.

Water Quality Aassessment. Water samples were collected, and their quality indicators were evaluated. Both the municipal tap water and the bore well water are the main water sources for the college campus. The samples were marked, and they were subsequently taken to the lab for additional analysis. The materials were collected and put through a physico-chemical examination for a variety of reasons. We assessed the water's physical and chemical properties, including pH, electrical conductivity (EC), total dissolved oxygen (TDO), total dissolved solids (TDS), calcium, chlorides, and hardness. Some of the important factors that are also looked at include acidity, alkalinity, and salinity. The results can be contrasted with the values of drinking water standards.

Biological Analyses: The plankton was collected using blotting silk plankton nets and broad, thick bottles. The mouth of the conical net has a 20 cm diameter. With a moderate and constant horizontal motion, the 50- and 150-micrometre nets were carried to a depth of roughly 0.5 m below the surface of the pond water in order to collect the samples. The filtered water was then put into clean and washed PET bottles with a capacity of 200 ml. These bottles are then brought to the lab for additional examination. Within 24 hours, 5 ml of a 4% formalin solution was added to each 200 ml bottle. In anticipation of future analysis, static samples were kept at room temperature.

Enumeration of Plankton. For counting micro-algal forms, rotifers, and micro-crustaceans from net plankton samples, a Sedgwick-Rafter (SR) cell with a 1.0 ml capacity was utilized. The number of organisms in three SR cells was counted based on population density. The total number of organisms per liter was estimated using an appropriate multiplication factor.

Auditing for Energy Management: Conserving energy is a part of campus sustainability, and it also reduces the carbon footprint of the campus. Energy auditing focuses on methods for energy conservation and reducing usage. Therefore, any institution that respects the environment must rethink how it consumes energy.

RESULTS AND DISCUSSION

Energy audit. Table 1 explains the different appliances in the institution and the total consumption per month. The high energy efficiency of fans and LED lights made us use them in the institution, which led to better working conditions of the institution, eliminated heat and pollution, and reduced fire hazards (Amit *et al*., 2021). Most modern appliances are more efficient than old models, but the rating will help you choose the most efficient models (Paromow *et al*., 2022). There are many different ways in which we can save electricity and thus conserve energy. Furthermore, we can use more natural light. We can leave our windows open during the day to let in natural light and air instead of turning on lights and fans. For instance, many watts of electricity may be saved if everyone turnsoff the fans and lights when not in use.

Table 1: Energy audit.

Sr. No.	Electrical appliances/instrument	Number	Power(W)/unit	Total power (W)	kW	operation/ day	kW/hr	No. of days in month	Total consumption per month
1.	Led tube	213	20	4260	4.26	2	8.52	23	195.96
2.	Led bulb	16	9	144	0.144	3	0.432	18	7.776
3.	Projector	9	280	2520	2.52	1	2.52	23	57.96
4.	Speaker	1	10	10	0.01	1	0.01	16	0.16
5.	Fan	257	60	15420	15.42	2	30.84	20	616.8
6.	Computer	100	250	25000	25	1.25	31.25	18	562.5
7.	Laptops	2	60	120	0.12	3	0.36	18	6.48
8.	Printers	13	60	780	0.78	1	0.78	20	15.6
9.	Photostat machine	1	650	650	0.65	3	1.95	15	29.25
10.	Scanner	2	50	100	0.1	0.5	0.05	12	0.6
11.	Ups	2	1000	2000	2	4	8	20	160
12.	A/c	3	7000	21000	21	0.5	10.5	12	126
13.	Refrigerator	2	150	300	0.3	8	2.4	23	55.2
14.	Table fan	2	55	110	0.11	2	0.22	23	5.06
15.	Oven	3	1500	4500	4.5	2	9	8	72
16.	Centrifuge	2	850	1700	1.7	0.25	0.425	6	2.55
17.	Autoclave	3	1700	5100	5.1	0.25	1.275	2	2.55
18.	Exhaust fan	2	32	64	0.064	4	0.256	23	5.888
19.	Incubator	2	40	80	0.08	2	0.16	22	3.52
20.	Distillation unit	1	1000	1000	1	1	1	8	8
21.	CCTVdvr	27	10	270	0.27	24	6.48	30	194.4
		Total Consumption Per Month							2128.25kW/hr

Water Quality analysis using physical and chemical parameters. The Water Quality Index (WQI) was determined from physicochemical parameters like P^H, Electrical conductivity, TDS, total hardness, total alkalinity, sodium, potassium, calcium, magnesium, chloride, nitrate, sulfate, and fluoride. These results are examined with reference to the drinking water quality standards laid down by the WHO.

