



GREEN AUDIT REPORT

INTERNAL QUALITY ASSURANCE CELL 2020-21

Audit conducted by Greenleaf, Kattappana

On 11-12.10.2020

JPM Arts and Science College Kanchiyar, Labbakkada, Kattappana, Idukki 685511
www.jpcollege.ac.in Email: jpm@jpcollege.ac.in Ph.9562034555
ISO 9001: 2015 Certified ♦ An institution established by the St. Joseph's province of the CST Fathers

INTRODUCTION

The campus Green Audit is a common tool that many colleges and universities have employed in recent years. A campus Green audit is both a summary and a report card for a campus and a way to evaluate where and how resources are being used. A Green audit is also the first step in being able to quantify whether or not current and future Green efforts are actually making a difference. As such, a Green audit is the beginning of the sustainability planning process. The results can be used to quantify what kind of impacts the campus community has made on the environment and what steps the college can take to reduce these impacts.

The information from a Green audit can be a starting point for researching pollution issues at any institution. An assessment of waste generation and energy consumption can highlight areas for potential intervention and provide a baseline for comparing subsequent increases or decreases in a specific waste stream. Performing an audit can also help facilitate the intervention process.

The Internal Quality Assurance Cell (IQAC) of JPM Arts and Science College, Kanchiyar has ventured to undertake an Green audit of the college with the following objectives:

- ✚ To collect baseline data about the college and campus
- ✚ To study and document the current practices regarding solid waste management, water and wastewater management and e-waste management
- ✚ To study the energy usage of the college
- ✚ To document the Green friendly practice
- ✚ To promote Green awareness

BASIC INFORMATION

Name of the Institution	JPM Arts and Science College
Year of establishment	2008
Campus area	5 acres
Location	Labbakkada Kanchiyar, Kattappana
District and State in which the campus is situated	Idukki, Kerala
Name of local body in which the campus is situated	Kanchiyar Grama Panchayat
Coordinates	9.735 N 77.063 E
Average height of campus above sea level	862 m
Access	Road – about 270 m from Labbakkada, (Kattappana – Kuttikkanam Highway)
Total built up area	4364.09 sq.meters
No of programmes of study	Total – 13 Undergraduate – 8 Post graduate -5
Total number of students (sanctioned)	UG – 945 PG - 175
Total number of teaching staff	58
Total number of non-teaching staff	14

DETAILS OF BUILDINGS


Administrative and academic buildings	<ul style="list-style-type: none"> • Main building (administrative cum academic) <ul style="list-style-type: none"> ○ Three floors
Hostels	<ul style="list-style-type: none"> • Ladies Hostel <ul style="list-style-type: none"> ○ Outside the campus of the college ○ Inmates : 49 ○ Three floors
Auditorium	<ul style="list-style-type: none"> • Seating capacity: 800 • Roof top
Canteen	Nil
Other	<ul style="list-style-type: none"> • Driving school • Grocery shop • IGNOU Study Centre
Buildings under construction	<ul style="list-style-type: none"> • Basilius Central Library and PG block
Restroom facilities	<ul style="list-style-type: none"> • Ladies restroom • Boys toilet
Sports facilities	<ul style="list-style-type: none"> • College ground – multipurpose
Parking facilities	<ul style="list-style-type: none"> • Two wheeler parking facility for staff and students
Water resources	<ul style="list-style-type: none"> • Open wells – 4 • Bore wells – nil • Water harvesting facility <ul style="list-style-type: none"> ○ 100000 liters capacity
Other	<ul style="list-style-type: none"> • Dust bins and waste disposal pit • Cattle farm and poultry farm • Water taps

LOCATION MAP OF THE COLLEGE CAMPUS


(Courtesy: Google Maps)

