

Kandi Raj College



Green Audit: 2021-2022





## KANDI RAJ COLLEGE

(Govt. Sponsored)

<sup>™</sup> Ph. No.-03484- 255230

Kandi- 742137

Murshidabad, West Bengal

E mail:principalkrc.krc@gmail.com

www.krc.edu.in

## **DECLARATION**

The Environmental / Green Audit conducted and prepared by our college are completely based on self-inquiry & data collected by faculty. The perception about the college campus was conducted on students and their suggestions for improvement helped to make the necessary changes. The best practices adopted needs to be increased for the betterment of the students as well as for the social message and responsibility that our college has for its social community.

Signature of Members

W \* KANDI RAY Shidabad \* 7950018

Countersigned by

Principal, Kandi Raj College Kandi Muzahidaka

Kandi, Murshidabad DR SOMADATTA Principal Principal Principal Raid College Kandi \* Murshidabad Kandi \* Murshidabad Abhigit Rutta
Prondip Born
Sumanhar Chowrobooky.
Chandan Kumar Jana
Chumhi Mandal
Abdina das.
Dipranevita Pal
Faresper April
Tanuscel Sinher
Madhufarner Sankari



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® Ph. No.-03484-255230 Kandi-742137 Murshidabad, West Bengal E mail:<u>principalkrc.krc@gmail.com</u> www.krc.edu.in

Ref No.: 89/KRC/23

Date: 31.05.23

То

The Assistant Director of Agriculture (P) (Admn) Kandi Subdivision Kandi, Murshidabad.

Subj.- A request for providing certificate for Green Audit of Kandi Raj College.

Respected Sir

With due respect I would like to inform you that we have to submit Green Audit report to our concerned authority and it is very much essential as well as vital.

Hence, I would earnestly request you to conduct Green Audit in our College premises and submit the report at the earliest so that we may submit your report to our concerned authority.

Awaiting your earliest positive response.

With regards,

Principal,

Kandi Raj College

Kandi, Murshidabad.

Dr. Soma Datta Principal Kandi Raj College Murshida Murshida Murshida Murshida



## Government of West Bengal Office of the Assistant Director of Agriculture (Administration) Kandi Sub-division, Kandi, Murshidabad

Email: ada.admn.kandi9211@gmail.com

## TO WHOM IT MAY CONCERN

With reference to your letter no 89/KRC/23 dated 31.05.2023, regarding the subject cited above, the Environmental Monitoring conducted physical verification on 31.05.2023 inside the campus of Kandi Raj College, Kandi, Murshidabad, revealed that the environmental status in respect of water, air, noise of the college including flora & fauna is decent and the campus is free from any kind of major pollutants, Kindly find enclosed Environmental status of water, air and noise of Kandi Raj college, Kandi Murshidabad.



Joint Director of Agriculture (P) (Admn.)
Oto the Assistant Director of Agriculture (Admn.)
Kandi Sub-Division, Murshidebed

#### FORMAT OF GREEN AUDIT: QUESTIONNAIRE

#### 1. Concept of Environmental Audit or Green Audit

Environmental audit or Green auditis a general term that can reflect various types of evaluations intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. In this way they perform an analogous (similar) function to financial audits. The term "Green" means eco-friendly or environmentally benign. This can acronymically be called as "Global Readiness in Ensuring Ecological Neutrality" (GREEN). "Green Auditing", an umbrella term, is known by another name "Environmental Auditing". Although there is no universal definition of environmental Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

According to ICC Environmental Auditing: "A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects."

#### 2. Introduction:

The term "protocol" in environmental audit means the checklist used by environmental auditors as the guide for conducting the audit activities. Current technology supports many versions of computer-based protocols that attempt to simplify the audit process by converting regulatory requirements into questions with "yes", "no" and "not applicable" check boxes.

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It is based on exercises that can help to measure the risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps to monitor that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programme.

There are generally two different types of environmental audits: Compliance audits and Management systems audits. Compliance audits tend to be the primary type in the US or within US-based multinationals.

#### 3. Purpose of Green Audit:

The purpose of the audit is to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include:

- a. Preparation and filling up of questionnaire
- b. Physical inspection of the campus
- c. Observation and review of the documentation
- d. Interviewing key persons and data analysis
- e. Measurements and recommendations.

It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

'Green Audit' aims to analyze the environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. Green audit is assigned to the criteria 7 of NAAC.

There are main three pillars i.e., zero environmental foot print, positive impact on occupant health and performance and demonstrating 100% environmental literacy among graduates. The goal is to reduce CO<sub>2</sub> emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The college has to work on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

#### f. Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management

A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use and method(s) of conservation. Water is used for drinking purpose, canteen, toilets, laboratory and gardening. Loss of water must be checked, neither by any leakages, nor by over flow of water from overhead tanks. The green audit practically involves use of renewable sources, conservation of the energy, rain water harvesting program and efforts of carbon neutrality, plantation of trees, E-waste management and hazardous waste management.

## **Audit Report**

#### 1. GENERAL INFORMATION

1.1 Year of Establishment of college: 4th September in 1950

#### 1.2 History behind the establishment of the college:

In 1859, Raja Pratap Chandra Sinha first established the Kandi Raj High School. Few years later Raj family of Kandi, well known for their tremendous contribution of educational and cultural development in the small-town Kandi, founded the college on September 1950. At the beginning, classes were held in the Kandi Raj School building in, aiming at providing higher education at low cost.

'Arise, awake and stop not till the Goal is reached...' remembering this philosophy of Swami Vivekananda, our college started its journey in the year 1950 on  $4^{th}$ September.

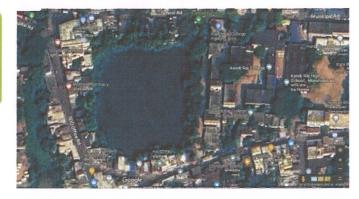
The college started its journey under the guidance of the First President of the Governing body, Arun Chandra Sinha and the first Principal, Dr. D. L. Das. At that time, it was affiliated to University of Calcutta. With the establishment of Kandi Raj College in 1950, the long-cherished dream of the people of Kandi subdivision were finally fulfilled. The college was started its journey with sixty-oneH.S students in Kandi Raj High School with accommodation of five rooms. Government of West Bengal elevated it to the status of "Government Sponsored" during the academic session 1956-57. Undergraduate courses first started in 1957-58 under affiliation University of Calcutta.

