

# Green Audit

(2020-21)



## **Markanda National College Shahabad**

**(Affiliated to Kurukshetra University, Kurukshetra)**

**(A NAAC Re-accredited Grade-B College)**

**Ladwa Road, Shahabad, Kurukshetra-136135**

## Green Audit Report 2020-21

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### GREEN AUDIT TEAM

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S. No	External Member		
1	Sh. Satbir Singh Kait	Block Officer (Shahabad)	Forest Department, Pipli Kurukshetra
2	Dr. Ashok Kumar	Principal	Markanda National College, Shahabad
4	Dr. Amit Kumar	Assistant Professor	Markanda National College, Shahabad
5	Dr. Ajay Kumar Arora	Librarian	Markanda National College, Shahabad

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### **ABOUT THE COLLEGE**

Markanda National College, Shahabad-Markanda was established in 1971 by M.N. College Educational Society primarily to cater to the educational needs of this predominantly rural area. At that time, no college existed at Ladwa and even at Kurukshetra - the seat of Kurukshetra University, except University College, which had only brilliant urban students on its rolls. The establishment of this college proved to be a boon for this area. Ever since its inception, this college has not looked back and making significant strides, it has developed into a multi-faculty institution, imparting instructions in English at Post-graduate level and in Arts, Science and Commerce Streams at under-graduate level. The college also runs successfully PG diploma in Yoga and two job-oriented add-on courses (i) Retail Management and (ii) Information and computer technology. The college is a co-educational institution affiliated to Kurukshetra University, Kurukshetra and it is proud of its imposing infrastructure and an environment conducive to learning. It has a spacious building surrounded by lush green lawns and two playgrounds. The building consists of well-maintained class rooms, well equipped labs (Physics, Chemistry, Computer and Edusat), a spacious Library, a conference room, an auditorium with three green rooms, a seminar Hall, a big canteen, modern girls' common room, besides office complex and Principal's residence. Besides traditional subjects, faculty is available for teaching Marketing as vocational subject. The college is also running NSS and NCC units successfully.

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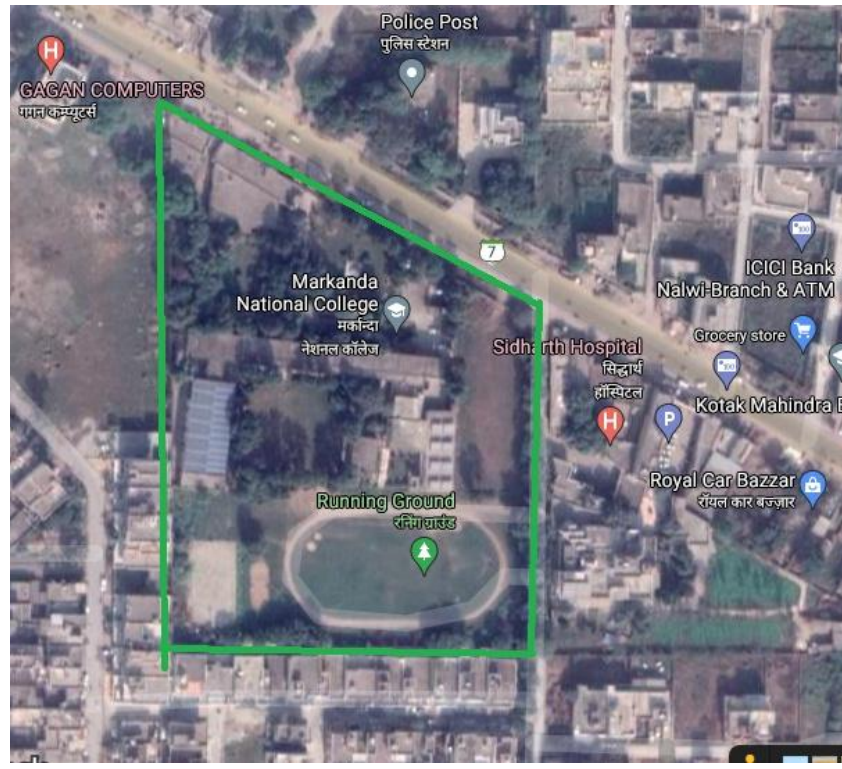
## **VISION**

To impart Qualitative, Value-based and Employable education at affordable cost to all sections of the society and to make the college a “Total Quality Zone”.

