GREEN AUDIT REPORT

FOR THE YEAR 2017-2018

FOR

VIJAYGARH JYOTISH RAY COLLEGE

8/2 Bijoygarh, Jadavpur

Kolkata- 700032

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PREPARED BY

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PREFACE

The Vijaygarh Jyotish Ray College decided to undertake external environmental audit (Green Audit) to assess the strength and weakness of the environment in and around the college due to it's activity to rectify as far as practicable and to implement the audit findings for better environment. The Green Audit was conducted by M/s. AMG Enviro Protector Pvt. Ltd. on the following dates.

Pre-audit visit	27th June 2017
Audit completion	25th July 2017
Draft report completion	2nd August 2017
Final report submission	10th August 2017

The Audit team is grateful to the college authority, all the teachers and non teaching staffs. The audit team has special thanks for Principal Dr. Rajyarshi Neogy, Dr. Prasenjit Das (Dept. of microbiology), Dr. Pinaky Ranjan Chakroborty (Dept. of Zoology) for their support during the audit and their interest on implementation of any recommendation.

The audit report with recommendation is presented herewith.

For, AMG Enviro Protector Pvt. Ltd

(A. Neogi)

C E O & Technical Manager

INTRODUCTION:

Vijaygarh Jyotish Ray College is a Government Aided college of West Bengal under the affiliation of the University of Calcutta. The college was established in 1950 and since then is one of the best colleges of the state with around 2500 students. The college decided to undertake external environmental audit (Green Audit) to assess the strength and weakness of the environment in and around the college due it's activity to rectify as far as practicable and to implement the audit findings for better environment.

SCOPE OF AUDIT:

The purpose of the green audit was to ensure that the practices followed in the college campus are in accordance with the environmental policy adopted by the college administration to maintain sustainable clean environment.

The stages of the Green Audit:

1. Pre-audit visit
2. Preparation of questionnaire
3. Conducting audit
4. Preparation of audit report
5. Recommendation

Pre Audit Findings:

Although the college took some productive measures to create many eco-friendly and environmental awareness programme, but the college has not yet conducted a comprehensive Green Audit of its campus and facilities. As an educational institution, the college consumes energy and materials, and in turn, develops wastes.

To reduce energy consumption, environmental protection and safe waste disposal following measures are already taken:

1. The college has established a roof-top solar power plant of 20 KV capacity in net-metering mode in order to reduce convention electricity consumption and connected to grid.
2. The wastes are properly stored and effectively disposed to KMC waste disposal system.
3. Accumulation of water is monitored and checked regularly by zoology department for the presence of any parasitic larvae.
4. Drinking water is regularly monitored for coliforms by the Microbiology department.
5. College is surrounded by a large number of trees capable of neutralizing much of the carbon emitted everyday surrounding the college.
6. Teachers are very much involved in environment protection and co operative for green audit activity.

Preparation of Green Audit questionnaire/ checklist:

Prior to conducting the audit the questionnaire are circulated among the concerned teachers and a team was formed for implementation of audit findings.

The concerned teachers are:

1. Dr. Prasenjit Das, Dept. of Microbiology
2. Dr. Pinaki Ranjan Chakroborty, Dept. of Zoology
3. Dr. Surajit Rakshit, Dept. of Chemistry
4. Dr. Bulbul Biswas, Dept. of Botany
5. Dr. Arnab Banerjee, Dept. of Journalism & Mass Communication
6. Rishin Basu Roy , Dept. of Botany Environmental studies

The team will work under efficient leadership and advice of Principal Dr. Rajyarshi Neogy.

Green Audit Check list/ questioner

1. Water management in different departments and entire institution-
    a) Quantity
    b) Quality
    c) Sources
    d) No. of taps
    e) Conservation plan
    f) Sustainable uses
    g) Future proposal
    h) RWH availability
2. Waste management in different departments and entire institution-
    a) Types
    b) Quantity
    c) Segregation
    d) Disposal
    e) Reuse/ recycle
    f) Authorisation if any
    g) Future proposal
    h) Green manure
3. Energy management in different departments and entire institution-
    a) Total consumption
    b) Department wise consumption
    c) No. of lamps and tubes
    d) No. of LED
    e) Non conventional energy if any
    f) Conservation practice
    g) Future plan
4. General Environment-
    a) Air quality
    b) Water quality
    c) Noise level
    d) Illumination