However, from 1999 onwards the affiliation of the college is under University of Kalyani. Though from 2002, due to Government notification admission in H.S. curriculum in college stopped but Honours and Pass course curriculum was in full swing. Currently renowned Scientist Prof. (Dr.) Bikash Sinha is the President of the college.

#### 1.3. Location of the Institute:

Campus is located at Kandi, Murshidabad, West Bengal, Pin-742137

https://www.google.co.in/maps/place/K andi+Raj+College/@23.954243,88.039 5219,17z/data=13m114b114m613m511s0 x39f9852543dd83d3.0xd9404815c76fd 89f18m213d23.95423814d88.04171061 16s%2Fm%2F0j27ftv?hl=en



a.	Total campus area:	16800 sq. mt.	
b.	Total built up area:	3970 sq. mt.	
c.	Total open space area:	4190 sq. mt.	
d.	Total green area:	2500 sq. mt.	

1.4Whether the college is implementing the Green Policy for the first time: "yes", "no" and "not applicable" (Mention date/month/year)

Response: Yes, the College has conducted the internal Green Audit under the College environmental committee of KRC on dated 6<sup>th</sup> June, 2021. The Annual reports records reviewed during the audit, Main focus of this is to bring awareness of environmental values in students and society. Now, the external audit for environment is awarded 31.25:23. for a systematic way of monitoring the environmental eminence initiative, taken by college for environment protection.

1.8 Whether green audit is followed annually, if so, please produce the year-wise recommendations of the auditor along with report (as Annexure): "yes", "no" and "not applicable"

Response: Not applicable

1.9 Whether college has constituted the "College Environmental Committee", "yes", "no" and "not applicable" (if so, give the details of it):

**Response:** College has constituted "College environmental committee" with faculty of different department along with students, Non-Teaching Staff and the department of Environmental Studies.

## 1.9.1 Name of the Committee members:

SL.	Name of committee Members	Designation	Signature
NO.			
1.	Dr. Chandan Kr. Jana (Assist. Prof.)	Co-ordinator	Chandan Kumor Jana
2.	Mrs. Anamika Saha (SACT II)	Joint Co-ordinator	Anemika Saha.
3.	Dr. Pradip Bera (Assist. Prof.)	Member	Proving Gerry
4.	Mr. Abhijit Dutta (Assist. Prof.)	Member	Abhijit Zutta
5.	Miss. Tanusree Sinha (SACTII)	Member	Tanuskeesinh
6.	Mrs. Madhuparna Sarkar (SACT I)	Member	Madhubarra Sarkan
7.	Miss Chumki Mondal (SACTII)	Member	Chumui Mandal
8.	Mr. Sumantra Chakraborty (SACT I)	Member	Sumanha Chaurrobert
9.	Miss. Deblina Das (SACTII)	Member	Sablina Var.
10.	ENVS Students from Biological	Member	a. Tanviv Ahamed.
	Science.		b. Aroapita Nande
			c. Supanna Bhattachan
			d. Anindita Data
			e. Monidipa Mondal
			f. Suder Dalui
11.	Mr. Rakhahari Das (Casual-Gr.D)	Member	Rokhahomisog
12.	Mr. DhananjayBagdi (Casual–Gr.D)	Member	इन्द्रहै में बाउपी
13.	Mr. Barun Biswas (Casual–Gr.D)	Member	Berupi Barroo.
14.	Mr. KajalGhosh (Casual–Gr.D)	Member	Kaijal Thosh



Or Sold Residence Page | 7

#### 1.9.2 Number of meetings conducted so far.

**Response:** Committee conducted two meeting in the session 2021-22 on dated 16.12.2021 and 17.11.2022

#### 1.9.3 Resolution of the meetings:

- 1. Environmental committee and Eco-club including NSS Units would work on water and energy conservation practices in college premises.
- As per reviews of last twelve months' environmental activities, committee has decided to involve more students from different departments and our targeted number of students is around 500.
- 3. Committee would monitor different environmental activities like awareness programmes, rational utilization of water, energy, sanitation, etc.
- 4. Committee has decided to make artificial nests for birds that visit our green campus for biodiversity conservation.
- 5. Each week Committee members wouldmonitor tending, thinning and weeding programmes for proper health of different tree species.
- 6. Committee has decided to establish a Butterfly Garden for beautification and conservation of insects.
- 7. Committee has decided to establish MOU with different NGOs at National and International level for collaborative works on Conservation as well as environmental protection.
- Committee has decided to arrange awareness campaign among students and staff members about solid waste minimization, how to reduce the carbon footprint and water footprints and bad effect of junk food.
- Committee would advise the faculty members of Botany, Zoology and Environmental Science departments for monitoring and guide the students for conservation of insects, birds and plant diversity in our college campus.
- 10. Committee has decided to arrange a training programme for staff and faculty members and students by different vendors on environmental protection, solid waste management,

- reducing carbon soot particle, water footprints and special training for laboratory attendees for proper disposal of solid and liquid waste practices.
- 11. The committee has decided that every year our college will conduct internal environmental audit involving students and NSS Volunteers.
- 12. The committee has decided that every year college will conduct plantation programme with committee members, involving students and NSS Volunteers.
- 13. As per committee decision all vendors and their workers would train committee members and volunteers about waste management that will reduce environmental impact.
- 14. The environmental committee has decided to involve vendors for managing the E-waste and repair or reuse of different electronic gadgets and computers, including different laboratory instruments to reduced E-waste.
- 15. Committee has decided to make task force for proper collection, disposal of solid and liquid waste that comes from different sides of the college.
- 16. Committee has decided to conduct different training programmes for students on green entrepreneurship like Vermi-composting, ecotourism, plastic recycling and medicinal and aromatic plant cultivation.
- 17. Committee has decided to start different certificate courses for students on Environmental Advocacy, Green Technology, Nursery technology, gardening, Women empowerment, child protection, Ecotourism and Sustainable Development.
- 18. Committee has decided to monitor different environmental activities like awareness programmes, rational utilization of water, energy, sanitation, hygiene and use of biofertilizers and bio-stimulating pest control systems.