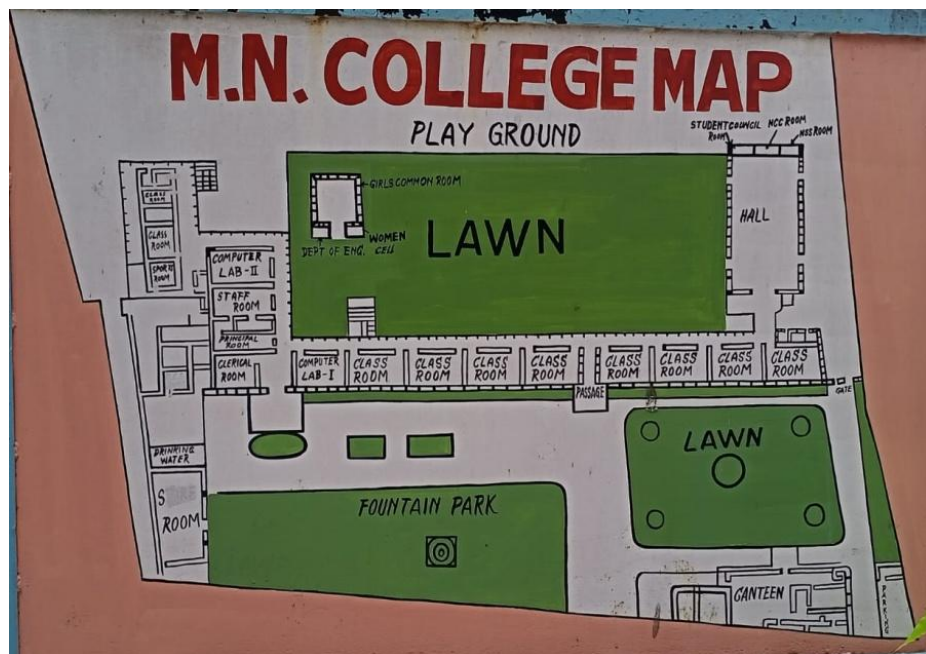
## **MISSION**

1. To pursue and disseminate knowledge with commitment to all sections of society.
2. To create and provide opportunities for the overall development of students.
3. To work towards optimum and meaningful utilization of human, infrastructural and financial resources.
4. To encourage self-evaluation, accountability and indigenous culture amongst the faculty members and students.
5. To foster the realization of social responsibilities and citizenship role amongst students.
6. To educate the girls of this semi-urban area at a very low cost and in a very dignified and secure atmosphere.

**AERIAL VIEW AND LAYOUT PLAN OF COLLEGE**



**Aerial view of Markanda National College in Summer Season**



**Layout Plan of Markanda National College**

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### CAMPUS AREA AND INFRASTRUCTURE

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Building Covered Area : 31492 sq ft

Green Cover area : 198149 Sq ft (Including Pedestrian, Pathway and Parking)

Number of Classrooms	15
Number of Physics Labs	03
Number of Chemistry Labs	02
Computer Labs	02
Yoga Lab	01
Physical Education Lab	01
Seminar Hall	01
Multi –Purpose Auditorium	01
Generator Room	01
Departmental Rooms	07
Chowkidar Rooms	02
Sports Room	01
Principal Office	01
Principal Residence	01
Administrative Office	01
Library	01 Central + 08 Departmental
Conference Room	01
IQAC Room	01
Staff Rooms	02
Girls ‘Common Room	01
NCC Office	01
NSS Office	01
Central Canteen	01
Strong Rooms	02
Student Council Room	01
Stores	02

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### NAAC GRADING

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Cycle	Grade	CGPA	Year of Accreditation	Validity	
				Period From	Period To
2	B	2.44	2019	01.05.2019	30.03.2024
1	B	73.00	2003	21.03.2003	20.30.2008