10/28/2020 JPM Arts and Science College - Google Maps

Google Maps JPM Arts and Science College
JPM Arts and Science College



Map data ©2020 100 m



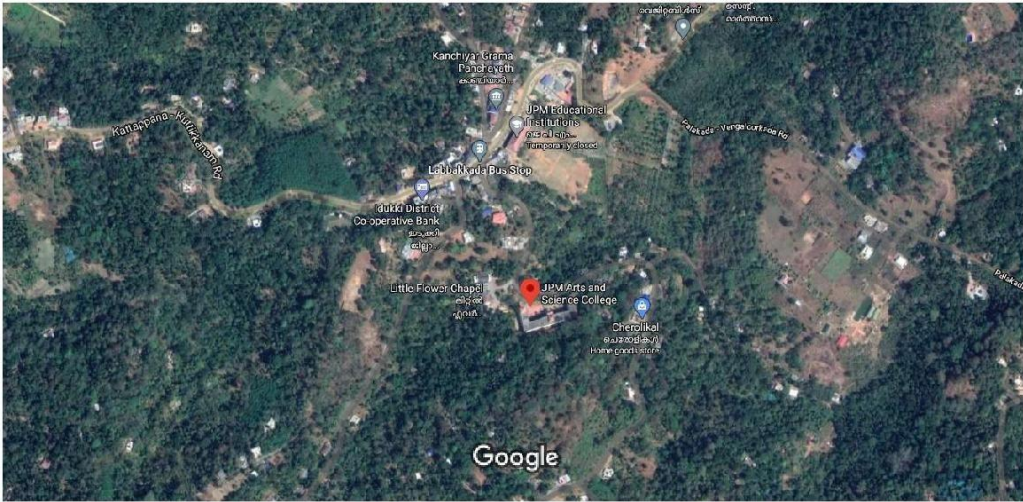
JPM Arts and Science College
ജെ.പി.എം ആർട്സ് ആൻഡ് സയൻസ് കോളേജ്

SATELLITE MAP OF THE COLLEGE CAMPUS


(Courtesy: Google Earth)

10/28/2020 JPM Arts and Science College - Google Maps

Google Maps JPM Arts and Science College
Satellite Map



Imagery ©2020 CNES / Airbus, Maxar Technologies, Map data ©2020 100 m



JPM Arts and Science College
ജെ.പി.എം ആർട്സ് ആൻഡ് സയൻസ് കോളേജ്

SOLID WASTE MANAGEMENT

🚧 BIODEGRADABLE WASTE

Main sources of biodegradable waste in the campus	<ul style="list-style-type: none"> • Food waste • Waste paper, card board etc. • Paper carry bags and cartons • Yard waste
Amount of biodegradable waste generated per day	10-20 kg
Amount of biodegradable waste generated per capita (one year)	~4kg
Methods for collection of biodegradable waste	<ul style="list-style-type: none"> • Waste bins have been placed in various places in the campus such as class rooms, portico and corridors • Waste pits have been constructed to collect food waste from students who bring meals to the college • Sweepers and sanitation workers have been employed
Measures taken for disposal of biodegradable waste	<ul style="list-style-type: none"> • Waste paper, cartons etc are auctioned as per government rules • Yard waste is used in the vegetable garden • Food waste is collected and used in cattle farm and poultry farm • Students are instructed not to throw away solid waste in campus
Whether biodegradable waste is disposed in the campus itself	Yes
Whether biodegradable waste is disposed outside the campus	No
Methods of disposal for biodegradable waste outside the campus	NA
Whether recycle mechanism available for biodegradable waste	No

NON - BIODEGRADABLE WASTE

Sources of non-biodegradable waste in the campus	<ul style="list-style-type: none"> • Plastic carry bags • Plastic bottles • Packing materials of equipments purchased • Waste chalk, pens, pencils and other stationery
Amount of non-biodegradable waste generated per year	70-80 kg
Methods for collection of non-biodegradable waste	<ul style="list-style-type: none"> • Waste bins have been placed in various places in the campus such as class rooms, portico and corridors • Sweepers and sanitation workers have been employed
Measures taken for disposal of non-biodegradable waste	<ul style="list-style-type: none"> • Packing material, stationery etc are auctioned as per government rules so as to avoid accumulation of non-degradable waste in the campus • Use of plastic carry bags are restricted • Use of non-degradable cups and bottles are discouraged
Whether recycle mechanism available for non-biodegradable waste	No
Whether any hazardous chemical or biological waste is produced?	No
Whether any hazardous chemical or biological waste is properly disposed?	NA