#### 1.9.4 Action taken by the Committee:

The impetus for a successful Green Campus must begin at the top and emanate throughout the rest of the campus. Without a strong message of commitment and involvement from both the Chairperson and Members of the Committee, well-intentioned initiatives may be too fragmented to allow for Institute-wide participation. Thus, in view of this, the committee executed the following plans:

- Involved Stakeholders to make the Go Green Campus initiative function all throughout the year.
- 2. Established a Green Campus Environmental Ethics Awareness campaign.
- 3. Identified the environmental impacts to target specific areas for improvements.
- 4. Organized Awareness Programs for the students, faculty and society.
- 5. Developed a strategic plan and created student teams to carry out specific task (soft plan). For Instance, a plan to save energy at the institute level with time bound plan to install Solar Power Station mandatorily either at the top of the Institute building or in the open field. This will enable the institute to have 24 x7 power supply.
- Phased out the CFL and conventional light source such as bulbs and tube lights, halogen and mercury street/campus lights and replaced them by LEDs, Old fans are replaced by power saving fan.
- 7. Set up a Green Campus Mission based on astatement of principle.
- 8. Establisheda Medicinal Plant Garden and Butterfly Garden.
- 9. Established a vermicomposting unit, mushroom culture unit.
- 10. Established a Rain water harvesting plant.
- 11. Awarded the students for proper use of waste management system.
- 12. Established public/private partnerships with personnel from federal, state, and local environmental agencies, utilities, and the business community.
- 13. Evaluated daily operations in terms of pollution prevention, waste stream management, and energy efficiency reducing, reusing, recycling, and repairing wherever possible.
- 14. Purchased only Energy Efficient Computers and other electronic appliancesviz: "ENERGY STAR" or any other equivalent.

#### 1.9.5 Future programme of the Committee:

- 1. Environmental committee and Eco-club including NSS Units work on water and energy conservation practices in college premises as early as possible.
- 2. As per reviews of last twelve months' environmental activities, we will involve more students from different departments and our targeted number of students is around 600.

- 3. Committee has decided to establish a bio-floc in the near future.
- 4. Establishing more MOU-s with different NGOs at National and International level for collaborative works on Conservation as well as environmental protection.
- 5. Committee has decided that different certificate courses will start for students on Environmental Advocacy, Green Technology, Nursery technology, gardening, Women empowerment, child protection, Ecotourism and Sustainable Development.
- 6. Committee monitors different environmental activities like awareness programmes, rational utilization of water, energy, sanitation, hygiene and use of bio-fertilizers and bio-stimulating pest control systems.

#### 1.9.6 Policy enforcement strategies:

#### Vision:

The College recognizes that in pursuing its strategic objectives, not least in relation to research and teaching, it has a responsibility towards, and should aim to protect and nurture the environment. By exercising proper control over all its activities, the College will aim to ensure sustainable use of resources and prevent the damage of the natural attributes and landscape of the college.

The College will aim to manage its operations in ways that are environmentally sustainable economically feasible and socially responsible. Therefore, this policy represents an important component of the College broader sustainability strategy. The aims and objectives of the College has always been for safeguarding the environment, and. It applies to all land, premises and activities within the control of the College.

The Environmental policy aims and objectives will be supported by a series of specific policies aimed at identified environmental issues (for example Paper Policy). The specific policies will set the management standards for these issues and will be further supported by guidance to assist responsible groups and individuals.

#### **Aimsand Objectives**

#### **Environmental Management**

> To implement a carbon management strategy, including the efficient use of energy.

- > To ensure the uptake of low carbon technologies in buildings and equipment.
- > To promote sound environmental management policies and practices throughout the College.
- > To reduce and, where practicable, prevent pollution of all kinds.
- > To adopt targets for improving environmental performance.
- ➤ To reduce greenhouse gas emissions in line with College targets; 6% on 2005/06 levels by 2025.

#### Water

☐ To make efficient and environmentally responsible use of water, including identifying opportunities for water reuse.

#### Procurement

- \* To work with suppliers to promote sustainable resource management practices.
- \* To promote life cycle thinking in the procurement of goods and services.

### Waste Reduction and Recycling

- ♣ To set and achieve targets for reducing resource use.
- ♣ To minimize the adverse environmental impacts of the decommissioning and disposal of college assets.
- To increase the rate of recycling of all appropriate materials based on life-cycle principles.
- ♣ To implement sustainable resource management practices, based on reduce, reuse and recycle principles.

#### **Transport**

- To develop and implement a college strategy based on sound environmental and sustainability principles.
- To implement sustainable transport practices with the aim of achieving the carbon reduction targets of the College.

#### College Estate

- To raise awareness of staff and students of the College regarding environmental impact, activities and performance and good practice.
- To require a sustainable construction plan for any new College development and refurbishment project.
- To manage the College estate with a view to enhancement of biodiversity wherever possible.

#### Awareness and Training

- To communicate internally and externally the College environmental objectives and performance.
- o To provide appropriate environmental educational programmes for staff and students.
- To encourage and facilitate feedback and suggestions on ensuring good practice.

#### Evaluation of Environmental Policy

• To undertake a regular review of environmental management procedures and activities to ensure suitability, adequacy and effectiveness.

### Responsibilities

The main responsibility for implementation of this policy lies with the Environmental Protection Committee and the Principal as the Chief Executive.

The Heads of Department of ENVS and the NSS services are responsible for ensuring compliance with College Environment Policy within their area of control.

The Environmental Committee will actively monitor the performance of College and Departments in the implementation of the aims and objectives of this Policy in the activities under their control. Whilst the College accepts the main responsibility for implementation of this policy, individuals have a very important role in co-operating with those responsible for safeguarding the environment. Individuals are required to abide by rules and requirements made under the authority of this policy.

Question	Response
1.10 Whether college has conducted any	College has conducted awareness
awareness/responsibility programme among the	programme and responsibility about
staff members: "yes", "no" and "not	environmental pollution every year in our

applicable"	college campus
1.11 Whether all the departments/teachers/non-teaching members/students are aware about the need of the environmental protection and audit: "yes", "no" and "not applicable"	Yes
1.12 Whether college has involved the students as volunteers in greening programmes: "yes", "no" and "not applicable"	Yes
1.13 Whether construction/demolition/repairing are in compliances with green standard: "yes", "no" and "not applicable"	Yes
1.14 Whether college has conducted any workshop/seminar/lecture on environmental awareness programme inside and/or outside the campus:"yes", "no" and "not applicable"	Yes
1.15 Whether the institute has department of Law/Environmental Science/3-Year degree Course/Course curriculum "yes", "no" and "not applicable" (if so, how does it takes part in greening programme)	Yes
1.16. Whether college provides any community services, if so, give details (as Annexure): "yes", "no" and "not applicable"	Yes, College provides different community services to the local area around in our college.