### COURSES OFFERED

1. Bachelor of Arts (B.A.)-General
2. Bachelor of Commerce (B.Com.)
3. Bachelor of Science (B.Sc.)
  - Non-Medical
  - Computer Science
4. Master of Arts (M.A.)-English
5. Post Graduate Diploma in Yoga
6. Add-on Course (ICT, Retailing, Tally)



### **SCOPE AND GOALS OF GREEN AUDITING**

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The main purpose of the audit is to identify opportunities to sustainable development practices, reduce liabilities and save money enhance environmental quality, improve health, hygiene and safety, and achieve values of virtue. The green and healthy surrounding is very important for effective learning and provides a conducive learning environment. The environmental and economic performance and reputation of an institute can be improved through the environment audit with reducing wastage and operating costs. The data prepared through green audit serves as baseline to eye on the environmental quality of an institute and a point of departure for future prospective of campus greening. It will also help the college to compare its programmes and activities with other peer institutions, identify areas for improvement and serve as basis for implementation of future projects. Green audit provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs.

The aim of green auditing is to help the institution to apply sustainable development practices and to set examples before the community and young learners. It is a kind of professional care which is the responsibility of each individual who are the part of economical, financial, social, environmental factor. It is necessary to conduct green audit in college campus because students become aware of the green audit, its advantages to save the planet and they become good citizen of our country. The green audit helps to secure the environment and cut down the threats posed to human health. It makes sure that the rule and regulation framed for conservation of environment must be taken care off.

### **OBJECTIVES OF GREEN AUDIT**

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The Green Audit of an institution has been becoming a supreme important for self-assessment of the institution in mitigating the present environmental problems. The Markanda National College has been putting efforts to keep our environment clean and green since its inception. The purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

The main objectives of the green audit are

1. To prepare a list of tree and plants around the college campus
2. To monitor the energy consumption/production pattern of the college
3. To assess the quantity and quality of water usage within the college campus
4. To identify the points water recharge/Harvesting within the college campus
5. To find out various sources of solid waste generation and mitigation possibilities
6. To suggest sustainable energy usage and water conservation practices
7. To suggest measures to improve biodiversity within the college campus

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## **GREEN AUDITING PROCESS**

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The Markanda National College Shahabad has espoused the Green environment system for protection of environmental and sustainable development. The main focus of green audit is to make the campus green and various activities following the environmental friendly nature and hence to reduce CO<sub>2</sub> emission, energy and water use and to provide atmosphere to the students to learn healthy. The aim is to have a check that various practices followed in the campus are in accordance with the Green Policy of the country.

The process of green audit is divided into three parts namely-

### **Pre –Auditing (Collection of Data and preparation of Draft Report)**

The internal committee members of the green audit initiated the collection of data. The detailed Performa of the different aspect of Environment audit viz: plants, Trees, Electricity Bill, water supply Bills, Water terminal etc. are divided into members of the green audit committee for data collection. The data were then analyzed and tabulated. The plants and trees were classified with the help of Gardener.

### **Peer Visit (Physical inspection of the campus, observations and review)**

A team of six persons (Three Internal and Three External) visited the campus on proposed date and time. The peer teams identify the dearth and submit their suggestions and Recommendations.

### **Post–Audit (Documentation and data analysis, Incorporating Suggestions and recommendations)**

After the Peer visit, Analyzed Data, and the recommendations and suggestions of the peer team is included into the Green audit report along with the future perspective. The report then submitted to Peers for approval.

## Green Audit Report 2020-21

### HERBAL PARK

The Markanda National College Shahabad well maintains the herbal park in the campus which was established in 2008 in collaboration with Punjab National Bank, Shahabad. The herbal parks contain more than 24 types of plants of different medicinal values. Medicinal plants have been the basis of treatment of various diseases in traditional medicine as well as other forms of treatment. Most of the potent medicinal plants have relatively no toxic or adverse effects when used by humans and their uses is presently on the increase due to easy availability, affordability, accessibility, and promising efficacy comparable to the often high cost and adverse effects of standard synthetic drug agents. The list of the medicinal plant grown and maintain in Herbal park of Markanda National College is given below.

