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1) Executive Summary

- An environmental audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. Government Science College, Gandhinagar already done internal green assessment of the campus and annual data has been generated showing the colleges commitment towards environmental conservation and sustainable use of the natural resources including preservation of biodiversity. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislation compliance by the campus. A questionnaire is used during audit. This audit report contains observation and recommendations for improvement of environmental consciousness.
- During the audit, it was reported that campus has good green cover and college is regularly conducting plantation drive for more greening the campus. The college is also following the rule of save energy by minimizing the various resources.
- College is conducting various environmental awareness programs for the students, teaching and non-teaching faculties by celebrating various days as mentioned in the report.
- The audit program has been initiated for the year 2019-20 from 18/06/2020 and completed the sampling process in three days. After a week a report has been received.





- The college is government owned higher education institute. The Government Science College, Gandhinagar is affiliated with Gujarat University, Ahmedabad.
- The college is government owned higher education institute. The Government Science College, Gandhinagar is affiliated with Gujarat University, Ahmedabad.
- The Institute is located in the Capital of Gujarat state, Gandhinagar. The total 1522 students out of total human resources working (1582). The campus is spread over an area of 199064.84 M². The College have various class-rooms enables with ICT facilities, well equipment laboratory of various department, Rich library and botanical garden.





Map showing the location of College





2) Acknowledgment

On behalf of the Environmental Audit & Consultancy Cell at Atmiya Institute of Technology & Science, Rajkot, we would like to express our sincere gratitude to the management of Government Science College, Sector-15, Gandhinagar for entrusting us with the important task of conducting their Environmental Audit/Green Audit.

We deeply appreciate the cooperation extended by your team throughout the assessment process. This cooperation was instrumental in the successful completion of the audit.

We would also like to extend our special thanks to Dr. S. K. Patel **Coordinator**, **IQAC**, for their unwavering support. Their dedication proved to be invaluable in ensuring the project's completion. Finally, we thank all other staff members who actively participated in data collection and field measurements. Their contributions were essential to the smooth execution of the audit.

We are also thankful to:

SN	Name	Designation	Signature
1	Dr. C. C. Ambasana	Head, Dept. Of Microbiology	
2	Dr. R. R. Patel	Head, Dept. Of Chemistry	
3	Dr. M. G. Patel	Head, Dept. Of Biology	
4	Prof. B. K. Trivedi	Head, Dept. Of Maths	
5	Mr. H. M. Patel	Head clerk	
6.	Jayshree Pandya	Librarian	

In closing, we would like to express our gratitude to Dr. M. G. Bhatt, Principal of Government Science College, Sector-15, Gandhinagar, for extending the opportunity to evaluate their esteemed campus's environmental performance.





3) Disclaimer

This Green Audit report has been prepared by the Environmental Audit & Consultancy Cell (EA&CC) at Atmiya Institute of Technology & Science, Rajkot, for of Government Science College, Sector-15, Gandhinagar. It incorporates data submitted by college officials/representatives along with expert analysis by the EA&CC Audit team.

While all reasonable efforts have been made to ensure its accuracy, the report is based on information gathered in good faith. Conclusions are based on best estimates and do not constitute any express or implied warranty or undertaking. The EA&CC at Atmiya Institute of Technology & Science, Rajkot assumes no responsibility for any direct or consequential loss arising from the use of the information, statements, or forecasts in this report.

The findings presented in this report are based entirely on data provided by Government Science College, Sector-15, Gandhinagarand gathered by the audit team during their audit & monitoring visit. It assumes normal operating conditions within the institution throughout the audit period. The auditors are unable to comment on environmental audit parameters outside the scope of the on-site surveys. Consequently, the report's findings are strictly limited to the timeframe during which the audit team conducted its assessment.

The EA&CC at Atmiya Institute of Technology & Science, Rajkot, maintains strict confidentiality regarding all information pertaining to **Government Science College, Sector-15, Gandhinagar**. No such information will be disclosed to any third party except public domain knowledge or when required by law or relevant accreditation bodies.

This certificate is valid solely for the current Environmental Audit/Green Audit report. It may be automatically revoked if any significant changes occur in the quantity or quality of waste generation at the aforementioned institute.

I/c Director,

EA&CC,

Atmiya Institute of Technology & Science



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Principal

Government Science College
AITS Environmental Audit Cell. Sector-15, Gandhinagar
Atmlya Institute of Technology & Science, Rajkot

4) Introduction

Since the 2019-20 academic year, the National Assessment and Accreditation Council (NAAC) requires all Higher Educational Institutions (HEIs) to submit an annual Environmental Audit/Green Audit report. This requirement falls under Criterion 7 of the NAAC accreditation process, which evaluates institutions for their environmental sustainability practices. NAAC, an autonomous body in India, assigns accreditation grades (A, B, or C) based on various criteria, including environmental stewardship.