Physical and chemical analyses of the water were carried out to identify and quantify the physical and chemical components presented in the Bore well water and Municipal tap water. Different tests were performed under various quality parameters to check the water quality. The details of the data are given in Table 2. The P^H values of groundwater in the study area varied from 7.04 to 7.67, indicating a marginally alkaline nature. The presence of a significant count of coliform bacteria in the borewell water is indicative of microorganisms in the water. Sanitary inspection is used to identify the causes of contamination and the risks of future contamination. The turbidity of water is an important parameter as it contributes to its aesthetics of water and leads to its acceptance or rejection for human consumption.

In borewell water, dissolved solids are high (532 mg/l), alkalinity is also high (288 mg/l), and the Magnesium quantity is 132 mg/l (the normal range is below 123). Sulfates are very high, i.e., 5918 mg/l (the normal range is less than 208 mg/l) (Ashika and Anjana 2020).

All the parameters of Municipal water are within the normal range and suitable for drinking. From the values, interestingly, municipal water seems very good for drinking and other human uses.

From Table 2, it can be seen, that the borewell water is not suitable for drinking and can be used for washing and, gardening in the institution, or any other purpose. These findings demonstrate the need to come up with source water protection strategies for rural communities where water treatment is not available. It was concluded that drinking water sources need to be routinely treated and monitored to eliminate possible threats to both human and animal health.

Table 2: Results of Water quality.

Parameters	Bore Well water	Municipal Tap water	Standard value (BIS)
Physical parameters			
Dissolved Oxygen (mg/l)	6.2	6.5	6-8
Alkalinity to methyl orange as $CaCO_3$ (mg/l)	288	100	<200
Alkalinity to phenolphthalein as $CaCO_3$(mg/l)	Nill	Nill	-
Chloride (mg/l)	95	98	<352
Hardness (Total)	300	148	<300
Total Dissolved Solids (ppm)	532	351	<500
Total coli form	04	Nill	<10
Physical parameters			
Conductivity (µs)	818	540	-
P^H	7.04	7.67	6.50-8.50

Study of Phytoplankton, Zooplankton Community, and Faunal diversity. The Study of the phytoplankton community was tabulated in Table 3, the Zooplankton community was tabulated in Table 4 and the Faunal diversity Table 5. During the study period, phytoplankton was represented in four groups: Cyanophyceae, Bacillariophyceae, Chlorophyceae, and Euglenophyceae. Among the four, Cyanophyceae was the most dominant group. The zooplankton was represented by four groups: Rotifera, Cladocera, Copepoda, and Ostracoda.

Table 3 : Phytoplankton community present in the study area.

Sr. No	Phytoplanktons	Scientific Name
1	Diatoms (Bacillariophyceae)	*Cybella, Pinnularia, Bacillaria.*
2	Dinoflagellates (Dinophyceae)	
4	Green algae (Chlorophyceae)	*Chlomydomonos, Microcystis, Scenedesmus, Zygonema*
5	Cyanobacteria (earlier Blue- green algae)	*Oscillatoria, Nostoc, Phormidium*

Table 4: Zooplankton present in the study area.

Sr. No.	Zooplankton	Scientific Name
1.	Protozoan (Ciliates)	*Euglena, Paramecium*
2.	Rotifers	*Brachionus sps ,.Cephalodella sps., Keratella tropica*
3.	Ostracods	*Cypris sps*
4.	Insect Larvae	*Rigler (mosquito larva)*
5.	Water Fleas	*Dophnia*
6.	Bivalves	*Unio*
7.	Snails	*Pila globosa*

Table 5: Faunal diversity on the college campus.