### a) National High Blood Pressure Education Month for Students:

This campaign was done on 2nd December 2019 in the Dept. of Physiology. The aim of this programme is to check the BP which is an important part of keeping HBP controlled. Many students with HBP don't even know they have it that's why we want to encourage everyone to get their blood pressure checked. This may learn about their risk using a new interactive blood pressure tool.



#### b) Blood donation Camp:

Blood donation is one of the most significant contributions that a person can make towards the society. The camp is being held every year in college campus. The faculty, students and non-teaching staff are participating in the camp. It is not harmful for an adult person to donate blood. The body of the donor can regenerate the blood within few days.





c) <u>Distribution Education Material among Students of BoltuliTilipara Primary School:</u>

The college was organized educational material distribution camp by NSS on 27th February, 2023 among the students of Boltuli Tilipara Primary School to encourage them for their study.

#### d) A cleaning Programmed of Netaji's idols and all murals across Kandi Town:



### e) Distribution of jute Bags:

Distribution of jute bags for daily uses among the people at kandi Bus stand, Kandi Vegetable Market and different place in Kandi Municipality area on 15th August, 2022. The aim of this programme is to increase public understanding and shape community perceptions on the dangers of plastic pollution and available solutions, thereby empowering more people and organizations to take action.







### f) Distribution of fruits to the patients in Kandi Hospital







1.17 Whether the students are aware about the use of medicinal plants (any lecture/seminar/conference organized on it): "yes", "no" and "not applicable"

**Response**: Yes, Students are aware about the use of medicinal plants. Student seminar and lecture was organized by the department of Botany and Chemistry on 22.12.2022 to development of knowledge of ideas related to the usage of medicinal plants as well as the evolution of awareness that have increased the ability of pharmacists and physicians to respond to the challenges and services to protect of man's life.

#### 1.18Comments on the following:

#### 1.18.1 Plantation program: Y/N

**Response:** Yes, Plantation program is organized every Year, 5<sup>th</sup> June (World Environment Day) by Eco club, environmental committee and NSS.



#### 1.18.2 Formation of Natural club/Eco club: Y/N

**Response:** Yes, Eco Club has been formed in Kandi Raj College, Murshidabad, under the supervision of Dr. Chandan Kr. Jana Convener (Assistant Professor in Botany) on 4<sup>th</sup> June, 2021. The main aim of establishing the Eco club is conserved to create eco-friendly environment and awareness of Bio-diversity Conservation and local environmental issues among the students to create cleaned and green. Name of members of Eco club are giving in the following table.

SL.	Name of committee Members	Designation	Signature
NO.			
1.	Dr. Chandan Kumar Jana (Assist. Prof)	Convener	Chandan Kumar Jana
2.	Mrs. Anamika Saha (SACT II)	Member	Anamika Saha.
3.	Miss. Dipanwita Pal (SACTII)	Member	Dipanwita Pal
4.	Miss.Tanusree Sinha (SACTI)	Member	Tanusarel Links
5.	EVS Students from Biological Science	Member	a. Tonvir Amouned. b. Apapita Nandi c. Suparna Bhattachange d. Anindiota Datta e. Monidipa Mondal f. Sudey Dolvi
6.	Mr. Sayan Goswami (SR)	Member	Sayar Gloswami

#### 1.18.3 Management of natural resources, wildlife, conservation of species: Y/N

Response: Yes, Natural Resources include the entire natural environment that is essential and useful to human beings. Management of natural resources are actually stocks of nature like soil, minerals, water, coal, forest and more but because of the increasing population and technological development, our natural resources are getting polluted and depleted. In these circumstances Environmental committee, Eco Club and NSS jointly entities the following steps:

- a) Plantation.
- b) Conservation of medicinal plants.
- c) Butterfly garden.
- d) Vermi-compost.
- e) Management of plastics containing garbage.

1.18.4 Any project sponsored by national funding agency/NGO; independent project related to environmental issues: Y/N

Response: NO

# 1.18.5 <u>Is there any incidence of burning of plastics containing garbage within the campus for</u> necessary reduction: Y/N.

**Response:** NO, for the reduction of plastic containing garbage college authority especially environmental committee and NSS collected plastic containing garbage from different sites of college campus and delivered to Kandi Municipality for recycling.

## 1.18.6 Celebration of 5<sup>th</sup> June (Environmental), Ozone day, Earth Day etc.: Y /.N

**Response:** Yes, World Environmental day is organized every year on 5<sup>th</sup> June in our college campus with different programme like plantation, cleaning college campus and collection of non-biodegradable waste material awareness programme about environmental pollution.

#### 1.18.7 Number of field visits/survey records: Y/N (if Y number)

Response: NO

1.18.8 Campus biodiversity register

Response: NO

#### 1.19 General aspects (express in statements)

**Response:** The College caters to a biodiversity register in order to assess the existing status of the biodiversity and to monitor the existing status of the different flora and fauna of the campus. The register also tries to maintain the other issues related to biodiversity of the campus in the related issues.

Aspects	Discuss about
1.19.1 Campus cleanliness	The campus cleaning is the most cultivated process as we believe. "Cleanliness is the next to godliness". The entire process is executed with the mutual collaboration of NSS, Eco Club and other wings for having the pleasure of clean, green and plastic-free eco-friendly campus.
1.19.2 Rainwater harvesting	Rain water harvesting plant was set-up in the month of October- November 2016. It was further modified on December 2022. The plant has been maintained by the Dept. of Chemistry Rain water harvesting unit are given in Fig. 1