### LIST OF PLANTS IN HERBAL PARK

S. No	Common Name	Botanical Name	Uses	Number
1	Lemon Grass	Cymbopogon	Medicinal, Fragrance	01
2	Chotti Illachi	Elettaria cardamomum	Medicinal	01
3	Laung	Syzygium aromaticum	Medicinal	01
4	Tejpatta	Cinnamomum tamala	Medicinal	01
5	Asawgandha	Withania somnifera	Medicinal	01
6	Harsinghar	Nyctanthes arbor-tristis	Medicinal	01
7	Curry patta	Murraya koenigii	Medicinal	01
8	Chui-mui	Mimosa Pudica	Medicinal	01
9	Ajwain	Trachyspermum Ammi	Medicinal	01
10	Awala	Phyllanthus Embica	Medicinal	01
11	Dama Buti	Selaginella Brypteris	Medicinal	01
12	Giloy	Tinospora Cordfolia	Medicinal	01
13	Pila Bans	Justica Adhotoda	Medicinal	01

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14	Satavari	Asparagus Recemosus	Medicinal	01
15	Kali Tulsi	Ocimum Tenuiflorum	Medicinal	01
16	Chitrika	Chitrak Plumbago Zeylanica	Medicinal	01
17	Neem	Azadirachta Indica	Medicinal, Disinfectant	01
18	Gratkumari	Aloe Vera	Medicinal, Cosmetic	01
19	Marva	Oregano	Medicinal	01
20	Lemon	Citrus Limon	Medicinal	01
21	Rudraksh	Elaeocarpus Ganitruves	Medicinal	01
22	Patharchatta	Bryophyllum Pinnatum	Medicinal	01
23	Jamun	Syzygium Cumini	Medicinal	01
24	Sada Bahar (White and Red)	Catharanthus	Medicinal, Decoration	01

For RA SBO  
28/10/21

Jenish Kumar

Block Forest Officer

Range Forest Officer  
Thansar (PIPLI)

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PHOTOGRAPHS OF TREES AND PLANTS

*Janesh Kumar Singh*

*Sd/- M S B D  
28/10/21  
Block Forest Officer  
Range Forest Officer  
Shahabad  
Tansar (MPLI)*

## Green Audit Report 2020-21

### LIST OF TREES AND PLANTS IN CAMPUS

S. No	Common Name	Botanical Name	Number
1	Ashoka Tree	<i>Saraca Asoca</i>	51
2	Silver Oak <del>Roll oak</del>	<i>Leucadendron Argenteum</i>	47
3	Awala	<i>Phyllanthus Emblica</i>	9
4	Sangwan	<i>Tectona Grandis</i>	1
5	Chotti Chandani	<i>Tabernaemontana Divaricata</i>	1
6	Bailpatra	<i>Aegle Marmelos</i>	3
7	Lasuda	<i>Ordia Dichotoma</i>	1
8	Aam	<i>Mangifera Indica</i>	8
9	Amrud	<i>Psidium</i>	2
10	Arjun	<i>Terminalia Arjuna</i>	22
11	Araucaria	<i>Araucaria</i>	2
12	Ficas	<i>Ficus Benjamina</i>	48
13	Morpankhi	<i>Platyclus Orientalis</i>	17
14	Rubber	<i>Hevea Brasiliensis</i>	1
15	Pipal	<i>Ficus Religiosa</i>	3
16	Lalturn	<i>Physalis Alkekengi</i>	1
17	Bottle Palm	<i>Hyophorbe Lagenicaulis</i>	30
18	Gudhel	<i>Hibiscus</i>	12
19	Gulmohor	<i>Delonix Regia</i>	1
20	Neem	<i>Azadirachta Indica</i>	6
21	Bogan Bela Vele	<i>Jasminum Sambac</i>	16
22	Gulab	<i>Rosa</i>	75
23	Kaner	<i>Cascabela Thevetia</i>	4
24	Kataa	<i>Argyreia Nervosa</i>	1
25	Kacnaar	<i>Bauhinia Variegata</i>	1
26	Natrechiam Palm	<i>Arecaceae</i>	2
27	Bottle Brush	<i>Callistemon</i>	5