Sr. No.	Faunal group	Common name	Scientific name	Seasonality
1.	Spiders	Spider	*Araneae*	All over the year
2.	Moths	Fruit piercing moth	*Eodocima phalonia*	Rainy
3.	Butterflies	Rhopalocera	*Papilio leo*	Rainy
4.	Dragonflies	Anisoptera	*Anax*	Rainy and winter
5.	Bees	Honey bee	*Apis indica*	Rainy and winter
6.	Wasps	Common wasp	*Vespula germanica*	Rainy and winter
7.	Bugs	Lady bug	*Cccinella*	Rainy and winter
8.	Beetles	End band net wijng beetle	*Calopteron terminale*	Rainy and winter
		Dung beetle	*Scarabaeidae*	Rainy and winter
9.	Annelida	Earth worm	*Megascolex*	Rainy
10.	Other Arthropodes	Millipede	*Julus spirostreptum*	Rainy and winter
		Centepede	*Scalopendra*	
		Scorpion	*Buthus*	
		Grasshoper	*Gomphocerinae*	
		Ant	*Spinctomyrmex*	
		Housefly	*Musca domestica*	
		White ant(Termite)	*Coptotermes formosanus*	
11.	Amphibians	Frog	*Bufo melanosticus*	Rainy
			Rana tigrina	
12.	Reptiles	Lizard (Domestic)	*Hemi dactylus*	All over the year
		Garden lizard	*Calotis*	
		Cobra	*Naza naza*	
		Krait	*Bungarus*	
13.	Birds	Crow	*Carvous splendence*	All over the year
		Parrot	*Psittacula*	
		Sparrow	*Passer domesticus*	
		Koel	*Eudynamus*	
		Eagle	*Ictinactus*	
		Crane	*Ardoela grayii*	
14.	Mammals	Rat	*Rattus*	All over the year
		Squirrel	*Funambulus*	
		Bat	*Pteropus*	

Soil Quality assessment. Indicators of soil quality assessment have a significant impact on sustainability. Currently, a variety of techniques are employed to choose the most pertinent soil quality indicators (Keshavarzi *et al*., 2022). Soil samples were collected from different locations on the campus and analyzed for the basic parameters. The results are tabulated and presented in the Table 6. The physical and chemical properties of both the soil samples were analyzed, and the soil P^H of location-1 was found to be slightly higher than that of location- 2. In the chemical parameters of soil, total nitrogen, phosphorus content, and potassium content were determined experimentally. From the present study, it was found that the fertility status of botanical garden soil was better than that of ground soil.

Table 6: Soil samples assessment.

Parameter	Location 1(Botanical garden)	Location 2(Ground)
pH	7.3	7.1
Total Kjeldhal Nitrogen(mg/kg)	2.7	2.6
Total organic carbon (%)	1.4	1.1
Phosphate (mg/kg)	0.2	0.1

Auditing for Green Campus Management. In many different ways, plants are crucial for environmental protection. Plants provide oxygen, shade, cool air, lowering the air temperature and adding to the overall aesthetic appeal. All the garden plants receive water from the bore-well and recycled water from the water purifier. Compost prepared from biodegradable waste on the campus, is used to manure the plants. No chemical fertilizers or pesticides are used. The notable plants found in the institution are:

Medicinal plants: *Phyllanthus emblica, Aegle marmelos, Ocimum sanctum, Catharanthus roseus, Azadirachta indica, Datura innoxia, Tinospora cordifolia, Phyllanthus niruri, Aerva lanata, Clitorea turnatea, Cissus quadrangularis, Aloe vera, Acalypha wilkesiana.*

Fruit trees: *Syzygium cumini, Psidium guava , Annona squamosa , Terminalia catappa, Punica granatum.*

Ornamental Plants:*Saraka asoka, Catharanthus roseus, Cycas, Plumeria rubra, Croton bonplandianum, Nerium odorum, Rosa sps., Passiflora foetida, Hibiscus mutabilis, Taberna montena, Ixora coccinea, Bougainvillea spectabilis, Caryota urens, Thuja.*

Waste management: The institution primarily produces biodegradable garbage, which includes weeds, twigs, and fallen leaves. In addition, there is paper waste from daily operations in various departments. Normally, it is sent for recycling (Allesch and Brunner 2014). Waste generated in the study area and their disposal processes are tabulated in Table. 7.