1.19.3 Solar street lamps	No,Solar Street lamps are yet to be executed but future planning prospects to be exercised in the near future.
1.19.4 Carbon dioxide neutrality on the campus by developing greenery	The Carbon neutrality is being exercised by the mass afforestation & fruition programmes as a part of the celebration of the different days related to the issues of carbon neutrality.
1.19.5 Restriction in use of plastic and plastic products	Yes, we have installed amber of man-made nests along with the provision of water facilities of the birds visit our campus during the different seasons.
1.19.6 Culture of some ducks, swans etc., for scenic beauty in pond or any water body resources (if available)	No, ducks, swans etc., for scenic beauty in pond are not yet to be executed but future planning prospects to be exercised in the near future.
1.19.7 Green monitoring by green committee/volunteers/team	The Green committee along with the green volunteers also gives attention for monitoring the green ambience around the college campus by exercising the different parameters in order to maintain a sustainable ecosystem.
1.19.8 Training on vermicomposting	Yes, Vermi-compost pit is present, and Vermi-compost training is also conducted.
1.19.9 Celebration of 'No vehicle Day' on a particular day	Yes,
1.19.10 Dams inside the campus to meet the demand for water	NO
1.19.11 Installation of fire safety instruments in all the buildings/departments	Yes,
1.19.12 Toilets/separate toilets for differently abled students	One separate toilet has been designed and developed in order to cater the need of the differently able students along with the designed ramps for their smooth running around the campus as far as possible.

#### 1.20 Over all noise level

Sl. no.	Inside	campus	Outside	Class	Lawn	Office (dB)
	area (dB)		campus (dB)	room (dB)	(dB)	
12.07.22	69.2		98.7	55.4	70.1	52.2
16.07.22	68.1		96.5	58.8	69.9	50.3
13.09.22	72.2		102.5	55.5	75.0	55.5
15.11.22	73.0		91.9	56.4	59.9	48.5
10.01.23	66.5		100.1	52.1	68.8	46.6

1.19 Is there any device (preferably HVS: High Volume Sampler) for measuring ambient air quality in the campus (if so, please mention the data month wise): "yes", "no" and "not applicable"

Response: NO.

### 2. WATER MANAGEMENT

Water management is the control and movement of water resources to minimize damage to life and property and to maximize efficient beneficial use.

### Questionnaires and Response

Question	Response
2.1 Whether college has an efficient and	Yes, College takes necessary steps to maintain
hygiene water storage mechanism to minimize	efficient and hygiene water storage mechanism
the loss of water during storage "yes", "no"	to minimize the loss of water during storage.
and "not applicable"	
2.2 Whether college is using water filter with	Yes, College use water filter with RO, One large
RO, Aqua Guard and/or large water filter with	water filter for consumption iron for drinking
cooler at the strategic locations in the college.	purpose. Two water filters with cooler are
If so, are they under AMC: "yes", "no" and	present at inside of the Library and other front
"not applicable"	side of the Teachers Room.
2.3 Whether college has its own mechanism in	No, Still now college does not arrange own
repairing of water leakage: "yes", "no" and	mechanism in repairing of water leakage
"not applicable"	

.4 Is there any rainwater harvesting unit in	Rain water harvesting plant was set-up in the
college: "yes", "no" and "not applicable"	month of October- November 2016. It was
(if so, what are the uses of this water:)	further modified on December 2022. The plant
	has been maintained by the Dept. of Chemistry
	Rain water harvesting unit are given in Fig. 1,
	The rain water used for following purpose:
	a) It is used as distilled water for chemistry,
	Physics, Botany and zoology practical purpose.
	b) It is used for general toilet user.
2.5 Whether college has developed any reuse	No
and recyclable of water system: "yes", "no"	
and "not applicable"	
2.6 Is there any scope of measurement of water	Chemistry and Botany jointly analyses water and
quality parameters used in hostel, lab, office,	measurement the following parameter like pH,
canteen, tap water (if so, parameters: pH, EC,	EC, OD, total dissolve iron and total hardness of
Total Hardness etc.)	water which are given in following Table. 1
2.8 Whether college has sufficient/adequate	College made sufficient draining system for
drainage system: "yes", "no" and "not	passing excess or overflow water.
applicable"	



Fig. 1. Rain water harvesting unit.

Table-1: Analytical result of drinking water sample collected from Kandi Raj College, Kandi, Murshidabad, and Waste Bengal

Sl.	Parameters	Sample No1	Standards	
No.			Acceptable Limit	Permissible Limit
1.	P <sup>H</sup>	7.64	6.5-8.5	6.5-8.5
2.	Conductivity (μS/cm) at 25 <sup>0</sup> C	520	-	-
3.	Total Hardness in ppm	215	200	600
4.	Calcium(mg/L)	42	75	200
5.	Magnesium (mg/L)	22	30	100
6.	Chlorides (mg/L)	43	250	1000
7.	Iron (mg/L)	1.25	0.3	0.3
8.	Arsenic (mg/L)	BDL	0.01	0.05

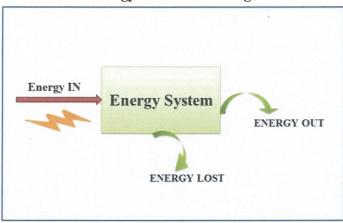
<sup>\*</sup>BDL: Below detectable limit

## 2.7 Lab-wise consumption of water (lt/d)

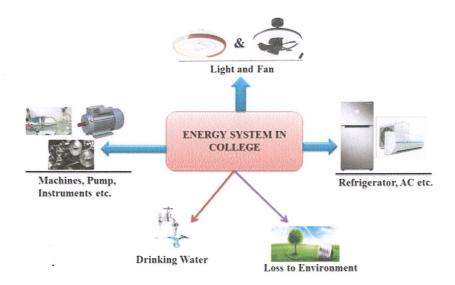
Department	consumption of water (lt/d)	
a) Chemistry:	20 liter distilled water for practical purpose and 40 liter tap for cleaning purpose	
b) Zoology: 20 liter distilled water for practical purpose and 40 tap for cleaning purpose		
c) Botany:	15 liter distilled water for practical purpose and 35 liter tap for cleaning purpose	
d) Physiology: 15 liter distilled water for practical purpose and 35 litap for cleaning purpose		
e) Geography:	5 liter distilled water for practical purpose and 10 liter tap for cleaning purpose	

### **3. ENERGY CONSERVATION**

**Energy Balance in College** 



### **Energy Lost**



## 3.1 Reduction of energy consumptions, especially fossil fuel energy

Comments	Response				
a) Total electric consumption amount (KWH/Yr)	Approx. 17754 KWH/Yr				
b) Average electrical consumption in a month	1480KWH				
c) Total No. of					
i) LED:	70				
ii) CFL:	10				
iii) CFL:	10				
iv) Tube lights	222				
v) Incandescent lamps:	NO				
vi) Fans:	261				
vii) Air conditioners/Air	5				
Coolers:	,				