5. Landscape-
    a) Green belt
    b) Types of plants- list
    c) Green coverage area
    d) Future proposal
    e) Green Building concept
    f) Rooms
    g) Canteen
    h) Toilets
    i) Future proposal
6. Green activity-
    a) Awareness camp
    b) Eco club
    c) Plastic policy
    d) Environment in syllabus
    e) Environmental policy
    f) Future plan.
7. Pollution control in different departments and entire institution -
    a) Waste water
    b) Toxic fumes
    c) Toxic wastes
    d) Canteen wastes
    e) Management practices
    f) Future plan
8. Safety and health in different departments and entire institution-
    a) Fire
    b) Laboratories
    c) Evacuation plan
    d) Emergency plan
    e) Safety plan
9. Transport
10. Housekeeping
11. Purchase

PRE-AUDIT FINDINGS

The college campus is rich in biodiversity with plants, reptiles and birds.

The following plant species are observed inside the college campus:

Sl. No.	Local Name	English Name	Scientific Name
1	Dumur	Fig	*Ficus hispida*
2	Dau	Monkey fruit	*Artocarpus lakoocha*
3	Debdaru	Mast tree	*Polyalthia longifolia*
4	Shiuli	Night Jasmine	*Nyetanthes arbor-pristis*
5	Ashoke	Ashoka	*Saraca asoca*
6	Kanthal	Jack tree	*Artocarpus heterophyllus*
7	Aam	Mango	*Mangifera indica*
8	Rudra palash	African tulip tree	*Spathodea campanulata*
9	Tagar	Tagara	*Valiriana wallichi*
10	Kath Badam	country-almond	*Terminalia catappa*
11	Cycus	Cycus	*Cycus sp.*
12	Mahagoni	Mahagony	*Swietnia mahagoni*
13	Amlaki/Amla	Indian gooseberry	*Phyllanthus embelica*
14	Jaba	Hibiscus	*Hibiscus rosasinensis*
15	Jaam/Jamun	Black plum	*Syzygium cuminii*
16	Pata Bahar	garden croton	*Codiaeum variegatum*
17	Bakul	Spanish cherry	*Mimusops elengi*
18	Radhachura	Copperpod	*Peltophorum pterocarpum*
19	Peyara	Guava	*Psidium guajava*
20	Neem	Neem	*Azadirachta indica*
21	Jarul	Queen of flowers	*Lagerstroemia speciosa*
22	Sheora	Indian toothbrush tree	*Streblus asper*
23	Shishoo	North Indian Rosewood	*Dalbergia sissoo*
24	Kadam	Old man's head	*Neolamarekia cadamba*
25	Bot	Banyan	*Ficus bengalensis*
26	Ashwaththa	Pipal	*Ficus riligiosa*
27	Palm		
28	Shimul	Red silk cotton tree	*Bombax ceiba*

The following bird species are observed inside the college campus:

SL. NO	LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1	Haryal	Yellow leged green pigeon	*Treron phoenicoptera*
2	Tile ghughu	Spotted dove	*Streptopelia chinensis*
3	Papiya	Common hawk cuckoo	*Cuculus varius*
4	Kokil	Koel	*Eudynamys scolopacea*
5	Nilgala	Bluethroated barbet	*Megalaima asiatica*
6	Chil	Pariah Kite	*Milvus migraus*
7	Tia	Rose ringed parakeet	*Psittacula krameri*
8	Lakkhi Pencha	Barn owl	*Tyto alba*
9	Batasi	House swift	*Apus affinis*
10	Bauri	Coppersmith Barbet	*Megalaima haemacephala*
11	Katthokra	Lesser Golden backed Woodpeaker	*Dinopium benghalense*
12	Katthokra	Falvous brested pied Woodpeaker	*Picoides macei*
13	Bene bau	Black headed Oriole	*Oriolus xanthomus*
14	Kubo	Pheasant or Coucal	*Centropus sinensis*
15	Phinge	Black Drongo	*Dierurus adsimilis*
16	Go Salik	Pied Myna	*Sturnus contra*
17	Salik	Common Myna	*Acridotheres tristis*
18	Jhunt Salik	Jungle Myna	*Acridotheres fuscus*
19	Handichacha	Indian Tree pie	*Dendrocitta vagabunda*
20	Kak	House Crow	*Corvus splendens*
21	Danr Kak	Jungle Crow	*Corvus macrorhynchos*
22	Sipahi Bulbul	Red Whiskered Bulbul	*Pycononotus jacosus*
23	Bulbuli	Red Vented Bulbul	*Pycononotus cafer*
24	Chatare	Jungle Babbler	*Turdoides striatus*
25	Tuntuni	Tailor Bird	*Orthotomus sutorins*
26	Doyel Sada	Magpie Robin	*Copsychus saularis*
27	Khanjan	White Wagtail	*Motacilla alba*
28	Durga Tuntuni	Purple Sunbird	*Nectarinia asiatica*
29	Moutusi	Purple Rumped Sunbird	*Nectarinia zeylonica*