E- WASTE

Source of e-waste in the campus	<ul style="list-style-type: none"> • Unserviceable computers, UPS, printers etc. • Consumables such as cartridges, toners etc. • Electronic components from laboratories • Damaged computer parts such as keyboards, monitors etc. • Replaced electronic boards of equipment • Renovation of electric wiring
Methods for collection of e-waste	<ul style="list-style-type: none"> • E-waste is collected separately so as not to mix with biodegradable waste
Measures taken for disposal of e-waste	<ul style="list-style-type: none"> • As far as possible old cartridges and toners are taken over by the service firms • Old electronic scrap is auctioned as per government rules • Electronic components are reused in laboratories as far as possible
Whether e-waste is disposed in the campus itself	No
Whether e-waste is disposed outside the campus	No
Whether recycle mechanism is available for e-waste	No

WATER AND WASTEWATER MANAGEMENT

🚰 WATER RESOURCES

Water resources available inside the campus	<ul style="list-style-type: none"> • Pond • Rain water harvesting system • Open well
Whether the college depends on external water resources?	No
Whether water is available round the year?	Yes
Whether water resources are cleaned regularly?	Yes
Whether water quality has been analyzed?	No
Major findings of water quality analysis?	NA
Whether purified drinking water is available in college, hostels and canteen?	Yes
Methods used for water purification	<ul style="list-style-type: none"> • Water purifying systems have been installed for drinking water
Whether the college makes use of bore wells?	Yes
Whether the water usage pattern of the college causes depletion of ground water?	No
Whether water harvesting system is installed?	Yes
Capacity of water harvesting system	100000 liters

WATER USAGE

Daily water requirements of the campus (excluding hostels)	20000-25000 liters
Daily water requirements of the campus (including hostels)	NA
Per capita water usage (yearly)	400-500 liters
Whether tap water is available round the clock in the campus?	Yes
Whether tap water is available round the clock in hostels?	Yes
Whether purified drinking water is available?	Yes
Number of water purifiers/ coolers installed?	5
Whether water tanks are cleaned regularly?	Yes
Whether annual maintenance of water supply and water purifiers is undertaken?	Yes
Whether repair of water leakage is promptly undertaken?	Yes
Whether judicious usage water is practiced and ensured on the campus?	Yes

✚ WATER RESOURCE POTENTIAL

Average annual rainfall of the area in which the college is situated?	320 cm
Total roof area of buildings	
Total installable capacity of water harvesting system	1 lakh liters
Capacity of water harvesting system installed	
Percentage of total water requirements currently met by water harvesting system	
Percentage of total water requirements that can be met by water harvesting system if full potential is tapped	
Potential for construction of check dam for water storage	No
Whether any natural bodies of water exist in the campus?	Yes

✚ DRAINAGE AND WASTEWATER MANAGEMENT

Whether drainage system is in place for the flow of rainwater?	Yes
Sources of wastewater generated in the college	<ul style="list-style-type: none"> • Taps for students washing area • Wastewater from toilets inside the main building and other buildings
Methods adopted for the disposal of wastewater in the college	<ul style="list-style-type: none"> • Septic tanks have been constructed • Underground sewage disposal pits have been constructed
Whether wastewater flows through open drainage	No
Whether risk of drinking water sources getting contaminated by waste water exist?	No
Whether hazardous chemical or biological waste gets mixed with drainage?	No
Whether wastewater flows to the rainwater drainage system	No

ENERGY USAGE AND POLLUTION

ENERGY USAGE

How does the college meet its energy requirements?	Electric connection from KSEB
Total connected power	26920watts
Total electricity usage per month	849 KWH
Whether college has exclusive transformer in campus?	No
Whether generator facility is available?	Yes
Details of UPS facility	UPS are installed in office and laboratories
Major power consumption equipment	<ul style="list-style-type: none"> • Water pumps • Laboratory instruments • Fans and lights • Photocopiers and printers • Computers • UPS
Whether judicious usage of electricity is ensured?	Yes
Whether energy star rating is ensured in the purchase of equipment?	Yes
Whether LED lighting systems are used?	Yes
Whether any renewable sources of energy are used?	No
Potential for renewable energy usage	<ul style="list-style-type: none"> • High potential for solar energy generation

