



Ramkrishna Mahavidyalaya

A Govt. Degree College Affiliated to Tripura University

(UGC recognized and NAAC Accredited)

Kailashahar, Unakoti Tripura – 799 277

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Date: 07/05/2021

MEMO

This is to inform all concerned including non-teaching staffs of this institution that as per new AQAR format, the college need to perform 'Green and Energy Audit' in the campus and submit the report within June, 2021. Therefore college constitute the '**Green and Energy Audit Committee**' with the following members to perform the work.

1. Sri Suman Das.....Coordinator
2. Sri Ratnajit Deb.....Joint Coordinator
3. Dr. Sasanka Ghosh.....Member
4. Sri Dipak Das.....Member
5. Dr. Indrajit Ray.....Member
6. Dr. Sandeep Acharya.....Member
7. Dr. Bijon Deb.....Member
8. Sri Venkat Raman Tripura.....Member

This is for kind information of all concerned as well as for circulation too.


(Mrs. Soma Dutta)

Principal i/c

Ramkrishna Mahavidyalaya
Kailashahar, Unakoti, Tripura

Principal-in-Charge
R. K. Mahavidyalaya
Kailashahar, Unakoti, Tripura

Ramkrishna Mahavidyalaya

Kailashahar, Tripura (U)- 799277

GREEN & ENERGY AUDIT REPORT – 2020-21



Prepared by

Green & Energy Audit Committee

Ramkrishna Mahavidyalaya

A Brief introduction about the college

Ramkrishna Mahavidyalaya is the second oldest college of Tripura situated in the heart of Kailashahar Town near the bank of river Manu and Bangladesh border. It was established on 1st September 1950 with a view to spread man-making education particularly among the people of the-then North Tripura District and people of Tripura as a whole. The founder of this College, Brahmachari Tapas Chaitanya Maharaj, wanted to convey the ideas of Sri Ramkrishna Paramhansa Dev and Swami Vivekananda to build a strong moral base of the society. At the beginning, as there was no required infrastructure, classes were conducted in the tin shed of the old Sri Ramakrishna Ashram or even under the shed of trees of the Ashram Campus. People of the locality eagerly extended their helping hand by donating land and other construction materials to fulfil the dream of Tapash Chaitanya Maharaj and other local aspirants. Dr. Sachchidananda Dhar was the founder principal. In the initial stage the college started with Arts subjects only and later on Science and Commerce stream were added. The college was run privately for more than thirty years. Thereafter in the year of 1982 Government undertook the college. Ramkrishna Mahavidyalaya is affiliated under UGC 2(F) & 12B on and from the 4th March, 1989. The college was under the Calcutta University up to 1987 and from that very year Ramkrishna Mahavidyalaya continues its journey under Tripura University. The endeavour of so many devoted persons has become fruitful ultimately. Now the institution has flourished with branches of educational facilities in both Major and General courses with subjects under B.A. Course Bengali, English, Sanskrit, Kokborok (Only General course), Political Science, Economics, History, Philosophy, Education, Geography, Physical Education (Only General Course), Foundation Course under Information Technology (IT), Bachelor of Commerce (With Accountancy Major) and under B.Sc Course Physics, Chemistry, Mathematics, Botany, Zoology and Human Physiology. Along with all the basic subjects, distance education centre under Tripura University and IGNOU Study Centre are there in the college campus. Special importance is given on Extra Curricular Activities, Sports and Culture, NCC and NSS for all round development of personality and skills of the students' i.e. overall development of youths for the nation building. The Facilities College has are playground, Girls' hostel, women hostel, bio-tech hub, Gymnasium, pond, residential facilities for staffs, health care room, Didyang rest room etc.