Solid Waste Management: Solid waste is divided into biodegradable and non-biodegradable categories as part of our college's Swachcha Bharat initiative and Clean

and Green campus initiative. The vermicompost pit, which is managed by members of the Eco Club, was filled with biodegradable garbage, including leaves and food leftovers from the canteen and students. The Eco-Club members took care of a compost pit. The departments have dry waste dustbins, which are regularly emptied. Additionally, to reduce trash, some of the trash cans are positioned in specific locations across the campus. The college is making a lot of effort to eliminate plastic. Water-filled UPS batteries are commonly reused in a variety of ways.

There were incinerators for disposing of napkins in the women's restroom. Recycled glass is used in science lab waste. The municipal waste collection van gathers the plastic trash and properly disposes of it. It is advised that both students and staff use cloth and biodegradable bags rather than plastic ones.

Liquid Waste Management: The campus's plants are watered using the R.O. plant's wastewater. The campus's septic tank receives the generated liquid waste. And the liquid wastes produced in chemistry labs are mixed with water before being sent to the plants. All laboratory waste (culture media) is autoclaved before being disposed of into the drainage system.

E-waste Management: The College's maintenance committee has identified and verified that the institution's electronic waste, which includes some out-of-date technology and computer accessories, is irreparable. E-waste is sold at auction using the correct protocols. The inkjet cartridges are filled one more time and then used. With the agreement of higher authorities, broken computer parts were submitted for appropriate disposal as e-waste. Unused and damaged goods will be segregated and then sold.

Water recycling system: Through a conduit, the College feeds the plants with recycled water from the RO plant. The level of the groundwater is raised by the direct intake of rainwater into the rainwater pit.

Hazardous Chemicals: Hazardous substances are not employed on campus. If they are required for any reason, we employ alternatives in their stead. As a result, we replace them with safe alternatives.

Radioactive waste Management system: Radioactive substances are never used on campus. We use only UV light in the laminar airflow chamber to sterilize or decontaminate utensils. The microwave system does not emit any radioactivity.

Table 7: Waste generated in the study area.

Type of waste	particulars	Disposal method
E-waste	Computer parts and electronic parts	Direct selling
Solid waste	Damaged furniture, paper waste, food waste	Reuse after maintenance, Energy conversion
Dry leaves	Dry leaves	Used to prepare compost
Chemical waste	Laboratory waste	Neutralization
Glass	Broken glass	Direct selling
Sanitary Napkins	Sanitary Napkins	Napkin Incinerators.
Plastic waste	Plastic bottles, pens, refills, wrappers, other plastic containers	Direct selling

Suggestions and Recommendations

Water Management. The sources of water are free from contaminants. According to the college's zero waste management strategy, food waste is being recycled. It assisted in lowering the amount of water needed for washing. The wells can be refilled with rainwater from new building rooftops. The roof area of a new building can be used to gather roof water. The establishment of a few composting yards on campus will allow the canteen garbage to be treated to aerobic composting as well. Thanks to this, the students will have the opportunity to learn by observing and managing such compost yards on their own. Additionally, it's a good idea to teach children how to operate the compost yard so they can manage their own waste (from lunch boxes) rather than having to lug it at home.

Energy management. The energy audit advises against using more energy-intensive electrical appliances in the college in favor of those that are more environmentally friendly and energy efficient (for instance, an air conditioner with five stars). It is necessary to investigate the potential of renewable energy sources.

Waste Management. Try to limit the usage of plastic on campus and promote the substitution of biodegradable materials. Make an effort to make your campus plastic-free. Campus leaf litter can be successfully used for aerobic or vermin-composting, resulting in compost material that can also be used as high-quality manure. Vermi-composting is the best approach among the several types of composting since it uses earthworms as part of an eco-biotechnological process to manage agricultural or biodegradable waste and ultimately turn that trash into organic fertilizer (Santosh *et al.*, 2021). Recycling paper waste is preferable to burning or incineration.

CONCLUSIONS

Innovative concepts for managing wastewater have been implemented by the institution. It will be meaningful to mention the compost that is used as fertilizer because this process contributes to our campus's successful waste management system. It is noteworthy that rainwater harvesting systems were installed. In addition, the administration's environmental awareness programs demonstrate how the campus is becoming greener. The threat posed by

environmentally friendly and scientific waste management was managed with a few additional recommendations. These successful efforts will unquestionably result in a prosperous future for the environment and community development on Green Campus. International accords (such as the Kyoto Protocol and European 20, 20, 20) encourage all nations to take action to hasten the process of increasing the energy efficiency of the residential sector, which in the European Union is responsible for more than 40% of total energy consumption from fossil fuels.