## Questionnaires and Response

Question	Response
3.1.1. Whether college has any provision/choice of renewable and carbon-neutral electricity options: "yes", "no" and "not applicable"	No
3.1.2. Whether college has planned to install solar panels: "yes", "no" and "not applicable"  (If so, Project installed/working: Date/Month/Year)	Yes, College has planned to install solar panels. Targeted a monthly average generation through 200 kVA power station with 2 inverters (each 100 kVA) connected to main grid. Messages will be displayed at various locations to aware the People about Energy Savings.
3.1.3. Whether college has efficient water heating system: "yes", "no" and "not applicable"	Water heating system is present in each laboratory for practical purpose.
<b>3.1.4.</b> Whether the staff members of all sectors	Yes

are concerned in turning off electrical appliances when not in use in both commercial and residential area: "yes", "no" and "not applicable"	
3.1.5. Is there any monitoring system – like put off the main switch where there is no need of electricity?  "yes", "no" and "not applicable"	Yes
3.1.6. Whether the users follow the appropriate and measurable targets for a reduction of energy, such as, computer, printers, electrical equipment when not in use: "yes", "no" and "not applicable"	Yes
3.1.7. Are there any options for equipment's running on standby mode: "yes", "no" and "not applicable"	Yes, Computer and other instrument in practices
3.1.8. Whether college has taken initiative to purchase efficient and environmentally sound appliances in order to fulfill the green budget: "yes", "no" and "not applicable"	Yes
3.1.9. Whether college has its own mechanism in repairing of electrical fault: "yes", "no" and "not applicable"	not applicable
<b>3.1.10.</b> Total number of computers, printer, Laptop, Xerox machine in college:	Computer: 49 Printer: 20 Laptop: 7 Xerox machine: 2
3.1.11Whether college has organized lectures on energy conservation in order to give awareness to the students: "yes", "no" and "not applicable"	yes

3.1.10 Whether the class rooms are win	Yes, every class room have sufficient
sufficient illumination in day time ar	illumination in day and ventilation.
ventilation: "yes", "no" and "not applicable"	

Comments	Response		
a) Number of lights & fans in class room	Light: Six		
(average):	Fans: Six		
b) Use of light & fans in the day time	Light: Four		
(average hours):	Fans: Six		
c) Number of windows per class:	Five		
d) Natural light source in day time (in	Six hours		
hours) (average per class):			

## 3.2 Energy conservation strategies

Question	Response
3.2.1. Whether the architectural design	No
for college is based upon use of natural	
lighting & ventilation, to save extra	
power for bulbs and fans: "yes", "no"	
and "not applicable"	
33.2.2 Whether florescent bulbs are	Yes, Maximum florescent bulbs are replaced
replaced with CFL bulbs/LEDs: "yes",	by CFL bulbs/LEDs
"no" and "not applicable"	

#### 3.3 Minimize the use of unsustainable transport

Question	Response		
transport facilities used by the staff	Maximum student used Bicycle for their transport to arrive College; Staff members are uses motorcycle, e-rickshaw and bicycle		
3.3.2 Whether college has any common car sharing/car pool among the students and faculty:"yes", "no" and "not applicable"	Not Applicable		

#### 4. WASTE MANAGEMENT

**Waste management** is the process and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process and waste-related laws, technologies, economic mechanisms.

Waste can be solid, liquid, or gases and each type have different methods of disposal and management. In our campus, College mainly manages solid (degradable and non-degradable), liquid, chemical and biological waste.

#### 4.1 Maximization of the process of wastes & minimization of non-renewable refuse

Question	Response		
4.1.1 Is there any method of segregation of waste materials? "yes", "no" and "not applicable"			

	wrappers, hygiene products, yard waste, tissues and paper towels, as well as any other soiled item that would contaminate the recyclables.  **Sanitary waste*: Refers to all liquid or solid waste originating solely from humans and human activities. (Can also include items from medical waste)  **E-waste*: Refers to all kinds of electronic waste.  **Inert waste*: Refers to waste items that are neither chemically or biologically reactive nor decompose easily.  Note: For ease of waste segregation, the disposal bins are color coded in following Fig. 2.
4.1.2 Total amount of solid waste generated in the campus (including tree droppings & Lawn wastes)  Total number of staff (Per capita production per day)	15 kg
4.1.3 Whether college arrange any workshop/seminar/conference for awarding the students/staff for specific arrangements for recyclable wastes:"yes", "no" and "not applicable"	Yes
4.1.4 Whether college follow specific disposal method for solid or liquid waste in specific manner: "yes", "no" and "not applicable"	Yes
4.1.5 Whether the recycling/collection facilities are provided by the city Municipality and/or private suppliers (including glass, white	yes

plastic bottle, printer cartridges, cardboard, furniture, plastics, thermocol, waste papers, electrical goods & alliances, electronic gadgets, instruments, equipment, packing materials):  "yes", "no" and "not applicable"	
<b>4.1.6</b> Whether college has any composting ground/vat or any collection unit <i>etc.</i> :"yes", "no" and "not applicable" (If yes, what is the percentage of waste undergone composting and the final use of the products)	NO
<b>4.1.7</b> Is there any mechanism of treatment/uses of domestic influent in the college campus (if so, what is the capacity of treatment plant/composting <i>etc.</i> ):"yes", "no" and "not applicable"	NO
4.1.8 Whether the cleaning products used by the college staff are ecofriendly and under the COSHH (Control of Substances Hazard to Health) regulations: "yes", "no" and "not applicable"	NO
4.1.9 Whether the college is using fertilizers, pesticides for any purposes, if so, amount used per month and places of uses Use of public transport:"yes", "no" and "not applicable"	NO
<b>4.1.10</b> How many (%) e-notice generated by the college for academic/administrative purposes in a month	60
<b>4.1.11</b> How many (%) paper-notice generated by the college for academic/administrative purposes in a month	100