Furthermore, conducting Environmental Audit/Green Audits aligns with the Corporate Social Responsibility (CSR) initiatives of HEIs. By implementing measures to reduce their carbon footprint, institutions contribute positively to mitigating global warming.

In response to the NAAC mandate, the College management opted for an external Environmental Audit/Green Audit conducted by a qualified professional auditor. Environmental Audit/Green Audit entails a comprehensive environmental assessment, examining both on-campus and off-campus practices that directly or indirectly impact the environment. In essence, it is a systematic process of identifying, quantifying, recording, reporting, and analysing environmental aspects within the institute setting.

Environmental Audit/Green Audits originated as a tool to evaluate institutional activities that might pose risks to human health and the environment. It provides valuable insights for improvement, guiding institutions towards environmentally responsible practices and infrastructure.

The specific areas covered by this audit include Green Campus initiatives, Waste Management, Water Management, Air Pollution Control, Energy Management, and Carbon Footprint reduction strategies employed by the college.

The following sections delve deeper into the concept, structure, objectives, methodology, analytical tools, and overall goals of this Green Audit.

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Sector-15, Gandhinagar



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Educational institutions are increasingly prioritizing environmental concerns. As a result, innovative concepts are emerging to make campuses more sustainable and eco-friendly. Numerous institutions are adopting various approaches to address environmental challenges within their facilities, such as promoting energy conservation, waste recycling, water use reduction, and rainwater harvesting.

The activities of educational institutions can have both positive and negative environmental impacts. A Green Audit is a formal evaluation process that assesses the college's environmental footprint. It provides a comprehensive picture of the current environmental conditions on campus.

Green Audits are a valuable tool for colleges to identify areas of high energy, water, or resource consumption. This allows institutions to implement targeted changes and achieve cost savings. Additionally, Green Audits can analyse the nature and volume of waste generated, leading to improved recycling programs or waste minimization plans.

Green auditing and the implementation of mitigation measures offer a win-win scenario for institutions, students, and the environment. It can foster health and environmental awareness, promoting values and beliefs that benefit everyone. Green Audits also provide an opportunity for staff and students to gain a deeper understanding of the impact their institution has on the environment.

Furthermore, Green Audits can translate into financial savings by encouraging a reduction in resource usage. This process also empowers students and teachers to develop a sense of ownership for personal and social environmental responsibility.

The Green Audit process typically involves collecting primary data, conducting a site visit with college representatives, and reviewing relevant policies, activities, documents, and records.

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OBJECTIVE AND SCOPE

The broad aims/benefits of the Environmental Audit/Green Audit would be

- Environmental education through systematic environmental management approach
- · Improving environmental standards
- Benchmarking for environmental protection initiatives
- Sustainable use of natural resource in the campus.
- · Financial savings through a reduction in resource use
- Curriculum enrichment through practical experience
- Development of ownership, personal and social responsibility for the College campus and its environment
- Enhancement of College profile
- Developing an environmental ethic and value systems in young people

OUTCOMES OF ENVIRONMENT AUDIT TO EDUCATIONAL INSTITUTIONS

There are many advantages of environment audit to an Educational Institute:

- 1. Protect the environment in and around the campus.
- 2. Recognize the cost saving methods through waste minimization and energy conservation.
- 3. Empower the organization to frame a better environmental performance.
- 4. Portrays good image of institution through its clean and green campus.





5) Audit Team

SN	Name of Auditor	Designation
1	Dr. Hemantkumar G. Sonkusare	Civil Engineer
2	Dr. Anilkumar S. Patel	Chemist
3	Prof. Ravi S. Tank	Chemical Engineer



6) Environmental Policy

- Generating mass awareness on cleanliness and hygiene amongst students and staff members by holding regular cleanliness drives. The idea is to motivate them to contribute in a proactive manner.
- Activities under 'Swachh Bharat Abhiyan' will be a key component of all the community work being done by NSS, NCC and Green Society volunteers of the college.
- Staff Members will be encouraged to participate in the cleanliness drive in the college campus.
- Events such as poster and slogan competitions, essay writing, spoken word poetry, speeches, skits on 'Swachh Bharat' will be organised.
- Rallies on themes connected with 'Swachh Bharat Abhiyan' in and around the college campus will be conducted to create mass awareness.
- Remove all kinds of waste material like broken furniture, unusable equipment etc.
- Administer of the pledge by students and staff members to maintain cleanliness of the college campus and its surrounding areas on an annual basis.
- Conduct workshops on the 3Rs: Reduce, reusing and recycling of waste.
- Commit to manage waste and maintain clean campus especially during college events.