 POLLUTION

Major sources of carbon footprint	<ul style="list-style-type: none"> • Electricity usage • Canteen and hostel • Laboratories • Vehicle
Average carbon footprint per year	
Does the college have enough green cover for carbon neutrality?	Yes
Percentage of staff using public transport	
Percentage of students using public transport	
Whether any hazardous chemicals are emitted from laboratories and other facilities?	No
Whether usage of air conditioning is minimized?	Yes
Number of vehicles owned by the college	
Whether any major polluting industries are situated in the area?	No

ECO FRIENDLY INITIATIVES

✚ CAMPUS ENVIRONMENT AND MAINTENANCE

Percentage of green cover of campus	
Does the campus have indigenous trees and plants?	Yes
Does the campus have indigenous fauna?	Yes
Whether steps are taken for conservation of trees and plants in the campus?	Yes
Whether comprehensive landscape management is in place?	Yes
Whether campus cleaning is conducted regularly?	Yes
Whether buildings, rooms, toilets etc are cleaned on a daily basis?	Yes
Whether staff has been appointed for campus and building maintenance?	Yes
Whether annual maintenance of buildings is undertaken?	Yes
Whether repair of electric wiring and equipment is promptly undertaken?	Yes

✚ ECO FRIENDLY PRACTICES

Eco friendly practices of the college	<ul style="list-style-type: none"> • Most of the faculty members and non-teaching staff use public transportation • Almost all students use public transportation facility • Usage of plastic is minimized • Trees have been planted in various places I the campus • Students are made aware of the need energy conservation • Students are instructed to keep the campus and the class rooms clean • Students participate in cleaning activities regularly • Students participate in maintenance of the campus by planting trees
Clubs and organization in the campus which have contributed to environmental awareness	<ul style="list-style-type: none"> • NSS
Inclusion of environment related topics in syllabus	<p>Topics related to environment have been included in the syllabus of:</p> <ul style="list-style-type: none"> • BA English
Programmes conducted for environmental awareness	<ul style="list-style-type: none"> • NSS camp • Observation of environmental day
Measures taken for eco friendly resource usage and pollution control	<ul style="list-style-type: none"> • Sewage is not allowed to contaminate water resources • The college ensures judicious use of electricity • CRT monitors were replaced by LCD monitors • Consumable are taken back for recycling by suppliers thereby reducing the amount of e waste produced
Major eco friendly initiatives	<ul style="list-style-type: none"> • Vegetable garden • Herbal garden • Plantation of trees and saplings • The campus is kept green by preserving trees and plants

CONCLUSION

The Green audit has studied the practice of the college regarding solid waste management, water and wastewater management, energy usage and pollution and campus maintenance. It has also examined the eco friendly initiatives of the college. It is observed that

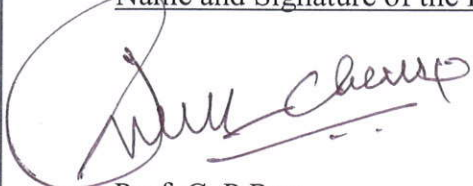
- Solid waste is disposed in the campus itself
- The college meets its water requirements from sources in the college itself
- The amount of air pollution generated by the college is minimal
- The college has a large potential for rainwater harvesting
- The college has a good potential for solar energy production

RECOMMENDATIONS

- Green audit may be conducted in every two years
- Rejuvenate bamboo garden by constructing ponds to protect the flora and fauna
- Recycling mechanism for solid waste may be installed
- An RO plant may be installed for centralized water purification
- Potential for rain water harvesting may be completely utilized by enhancing the capacity of the existing system
- Solar power generation and usage may be enhanced

It is hoped that the results presented in this audit will serve as a guide for educating the college community on the existing environment related practices and resource usage at the college as well as spawn new initiatives and innovative practices.

Name and Signature of the Environmental Auditor



Prof. C. P Roy

Name and Signature of the Co-ordinator IQAC



Ms. Sheela S

Name and Signature of the Principal



Dr. V.V. Georgekutty

Dr. V.V. GEORGEKUTTY
(M.Com, MBA, M.Phil, Ph.D.)
PRINCIPAL

JPM ARTS AND SCIENCE COLLEGE
Kanchiyar P.O., Labbakkada