Details of programme offered and students' admitted for A.C. 2020-21

Programme name	Programme Code	Number of seats sanctioned	Number of Students admitted
B.A. Bengali Major	TDPHBA	66	20
B.A. English Major	TDPHBA	66	62
B.A. Sanskrit Major	TDPHBA	60	36
B.A. History Major	TDPHBA	66	52
B.A. Education Major	TDPHBA	44	29
B.A. Political Science Major	TDPHBA	66	43
B.A. Economics Major	TDPHBA	25	16
B.A. Philosophy Major	TDPHBA	40	3
B.A. Geography Major	TDPHBA	11	3
B.Sc. Physics Major	TDPHBSc	44	11
B.Sc. Chemistry Major	TDPHBSc	44	10
B.Sc. Mathematics Major	TDPHBSc	44	17
B.Sc. Botany Major	TDPHBSc	33	21
B.Sc. Zoology Major	TDPHBSc	33	13
B.Sc. Human Physiology	TDPHBSc	33	14
B.Com. Accountancy Major	TDPHBCom	25	2
B.A. General	TDPBA	500	409
B.Sc. General	TDPBSc	110	16
B.Com General	TDPBCom	100	0

A Brief outline on 'Green Audit'

Green Audit is a systematic process of identification, recording, quantification, reporting, analysis and recommendations of phenomena of environmental diversity and sustainability of an institute. It aims to assess the activities practiced within the campus which tries to have an eco-friendly environment. Green audit is an important aspect for a college to verify how and where the various aspects are used, their potential, conservation and management for sustainability of the college. It can also widen the horizon of health awareness and uphold environmental consciousness, values and ethics for the institute. It shows institute Strength, weakness and potential towards sustainable future. Thus it is imperative to evaluate and assess by the institution to verify its contribution towards quality education for the 'Nation'.

Ramkrishna Mahavidyalaya is spreading awareness about environmental consciousness and management among students, staffs and neighbourhood through various means. The institution has taken different steps to make the green & clean. To maintain the greenery within the campus, institute applied various means to counter the environmental problems such as save water by reducing use of water, single use plastic, noise pollution, air quality level, waste management, tree plantation etc.

Objectives of the study:

The main objective of the green audit is to endorse the Environmental Management and Conservation in the Ramkrishna Mahavidyalaya Campus. The purpose of the audit is to identify, quantify, describe and set framework for Environmental Sustainability in fulfilment with the applicable standards. The main objectives of carrying out Green Audit are:

- To introduce and make students aware of real concerns of environment and its sustainability
- To protect environment and minimize threats by analyzing the pattern of usage and also its sustainability
- To prepare a status report on environmental compliance

Methodology:

The methodology includes to perform the works are physical inspection, observation, review of equipments, conversation with key persons, use of water testing kit, use of air and noise quality measurement equipments. The study covers the area of

1. Water Consumption, quality and management
2. Solid Waste Management
3. Chemical (Hazardous) and bio-medical waste management
4. E-Waste Management
5. Air quality audit
6. Noise environment
7. Green Area Management

Water Consumption, quality and management: The phenomenon indicates water supply, water consumption, its quality and sustainability. A water audit is an onsite survey and assessment to determine the water use and hence improving the efficiency of its use. The college receives near about 16000 L/ Day from the Department of Water Supply which is nearby Ramkrishna Mahavidyalaya. The department supply water two times (morning & afternoon). The water stored in the reservoirs and is used for laboratories, laboratories, gardening and drinking purposes. The college has well maintained RO with water cooler for drinking purpose. During the survey no water loss is observed from these. During the survey, by consulting with key persons of various laboratories regarding usage of water is near about 5000 L/ Day. The water usage for laboratories is 8000 L/ Day and for gardening, the usage of

water is 2000 L/ Day. The RO water is used for drinking purpose which is analyzed as per IS 10500:2012 for drinking water specifications and observed to be potable.

The college has installed 'Rain Water Harvesting' unit in the back side of the college which is functional during survey. The waste water generated from the laboratories is disposed off with proper manner by the respective departments. Whereas waste water generated from the laboratories are directly went to the sub-drain to the main drain.