Fig. 2. Different Color code disposal bin for different waste

## 4.1.10 Minimize use of chemical pollutant

SI	Departme	Name of the waste		Total	Characterizatio	Method of	Agency if	
No.	nt				(a+b+c)	n (if any)	disposal	any
					/month			Control of the Contro
		Chemical (a)	Biological	Microbial				
			waste (b)	waste (c)				
1.	Chemistry	Toxic metal	NIL	NIL	100-	Heavy metals	Septic tank	NO
		compounds			150g/month			
		and solvent			+ 5lts			
2.	Physics	Nil	Nil	Nil				
3.	Biological	Toxic metal,	Dead	Bacteria,	50g + 3lts +		Septic tank	NO
	Science	solvent and	Specimen	Fungus	1kg			
		acids						

## 4.1.11 Records of dustbins/collection bins inside the campus

SI	Location	No. of dustbins			Quantity of	Disposal	Cleaning by
no.	of dustbin				collection	time	ecofriendly
					(per day)		Product Y/N
		Biodegradable	Non-	Plastic			
			biodegradable	waste			
1	Each	2	4	12	5kg	10:45am	Y
	departmant						
2	office	1	1	1	500 gm	10:30	Y
						am	
3	library			1	100 gm	11:00	Y
						am	
4	Open	4	1	5	15 kg	9:30 am	Y
	space						

### 5. E-WASTE MANAGEMENT

Comments	Response
5.1.Quantity of e-waste generated:	23
5.2. Number of cartridges used month-wise:	10
5.3. Number of cartridges disposed in a year (average):	80
5.4. Number of times refilling & reusing method of	90
disposal of e-waste (if any)	
5.5. Whether college has conducted any awareness	Yes
programme on e-waste management:"yes", "no" and	
"not applicable"	
5.6. Is there any means of disposal of unusedcomputers,	NO
printers and electronic wastes through authorized	
agents: "yes", "no" and "not applicable"	

## 5.7 Disposal methods

Sl. No.	Location	Amount of	Method of disposal	Name of the Agency (if
		generation/ year		any) for disposal
1	Each	20 kg	Sold to third party	NO
	departmant		after regular	
2	office	5 kg	interval	
3	library	1 kg		
4	Open space	nil	×	

## **6. GREEN AREA MANAGEMENT**

Comments	Response	
6.1.Is there any garden in the college campus/outside the campus under college custody: "yes", "no" and "not applicable"	Yes	
<b>6.2.</b> Whether the garden is watered by using drip/sprinkler irrigation system: "yes", "no" and "not applicable"	No	
<b>6.3.</b> Is there any mechanism of review of periodical monitoring of tree species: "yes", "no" and "not applicable"	Yes	
<b>6.4.</b> Whether the college has taken any programmed for plantation of some fruit trees which can attract birds, bees etc. "yes", "no" and "not applicable"	Yes	

## 6.5 Biodiversity mapping

## BIRDS at Kandi Raj College & vicinity





**Butterflies found in College** 



## **Others**









#### LIST OF VEGETATIONS IN THE CAMPUS OF KANDI RAJ COLLEGE.

### TREES (INDEGENOUS)

- 1. Sc. Name: Polyanthia longifolia Family. Annonaceae. Local Name. DEBDARU
- 3. Sc. Name: Swietenia mahagoni Family. Meliaceae. Local Name. MEHOGANI
- **5. Sc. Name: Azadirachta indica** Family. Meliaceae Local Name. NEEM
- 7. Sc. Name: Terminalia arjuna Family. Combretaceae Local Name. ARJUN

- 2. Sc. Name: Mimusop selengi Family. Sapotaceae Local name. BAKUL
- **4. Sc. Name: Mangifera indica** Family. Anacardiaceae. Local Name. AAM
- 6. Sc. Name: Alstonia scholaris Family. Apocynaceae Local Name. CHHATIM
- 8. Sc. Name: Terminalia chebula Family. Combretaceae Loacal Name. Haritaki

9. Sc. Name: Dalbergia sisoo

Family. Fabaceae. Local Name. SISHU

11. Sc. Name: Cycas revolute (EXOTIC PLANT)

Family. Cycadaceae. Local Name, CYCAS

13. Sc. Name: Delonix regia

Family. Fabaceae.

Local name. KRISHNACHURA

15. Sc. Name: Butea monosperma

Family. Fabaceae Local Name, Palas

17. Sc. Name: Ziziphus nummularia

Family. Rhamnaceae Local Name. KUL

10. Sc. Name: Cassia fistula

Family. Fabaceae

Local Name. BANDAR LATHI/ GoldenTree

12. Sc. Name: Eucalyptus oblique

Family. Myrtaceae

Local Name. SONAJHURI

14. Sc. Name: Gmelina arborea

Family. Lamiaceae.

Local Name. GAMAHAR

16. Sc. Name: Psidium guajava

Family. Myrtaceae

Local Name. Peyara/Guava

### SHRUBS:(INDIGENOUS)

18.Sc. Name: Bauhinia acuminata

Family: Fabaceae Local Name. Kanchan 19. Sc. Name: Lawsonia intermis

Family. Lythraceae

Local Name. Mehendi/Hena

20.Sc. Name: Nerium olender

Family. Apocynaceae.

Local Name. KARABI

21. Sc. Name: Hibiscus rosa-sinensis (ORNAMENTAL)

Family. Malvaceae Local Name. Jaba

Family. Rubiaceae

Local Name. Rangan

22. Sc. Name: Ixora coccinea (ORNAMENTAL) 23.Sc. Name: Bouganivillea spectabilis (ORNAMENTAL)

Family. Nyctaginaceae

Local Name. Kagaj phool

24. Sc. Name: Murraya paniculate

Family. Rutaceae

Local Name. KAMINI

25. Sc. Name: Abutilon indicum

Family, Malyaceae.