The following mammals are observed inside the college campus:

SL NO	LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1	Chuncho	Grey Musk Shrew	*Suncus murinus*
2	Badur	Indian Flying Fox	*Pteropus giganteus*
3	Chamchika	Indian pipistrelle	*Pipistrellus coromandra*
4	Bham	Common Plam Civet	*Paradoxurus hermaphroditus*
5	Neyul	Common Mongoose	*Herpestes edwardsi*
6	Kathbirali	Fivestriped Plam Squirrel	*Funombulus pennant*
7	Indur	Lesser Bandicoot Rat	*Bandicota bengalensis*
8	Nengti Indur	House Mouse	*Mus musculus*

PRESENT GREEN ACTIVITIES OF THE COLLEGE:

Butterfly garden- Since 2016 the college is maintaining its own Butterfly garden inside the college premises. It is designed to create an environment that attracts butterflies. The chief aim is inviting those butterflies and moths to lay eggs as well. Because some plants are not fed upon by adult butterflies, they rather serve as host plants for caterpillars. The small patch of plantation is carefully and fondly maintained by the department to ensure enough butterfly population. Students not only learn about these beautiful creatures, they get a hand on experience on maintaining a butterfly population.

Biodiversity Corridor & documentation - The zoology department believes that basic learning must start from home and learning about biodiversity is imperative to any zoology student. It is for this reason the department has gathered and enlisted all the relevant information related to the biodiversity inside the college premises over the years and created a corridor where every student gets a clear idea about the college's biodiversity just by looking at the specific college corridor. The entire flora and fauna is enlisted and depicted in the corridor in the form of attractive charts.

Field Trips- It may be a compulsory part of the curriculum but this educational tour includes a lot of fun and frolic too. The students crave for it and what they think is a trip for them actually becomes a life changing experience where they get to study not only biodiversity but the diversity of human bonding and livelihood as well. From river deltas to coral reefs, from mountains to mangroves students got the opportunity to visit and study different kinds of biome. These extended classroom sessions bring out the truest essence of learning directly from Mother Nature. These trips are also responsible for some unforgettable memories that are cherished years after years.

Nature Club- An excellent initiative taken by the zoology departmental students where they have formed a club that meets on weekends and takes biodiversity learning outside the classroom and into the fields. The club members explore the city and city outskirts visiting different places including Rabindra Sarobar Lake, Santragachi Bird Sanctuary, Central Park, Chintamoni Kar Bird Sanctuary etc and study the respective flora and fauna. They collect several information and data related to the biodiversity of the place and create an interactive knowledge sharing platform where they share their unique experiences. Some of the pictures clicked by the club members are truly inspiring.

Toward Green Department -

Microbiology & Zoology are free from particulate matter, they gave up the use of chalk from the class room, instead started using white board. LED light also introduced.

Collaborations with Nature Mates Nature Club-

Zoology Department officially collaborated with Nature Mates Nature Club to mutual transfer of knowledge about biodiversity. The department is jointly made field studies in different parts of Bengal. The students were the participant to the first open air butterfly garden prepared in west Bengal at salt lake Banabitan by Nature Mates Nature Club.in 2007.

Green consumer club-Green Consumer Club has been started in VJR College, since 1st Feb 2016 with the purpose to create awareness about Green Consumer among the students, guardians and the local community people. The college has taken an initiative to create environmental awareness through this Green Consumer club. In collaboration with women cell, this club arranged a seminar on 7th March about Food Safety and Security, to celebrate International Women Day on 8th March. A poster competition, quiz, slogan writing and debate was also arranged among the students to create awareness among them.