7) General Information

- a. Does any Green Audit conducted earlier? (Yes/No)Yes
- b. Total Area of the college = $199064m^2$
- c. What is the total strength (people count) of the Institute?1582

AY	S	tuden	ts	Tea	achir	ng Staff	No	n-Te Sta	aching		Tota	l
2019-	М	F	Trans	M	F	Trans	M	F	Trans	M	F	Trans
20	1088	434	00	18	13	00	18	11	00	1124	458	00

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

Month	No. of Working Days
July-19	27
August-19	26
September-19	24
October-19	23
November-19	22
December-19	22
January-20	24
February-20	25
March-20	15
April-20	Lockdown
May-20	Lockdown
June-20	Lockdown
Total	208

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

Municipal dump yard	(Yes/No) YES
Garbage heap	(Yes/No) YES
Public convenience	(Yes/No) YES
Sewer line	(Yes/No) YES
Stagnant water	(Yes/No)YES
Industry – (Mention the type)	(Yes/No) NO
Bus / Railway station	(Yes/No) NO
Market / Shopping complex	(Yes/No) NO
Play Ground	(Yes/No) YES

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

Тур	oe of waste	Response	Detail(s) of Waste Generated	Quantity of Waste Generated (kg)
	Biodegradable	(Yes/No)	LEAF LITTER	2000 KG PER MONTH
Solid	Non- biodegradable	(Yes/No)	NO	NO
	e-waste	(Yes/No)	NO	NO
Liquid		(Yes/No)	NO	NO
Gas		(Yes/No)	NO	NO

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

h. Do you use recycled paper in ing

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

Poster competition activities	(Yes/No) YES
Campaigns	(Yes/No) YES
Rally	(Yes/No) YES
Webinars and seminars	(Yes/No) YES
Others (Please specify)	(Yes/No) PLANTATION DRIVE

j. Is there a garden in your institute?

,		
Garden	(Yes/No) YES	Area = 10443 m²

k. Total number of Plants in Campus?

Sr. No	Tree species name	No. of Trees
1	Annona squamosaL	3
2	Polyalthialongifolia	8
3	BixaorellanaL	1
4	Adansoniadigitata	1
5	Bombexceiba L	4
6	Aegle marmelos (L.) Corr.	4
7	Citrus limon (L.) Burm.	1
8	Citrus medica	1
9	Murrayakoenigii (L)	1
10	Murrayapaniculata (L.) Jack.	2
11	Ailanthus excelsaRoxb.	1
12	Balanitesaegyptica (L.) Del.	1
13	Azadirachtaindica A. Juss.	50
14	Meliaazadirach L	2
15	Mangiferaindica L	2
16	MoringaconcanensisNimmo	1
17	Dalbergiasissoo	1
18	Derris indica (Lam.) Bennet	65
19	Gliricidiasepium (Jaco)	2

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20	Caesalpiniapulcherrima (L.) Sw.	15
21	Cassia fistula L.	4
22	Cassia javanica L.	1
23	Cassia roxburghii DC.	1
24	Cassia siameaLam.	1
25	Delonixregia (Boj.) Raf.	1
26	Peltophorumpterocarpum (DC.) Backer	5
27	Tamarindusindica L.	2
28	Terminalia bellirica (Gaertn.) Roxb.	1
29	Alangiumsalvifolium (L.F.) Wang.	2
	Hamelia patens	2
30	Xeromphisspinosa	1
31	Madhucaindica J.F. Gmel.	1
32	500 cm² to 2 1 cm² 1	10
33	Mimusopselengi L. Manilkarahexandra (Roxb.) Dub.	4
34		1
35	Salvadorapersica L.	1
36	Holarrhenaantidysenterica Plumeriarubra	2
37		2
38	CordiadichotomaForst.	2
39	Jacaranda mimosifolia D.Don	
40	Kigeliapinnata(Jacq.) DC.	5
41	Millingtoniahortensis L.	2
42	Oroxylumindicum (L.) Vent.	1
43	SpathodeacampanulataBeauv.	2
44	Tecomastans (L.) H.B. & K.	15
45	Tecomellaundulata (Sm.) Seem.	5
46	GmelinaarboreaRoxb.	1
47	Vitexnegundo L.	5
48	Emblicaofficinalis	25
49	Jatropha pendurifolia	25
50	Holoptelaintegrifolia (Roxb.) Planch.	5
51	Ficusbengalensis L.	8
1		





3 Ficusreligiosa L. 4 Morus alba L.	4
5 Phoenix sylvestris	2

l. List uses of water in your institute

Basic use of water in campus	KL/Day
Drinking	1.00
Gardening	45.00
Kitchen and Toilets	0.50
Others LABORATORY	2.00
Hostel	20.00
Total	68.5

m. How does your institute store water? Are there any water saving techniques followed in your institute?