Local Name. PATARI

26. Sc. Name: Tabernaemontana divaricate

Family. Apocynaceae

Local Name, TAGAR

27. Sc. Name: Gardenia jasminoides

Family. Rubiaceae

Local Name. GANDHARAJ

28. Sc. Name: Adhatoda vasica
Family. Acanthaceae.
Local name. BASAK

29. Sc. Name: Calotropis procera
Family. Apocynaceae
Local Name. AKANDA

### **HERBACEOUS: (INDIGENOUS)**

30. Sc Name: Catharanthus roseus
Family. Apocynaceae
Local Name. NAYAN TARA

32. Sc. Name: Duranta repens
Family. Verbanaceae
Local Name. DURANTA

34. Sc. Name: Nicotiana plumbaginofolia Family. Solanaceae. Local Name. BAN TAMAK

36. Sc. Name: Hygrophila auriculata.
Family. Acanthaceae.
Local Name. KULEKHARA

38. Sc. Name: Mimosa pudica
Family. Fabaceae.
Local Name. LAJJABOTI

40. Sc. Name: Achyranthes aspera Family. Amaranthaceae. Local Name. APANG

**42. Sc. Name: Dryopteris abbreviate** (ORNAMENTAL) Family. Dryopteridaceae.

Local Name. TERIS

44. Sc. Name: Micania ascandes. Family. Asteraceae. Local Name. RABON LATA

46.Sc. Name: Tridex procumbens
Family. Asteraceae
Local Name. Tridakha

48. Sc. Name: Tinospora cordifolia Family. Menispermaceae Local Name. GULANCHO 31. Sc. Name: Ocimum sanctum
Family. Lamiaceae
Local Name. TULSI

33. Sc. Name: Euphorbia hirta Family. Euphorbiaceae. Local Name. KESHUT

35. Sc. Name: Solanum nigrum
Family. Solanaceae.
Local Name. KAKMACHI

37. Sc. Name: Sida cordifolia
Family. Malvaceae.
Local Name. BERELA

39. Sc. Name: Solanum torvum
Family. Solanaceae.
Local Name. BAN BEGUN

41. Sc. Name: Musa paradisiacal
Family. Musaceae.
Local Name. KALA

43. Sc. Name: Cynodon dactylon.
Family. Poaceae.
Local Name. DURBA GHAS

**45. Sc. Name: Parthenium hysteropedous** (EXOTIC) Family. Asteraceae.

Local Name. PARTHENIUM

47. Sc. Name: Eupatorium perfolietum Family. Asteraceae. Local Name. SNAKE ROOT.

**49. Sc. Name: Boerhaavia diffusa**Family. Nyctaginaceae.
Local Name. PUNARNABA

50. Sc. Name: Syzygium polyanthum

Family. Myrtaceae

Local Name. INDIAN BAY LEAF

52. Sc. Name: Andrographis paniculate

Family. Acanthaceae Local Name. KALMEGH

54. Sc. Name: Asparagus racemosus

Family. Asparagaceae Local Name. SHATAMULI

56. Sc. Name: Mentha spicata

Family. Lamiaceae Local Name. PUDINA

58. Sc. Name: Dracaena trifasciata

Family. Asparagaceae Local Name. DRACENA

60. Sc. Name: Ipomoea purpurea

Family. Convolvulaceae Local Name. NIL KALMI

62.Sc. Name: Calliandra haematocephala

(EXOTIC)

Family. Leguminosae

Local Name. POWDER PUFF

64. Sc. Name: Cycas circinalis (ORNAMENTAL)

Family. Cycadaceae Local Name. Cycas

6.6 Records of Plantation programmes

6.6.1. Plantation Programme conducted

SI	Programme	Date of functioning	No. of tree	Documentation	No. of beneficiaries
No.	conducted		planted	(if any)	
1.	World	5 <sup>th</sup> June	25	Yes	Entire
	Environment				college
	Day				
2.	Independence	15 <sup>th</sup> August	20	Yes	Entire
	Day				college

51. Sc. Name: Nyctanthes arbortristis

Family. Oleaceae

Local Name. NIGHT JASMINE

53. Sc. Name: Centella asiatica

Family. Apiaceae.

Local name. THANKUNI

55. Sc. Name: Aloe vera (ORNAMENTAL)

Family. Liliaceae

Local Name. GHRITAKUMARI

57. Sc. Name: Eragrostis unioloides

Family. Poaceae

Local Name. SHADA FULKA GHAS

59. Sc. Name: Commelina benghalensis

Family. Commelinaceae Local Name. KANSIRA

Local Name. KANSIKA

61. Sc. Name: Colocasia gigantea Family. Araceae

Local Name. KACHU

63. Sc. Name: Eichhornia crassipes

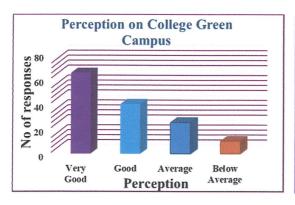
Family. Pontederiaceae Local Name. Kachuripana

# Brief Perception-based Schedule On

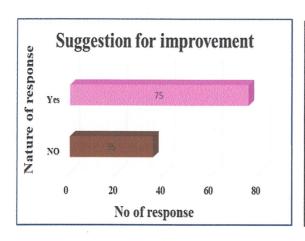
# College Campus Environment (A random survey conducted upon 100 students)

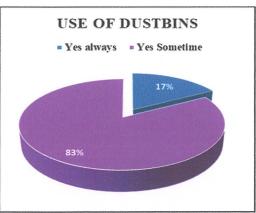
1.	What do you think your college campus is noise pollution free? Yes
	NO
2	Is the plastic free zone a good idea for being eco-friendly?
4.	Very apt –
	Good decision –
	Very good idea –
3.	Do you need any improvement for your eco-friendly campus?
٠.	Yes –
	No –
4.	Do you think your college campus has popper waste management system?
	Very Good
	Good
	Average
5.	Do you think your college campus has sufficient drinking water facilities?
	Very good
	Good
	Average
6.	What do you think your college has green campus?
	Very Good –
	Good –
	Average-
	Below Average –
7.	Do you think the campus is eco-friendly?
	Yes –
	No –
8.	Do you use dustbin for disposing solid waste/paper etc.?
	Yes always –
	Yes sometimes –
9.	Provide suggestions (from students' perspectives)

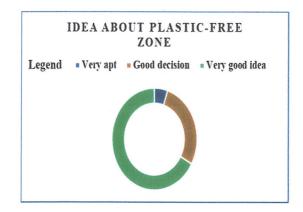
## Graphical representation of Students' perception

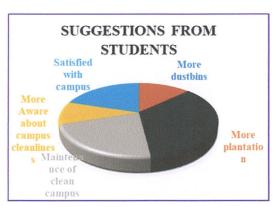












### Some pictures of our college green campus









**Checked and Signed by External Expert** 

Signature

Full Name:

PARESH NATH BALL

**Designation:** 

Principal

Kandi Raj College

Kandi, Murshidabad, West Bengal

DR SOMA DATTA Principal

Kandi Raj College Kandi ★ Murshidabad