Drinking Water Analysis Report: The drinking water sample collected from the college itself. Then the water is analysed with the water testing kit available in the college itself by the college faculty in the college bio-tech hub and also took help from DWS, Government of Tripura. The drinking water analysis report is as follows:

Sl. No.	Parameter	Result	Permissible limit as per IS 10500:2012
1	Colour	Clear	Clear
2	pH	6.8	6.5 – 8.5
3	Turbidity	0.3 NTU	5 NTU
4	Total Alkalinity	66 mg/ L	600 mg/ L
5	Total Hardness	84 mg/ L	600 mg/ L
6	Nitrate	2 mg/ L	45 mg/ L
7	Ammonia	0.4 mg/ L	0.5 mg/ L
8	Residual Chlorine	Absent	0.2 mg/ L
9	Iron (Fe)	0.1 mg/ L	0.3 mg/ L
10	Arsenic	Absent	0.05 mg/ L
11	TDS	51.6 mg/ L	2000 mg/ L
12	Total Hardness	320 mg/ L	600 mg/ L
13	Calcium	21 mg/ L	200 mg/ L
14	Chloride	14 mg/ L	1000 mg/ L
15	Total Coli forms	Absent	0

Recommendations:

1. Waste water recycling system may be introduced in the college
2. Rain Water Harvesting unit should be increased
3. Sewage system should be improved.

Solid Waste Management: The indicator addresses waste production in the campus and disposal of different wastes like paper, wrappers, food, any kind of plastic (though it is banned in the campus) bio-degradable waste, glass, dust, dried leaves and branches while cutting trees etc. solid waste generation and management is a burning issue. The solid waste generation in the campus is not much in volume and weight. The assigned staffs were given bins to sweep the campus on regular basis and disposed off in the pit which is in the back side of the campus and also in the KMC provided garbage bins. To minimize the usage of papers, the single sided used papers are reused in the office works and also motivate the students to reuse the papers which are single sided and also use pencil in their homework or other purposes. The is plastic free campus but some water bottle or chips packets are found in the campus and collected by assigned staffs and disposed off to the KMC bins.

Recommendations:

1. Introduce degradable and non-degradable bins separately
2. Request KMC to provide separate bin for the college
3. Make the campus dust free in more efficient way

Chemical (Hazardous) and bio-medical waste management: The indicator addresses waste production in the chemistry, botany, and zoology labs and human physiology lab and disposal off by maintaining proper safety measures. Chemical hazardous wastes are added with other chemicals and make it non-hazardous and then disposed off in the container. The bio-medical wastes generated from the human physiology department are stored in the bins by maintaining the safety measures. The wastes are generated from these labs are collected by the KMC collection staffs on regular basis.

Photo

Recommendations:

1. Introduce more number of hazardous bins
2. Safety of students and staffs should be maintained in more efficient way

E-Waste Management: E-waste generated in the campus is not much. The college has 40 computers, 6 laptops, 10 printers, 5 scanners and 3 Xerox machines are in working condition. The cartridges of printers are refilled as and when required and reused. The college authority tells continuously to the staffs for e-waste management in the campus. The college repairs those equipments which are reusable. The college has separate room for keeping the e-waste

generated like non-working computers, printers, cartridges, various electrical equipments etc. from the college itself which is not scientific.

Recommendations:

1. Electronic equipments should buy from the reputed brands/ farms/ companies which has better and quality life span.
2. E-waste management should be scientific and disposed off on regular interval.
3. The college authority may inform higher authority to take initiative for e-waste disposal.