SN	Storage Type	Capacity	Quantity	Total (in Litres)
1	OVER HEAD TANK	10000	5	50000
2	UNDER GROUND TANK	50000	2	100000
3	Any Other (Specify)			
TOTAL STORAGE CAPACITY			150000	





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n. Electricity Consumed

Month	Electricity Consumed (kWh) (Units)	
July-19	3106	
August-19	3876	
September-19	3702	
October-19	2250	
November-19	1372	
December-19	1830	
January-20	1474	
February-20	1364	
March-20	1256	
April-20	1258	
May-20	1258	
June-20	1258	
Total	24004 Units	





8) Green Initiatives By the Institute

- College eco club and all departments as well as different NGOs jointly organized plantation drive with in the college campus.
- College is actively participated in the government programmes like Van Mahotsava, Environment Day celebration, Gurupurnima day celebration etc.
- Regularly adding new plant species in College Botanical Garden.
- Conservation of the Rare and Endangered plant species.
- College established their own cactus house, Fern house and Orchidarium
- Organised Eco friendly Ganesh idol making competition.
- Celebrating Wild Life week and conduct competition on "Save wild life" theme.
- Celebration of "World sparrow day" by making Artificial nest and water pot from waste material and placed on various trees.

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9) Audit Methodology

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The criteria, methods and recommendations used in the audit were based on the identified risks. The methodology includes: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the document, interviewing responsible persons and data analysis, measurements and recommendations. The methodology adopted for this audit was a three-step process comprising of:

1. Data Collection – In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, survey communicating with responsible persons and measurements.

Following steps were taken for data collection:

- · Site Visit
- Data about the general information was collected by observation and interview.
- The power consumption of appliances was recorded by taking an average value in some cases.
- 2. Data Analysis Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus, Water consumption, Waste Generation and Greenery Management.
- **3. Recommendation** On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Use of fossil fuels has to be reduced for the sake of community health.

The above target areas particular to the University was evaluated through questionnaire circulated among the students for data collection.

The following data collected for the following areas during the assessment.

- 1. Environment & Waste Management
- 2. Energy Management
- 3. Water Management



My Principal

10) Observations & Recommendations

Observations:

- The college is utilising roof top solar energy as a green initiative.
- The college is having good plantation inside the campus.
- The college building has very good ventilation for natural light.
- Air quality on the campus is good.

Recommendations:

- Waste water treatment system should be installed.
- Eco friendly parameters should be included in the purchase of articles and goods for the campus.
- Increase the awareness activities regarding energy saving & environmental sustainability.



11) Photographic Evidences











12) Certificate

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Government Science College, Sector-15, Gandhinagar, Gujarat-382016-Bharat

For the AY (2019-20)

Environmental Audit for the period June 2019 to May 2020 has been conducted for the Government Science College, Sector-15, Gandhiangar to assess the green initiatives planning and efforts implemented in the college campus like Green Campus Management. This Environmental Audit is also aimed to assess eco-friendly initiatives of the Institute towards sustainability.

It is believed that the institution has presented authentic data on various aspects of working of the institute before the audit team. The recommendations are based on the data presented before the team as they existed at the audit time. This certificate is valid for the audit period only. However, it is subject to automatic cancellation in case of any change in prevailing green practice or misleading data. The findings reported in this audit report are entirely based on data furnished by the institute and data collected by the audit team during the audit. Thus, the findings reported in this audit report are strictly limited to the period when the audit was conducted.

The Environmental Quality in the campus is found adequate and efficacious.

Hemantkumar G. Sonkusare Environmental Audit & Consultancy Cell, Auniya Institute of Technology & Science, Rajkot-Gujarat-360005-Blacat

I assure that the data presented is authentic to the best of my knowledge & I agree to comply with the recommendations received this report within a year of maximum after the internal review.

ANDHI

Dr. Mahendra G. Bhatt, Principal, Government Science Cullege, Sector-15, Gandhinggir, Gujarat-382016-Bliarat

ovt. Science College Gandhinagar

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Government Science College

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- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act 1974 (Amended 1988) & the
 Water (Prevention & Control of Pollution) Rules 1975
- The Air [Prevention & Control Of Pollution] Act 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules 2016 (Replaces the Gas Cylinder Rules 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)

• Relevant Indian Standard Code practices

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