FUTURE SCOPE

This study might be expanded in future research by including various institutes. Only information that is freely accessible is used in this investigation. To learn more about green audits, future studies may include other methodologies like those used by environmentalists and certified green auditors. Identify the environmental media that will be under audit, such as waste, water, and air. Make plans to raise environmental consciousness. Prepare strategies and procedures for handling crises.

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REFFERENCES

Allesch, A. and Brunner, P. H. (2014). Assessment methods for solid waste management: A literature review. *Waste Management & Research*, 32(6), 461-473.

Anthony, J. M. (2000). The urban environment and health in a world of increasing globalization: issues for developing countries, *Bulletin of the World Health Organization*, *78*(9), 1117-1126.

Amit, G., Jyoti, M., Debdatta, M. (2021). Transitions towards energy-efficient appliances in urban households of Gujarat state, India, *International Journal of Sustainable Energy, 40*(7), 638-653.

Ashika, B. and Anjana, D. (2020). Physico-Chemical characteristics of Lakes of Chitwan National Park, Central Nepal. *Biological Forum – An International Journal, 12*(1), 33-39.

Arora, P. (2017). Environmental Audit – Need of the Hour. *International Journal of Advanced Research In Engineering & Management, 3*(4), 25-31.

Balkrishna, A., Jitendra, K. P., Pankaj, K. T., Ritika, J., and Vedpriya, A. (2021). Chemical Fertilizers and Pesticides in Indian Agriculture: Effect on Human Health and Environment. *Biological Forum – An International Journal, 13*(3), 407-422.

http://www.alphonsacollege.in/wp-content/uploads/2018/12/Alphonsa-College-Pala-Green-Audit-Report.pdf/.

Brunelli, S., Murzakhmetova, A. and Falivena, C. (2022). Environmental Auditing in Rural Areas: Current Patterns and Future Challenges in Central Asia. *Sustainability*, *14*(22), 15163.

Christian, Z. (2002). Urban Solid Waste Management in Low-Income Countries of Asia How to Cope with the Garbage Crisis? Scientific Committee on Problems of the Environment (SCOPE) Urban Solid Waste Management Review Session, Durban, South Africa, November 2002.

Chiang, C. and Lightbody, M. (2004). Financial auditors and environmental auditing in New Zealand. *Managerial Auditing Journal*, *19*(2), 224-234.

Darnall, N., Seol, I. and Sarkis, J. (2009). Perceived stakeholder influences and organizations' use of environmental audits, *Accounting, Organizations and Society*, *34* (2), 170-187.

Goodland, R. (1995). The Concept of Environmental Sustainability. *Annual Review of Ecology and Systematics*, *26*, 1-24.

Keshavarzi, A., Pulido, M. and Zeraatpisheh, M. (2022). Soil Quality Assessment: Integrated study on standard scoring functions and geospatial approach. In book: Soil Health and Environmental Sustainability.

Mehvish, S. B., Marpu, A. L. and Rattan, S. (2021). Bioplastic from Waste: A Short Review. *Biological Forum – An International Journal, 13*(1), 638-644.

National Registry of Environmental Professionals (NREP) (2020). What is the Process for an Environmental Audit?

National Environmental Policy (2006). Government of India, Ministry of Environment and Forest.

Nacanieli, R., (2009). What motivates environmental auditing? *Pacific Accounting Review*, *21*(3), 304-318.

Paromow, G. and Jumadurdyyew, M., Gurbanow, T. (2022). Save electricity and save the world. *Brestenergo,* part 1, 21-24.

Santosh, K., Anudeep, B. M. and Lochn, S. (2021). A Review-Vermi composting: An Effective option for Agriculture Waste Management, *Biological Forum – An International Journal, 13*(2), 211-219.

Simnett, R., Vanstraelen, A. and Chua, W. (2009). Assurance on sustainability reports: an international comparison. *Accounting Review*, *84*(3), 937-967.

Sunil, P., Bhushan, L. and Minakshi G. (2019) Green audit in academic institutes, *International journal of multidisciplinary educational research, 8*(6), 97-107.

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