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28	Claendra	<i>Calliandra Haematocephala</i>	2
29	Swani	<i>Lagerstroemia Indica</i>	4
30	Moti Chandani	<i>Crepe Jasmine</i>	2
31	Tulsi	<i>Ocimum Sanctum L.</i>	5
32	Sisam	<i>Dalbergia Sissoo</i>	2
33	Tuun	<i>Toona Ciliata</i>	1
34	Robin Palm	<i>Copsychus Fulicatus</i>	2
	<b>Total</b>		<b>388</b>

Thansar 1<sup>st</sup> March 2021  
Jit ASBO  
28/10/21  
Block Forest Officer  
Range Forest Office  
Thansar (PIPLI)



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### PLANTS GROWN IN POTS

S. No	Name of Plant	Botanical Name	Number
1	Sun of Green Plant	-	37
2	Bougainvillea plant	<i>Bougainvillea</i>	10
3	Naagfani (Snake Plant)	<i>Dracaena Trifasciata,</i>	5
4	Ouffum Bachia	<i>Ouffum Bachia</i>	20
5	Pattarchat	<i>Bryophyllum Pinnatum</i>	19
6	Lalern	<i>Physalis Alkekengi</i>	6
7	Rubber Plant	<i>Ficus Elastica</i>	1
8	Green Grass	<i>Poaceae</i>	13
9	Bottle Palm	<i>Hyophorbe Lagenicaulis</i>	7
10	Kanghi Plam	-	7
11	Genda	<i>Tagetes</i>	7
12	Cactus	<i>Cactaceae</i>	7
13	Palm	<i>Arecaceae</i>	6
14	Robin Palm	<i>Copsychus Fulicatus</i>	19
15	Sulphera	-	8
16	Zinnia	<i>Zinnia Elegans</i>	11
17	Kochia	<i>Bassia Prostrata</i>	5
18	Dophari	<i>Portulaca Grandiflora</i>	35
19	Kusmus	<i>Carthamus Tinctorius</i>	9
20	Kedarnath	<i>Dracaena Kedarnath</i>	10
		<b>Total</b>	<b>230</b>

*Janak Kumar Singh*  
*28/10/21*  
*Block Post Officer*



PLANTS GROWN IN POTS

Prd A SBD  
Janant Kumar 28/10/21  
R. B. Singh  
Shahabad

## HYDROPONIC PROJECT IN MARKANDA NATIONAL COLLEGE

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The project had been started by the department of Chemistry under supervision of Suresh Kumar, Assistant professor of Chemistry to inculcate an advanced agriculture/farming techniques in budding Science graduates. Hydroponics is a soil less and water culture based agricultural technique with no need of crop rotation, tilling and pesticides. Tomato, Spinach, Capsicum, Green Chili, Lady Finger, Coriander Leaves, Basils, Marigold, Cucumber plants were grown successfully from the periods of September 2019 to 31<sup>st</sup> March, 2020 using tailor made hydroponics equipment by DFT, NFT and Kratky methods of hydroponics.

These projects were conducted at two places, 1) at college level and 2) at the home of Sh. Suresh Kumar (Didar Nagar, Kurukshetra) on the intermediate scale. This technique is very helpful in water conservation, no use of pesticides; occupy small area, with controlled  $P_H$  and TDS.

The project may be implemented at larger scale in and around Kurukshetra District to become more self-reliant, healthier and environmentally friendly farming.

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## PLANTS GROWN WITH HYDROPONIC TECHNIQUE

## Green Audit Report 2020-21

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### LIST OF PLANT PROPOSED TO BE ADDED IN CAMPUS (2021-22)

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S. No	Name of Plant	Botanical Name	Number
1	Bottle Palm	<i>Hyophorbe Lagenicaulis</i>	20
2	Palm	<i>Arecaceae</i>	10
3	Robin Palm	<i>Coprychus Fulicatus</i>	10
4	Ashoka Tree	<i>Saraca Asoca</i>	20
5	Stevia	<i>Stevia Rebaudiana Bertoni</i>	5
6	Sonchapa	<i>Magnolia Champaca</i>	1
7	Starlight	<i>Ficus Benjamina</i>	2
8	Haar Singhaar	<i>Haar Singhaar</i>	5
9	Kadam	<i>Neolamarckia Cadamba</i>	5
10	Gori Chori	-	5
		<b>Total</b>	<b>83</b>