Air quality audit: The air quality of an institution is very much important for the health of students and staffs of the college. As the campus is situated next to the road, the air pollution sources in the campus are emissions from the vehicles, burning of bitumen in the back side of the campus, laboratory fumes, natural dust etc. The air quality of the campus is satisfactory and discomfort to sensitive persons and was measured as follows:

Sl. No.	Location	Results		
		PM ^{2.5}	HCHO	TVOC
1	Classroom	87	0	0
2	New Building Corridor	92	0	0
3	Outside New Building	95	0	0
4	College Main Gate	96	0.002	0.006
5	Outside Science Building	94	0	0
6	Science Building Corridor	91	0	0
7	Laboratory	83	0	0
8	Library	85	0	0

Recommendations:

1. Teachers and Students are advised to wear mask regularly as it may be discomfort to sensitive persons
2. Cleaning staffs are advised to clean the dust on daily basis as much as possible
3. Instead of automobile vehicles, college authority spread awareness on use of bi-cycle/ e-vehicles in the campus as well as outside the campus.

Noise Environment: The noise level measurements were carried out using noise level meter. The noise level survey was carried out in different locations of the campus. The noise level

measured in the campus as well as inside the classroom and lab in a single day with three different timings and found that the noise level was within the permissible limit in the classrooms and labs but it was a bit higher outside the classrooms and labs and it was much higher than the permissible limit near the main gate because the college situated next to the main road and vehicles move continuously and moreover vehicles coming inside the campus and inadequate physical infrastructure are also the reasons for noise pollution in the campus. The figures of noise level measurement are as follows:

Sl. No.	Location	Results (in dB)	Permissible Limit (dB)
1	Classroom	48.43333	50
2	New Building Corridor	52.96667	50
3	Outside New Building	53.8	50
4	College Main Gate	79.06667	50
5	Outside Science Building	53.67	50
6	Science Building Corridor	51.9	50
7	Laboratory	45.933	50

Recommendations:

1. Appeal the teachers and students to use less automobile vehicles inside the campus
2. Students should be asked to make less noise inside the campus

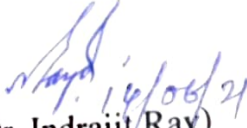
Green Area Management: The green area management in the campus means the management of greenery in the campus. The college planted various trees from small to medium size to maintain greenery in the campus. When any tree dies in the campus, college plants new trees instead of keeping dead plants. The college maintains its greenery in its surroundings also. The college clears all the banayan plants which grows within the buildings and may damage the buildings which is not sustainable for it.

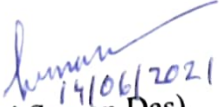
Energy Audit: The objective of the audit was to study the energy consumption pattern of the campus, identify the areas where potential for energy/cost saving exists and prepares proposal for energy efficient usage. We focused our attention on energy management and optimization of energy efficiency of the electric appliances. The Energy Audit is to balance the total energy inputs with its use and to identify the energy conservation opportunities in the campus. While performing energy audit, historical data was collected to examine electric consumption pattern and made a physical survey to check the functionality of college electric


appliances. It was seen during the survey; some of the electric appliances are not working and needs to be replaced. We have collected the consumption data from September, 2020 to June, 2021. In these 10 months period, the college consumes 17520.4 kwh units in total. The monthly average is aprox. 1752 kwh units which is near about Rs. 12,160/- (Twelve Thousand One Hundred Sixty) only. The demand data gathered from the electric office where it was seen that the electric demand for the college is 15.56 kw and for a month is 1945 kwh.

Recommendations:

1. Students and Teachers are continuously tell to switch off the electric appliances before they left from the class
2. Unnecessary use of electric appliances should be stopped
3. Use LED lights instead of traditional lights in more numbers which was seen during survey
4. Alternate source of electric energy may be introduced in the campus
5. Regular maintenance of electric appliances are required


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Certificate



This is to certify that **Ramkrishna Mahavidyalaya** is now Recognized as **Swachhta Action Plan Institution**. The Institution has successfully formed the Swachhta Action Plan Committee and constituted the working groups Post COVID-19 for **Sanitation & Hygiene, Waste Management, Water Management, Energy Management** and **Greenery** along with the observation of two environment related days to inculcate in faculty, students and community, the practices of Swachhta and Reduction, Reuse and Recycling of Resources.

Dr. W G Prasanna Kumar
Chairman

Mahatma Gandhi National Council of Rural Education
Department of Higher Education, Ministry of Education
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