EDUCATIONAL TRIPs

SL NO.	Educational Trip to	DATE AND YEAR
1.	Kuldiha Wildlife Sanctuary, Simlipal Tiger Reserve, Chandipur Coastal Survey, Odisha.	3.12.2012-7.12.2012.
2.	Wild Ass Sanctuary, LRK, , Marine National Park Poshitra, Nal Sarovar Bird Sanctuary, Gujrat	11.12.2013-20.12.2013.
3.	Maenam wildlife sanctuary, Rhododendron Sanctuary,Sikkim	7.12.2014-13.12.2014.
4.	Singhalila National Park, West Bengal	7.12.2015-16.12.2015
5.	Buxa Tiger reserve, West Bengal	17.11.2016-24.11.2016

Field Orientation activity and regular monitoring of Rabindra Sarovar and Chintamani Kar Bird Sanctuary are also performed along with maintenance of Butterfly Garden at the college Premises.

AUDIT FINDINGS:

The audit was conducted at the college and the observations and recommendations are tabulated.

Sl. No.	Field of Audit	Observations	Recommendations
1	Water management	The daily requirement of water is approximately 10,000L for the entire campus. The source of supply is both ground water and KMC supply. The campus is having 123 taps but few of them are dedicated drinking water points. The quality of water tested by detecting dissolved solid and coliforms. The major source is KMC supply. The RO system has installed in some places. The coliform content is within the limit but the TDS is high.	RO/UV system should be installed in all drinking water points and definitely at canteen for the students and the staffs. The ground water is having high TDS content and therefore RO is recommended for using ground water as drinking water. The water conservation plan has to be implemented. Since sufficient space is not available for rain water harvesting, the college authority can consider some other rain water utilization plan in future.
2	Waste management	The college is generating various types of wastes like waste paper, canteen waste, laboratory waste along with some electronic wastes. The college has an established waste segregation system for final disposal in to the KMC waste disposal system.	The waste segregation and disposal system is quite effective as per the audit observation. However the college authority may consider E-waste disposal to some authorized recycler in future. However the quantity of E-waste generation is less.
3	Energy management	The campus has provided with 135 KVA load. The finest thing observed is 20 KV solar power plant which is also connected to grid. Few LED lamps are also found.	The energy conservation policy of the college is unique in the sense that it is utilizing non-conventional energy like solar power. However it is recommended to replace the existing bulbs and tubes with LED lamp.

4	General environment	The 56 nos. of class rooms are found well ventilated and with sufficient illumination. The surrounding noise level is acceptable. The 11 toilets are found satisfactory as far as cleaning is concerned.	The chemistry laboratory require more ventilation and illumination. The other departments require to maintain good environment as presently having. An environmental policy has to be prepared.
5	Landscape	The plants are maintained properly along with good aesthetic of the building. The surrounding areas also found neat and clean.	Recommended to maintain the existing landscape along with the butterfly garden.
6	Green activity	The college is participating in various green activities as mentioned earlier.	The green activities are definitely strength of the college. The activities are showing the consciousness and affection of the college towards environment. Recommended to maintain such activities.
7	Pollution control	The departments responsible for little generation of pollutants are Canteen, Chemistry, Microbiology and Zoology. The fume extraction system in chemistry is not proper. The waste generated in microbiology is properly disposed after chlorination. The wastes generated from zoology are also disposed properly.	The canteen waste can be used for vermicomposting. The fume chamber and hood to be upgraded in chemistry laboratory. The waste from microbiology to be disposed off after autoclaving and chlorination.
8	Safety & Health	The entire campus is provided with lot of fire extinguishers and other safety equipments.	A safety evacuation plan in all laboratories along with necessary safety training has to be provided among the concerned personnel. The MSDS of the toxic chemicals must be available in the chemistry lab.
9	Housekeeping	The housekeeping in the entire campus found satisfactory and 3 nos. of sweeping staffs are working.	Apart from the regular sweeping staffs the college authority can involve the students engaged in NSS and NCC to maintain the housekeeping.

10	Purchase policy	The purchase policy related to various purchases are not aimed considering environmental factors like eco-friendly products, product with eco-logo etc.	The college authority can consider purchase policy considering environmental factors.

FINAL COMMENTS:

The college authority is presently maintaining very good environmental standard. The college should implement the audit recommendation immediately and can run the college in best possible way to grow awareness among the students and local residents.