## ENERGY AUDIT

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An energy audit is recommended to determine the energy consumption associated with a facility and the potential savings associated with that energy consumption. It helps reduce energy costs in your facility, reduce the dependence on foreign energy sources, reduce environmental damage and pollution, increase the security of your energy supply, reduce the consumption of natural resources, and reduce the impact of greenhouse gas emissions.

The objective of the Energy Audit is

1. To observe the energy consumption of electrical appliances within the college campus building
2. To observe the energy production through renewable energy source and review/ analyze energy usage history to prepare energy saving model with in the campus
3. To explore the others possibilities of energy production and energy saving
4. Identify and evaluate measures that could improve the environmental performance of the campus and provide recommendations

## ENERGY AUDITING PROCESS

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The process of Energy audit is divided into three parts namely-

### **Pre –Auditing (Collection of Data and preparation of Draft Report)**

The data related to number of electric appliances, their power rating, Per day usages taking into account the various factors like shut down of college during COVID -19 lockdown, Presence of students and teachers in campus, Seasonal effect, Gazette holidays etc. All the factors are considered to average out to find the monthly and annual consumption of electricity.

### **Peer Visit (Physical inspection of the campus, observation and review)**

A team of six persons (three internal and three external) visited the campus on proposed date and time. The peer teams identify the dearth and submit their suggestion and Recommendations.

### **Post–Audit (Documentation and data analysis, Incorporating Suggestions and recommendations)**

After the Peer visit, Analyzed Data, and the recommendations and suggestions of the peer team is included into the Energy audit report along with the future perspective. The report then submitted to Peers for approval.

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### ENERGY CONSUMPTION IN 2020-21

S. No	Department/Place	Fan	LED	CFL	Computer	Printer/Scanner	Xerox	Projector	Tube well	Grass Cutter	Water Cooler	Water RO	TV	Air Cooler	AC	Exhaust Fan	Fridge
1	Principal Office	5	3	2	×	1	×	×	×	×	×	×	1	×	1	1	1
2	Administrative Office	7	8	4	4	3	1	×	×	×	×	×	×	×	×	×	×
3	Staff Room	4	4	3	1	×	×	×	×	×	×	1	×	1	×	×	1
4	Faculty Room (10 No.)	17	14	×	×	×	×	×	×	×	×	×	×	×	×	1	×
5	Class room (16 No.)	58	48	×	×	×	×	×	×	×	×	×	×	×	×	×	×
6	Physics Lab	12	8	×	5	×	×	×	×	×	×	×	×	×	×	×	×
7	Chemistry Lab	5	7	5	1	1	×	×	×	×	×	×	×	×	×	3	1
8	Computer Lab-1	4	6	×	16	×	×	×	×	×	×	×	×	×	1	×	×
9	Computer Lab-2	4	3	×	16	×	×	×	×	×	×	×	×	×	×	×	×
10	IQAC Room	2	2	×	1	1	×	×	×	×	×	×	×	×	×	×	×
11	Library	20	16	12	4	1	×	×	×	×	×	×	×	×	1	×	×
12	Auditorium	16	10	14	×	×	×	×	×	×	×	×	×	×	×	×	×
13	Conference Room	2	3	×	×	×	×	×	×	×	×	×	×	×	×	×	×
14	Canteen	9	6	2	1	×	×	×	×	×	×	×	×	×	×	2	×
15	Chowkidwar Room	2	2	×	×	×	×	×	×	×	×	×	×	1	×	×	×
16	Stores (02)	2	2	1	×	×	×	×	×	×	×	×	×	×	×	×	×
17	Generator Room	1	1	×	×	×	×	×	×	×	×	×	×	×	×	×	×
18	Corridor	2	8	×	×	×	×	×	×	×	×	×	×	×	×	×	×
19	Toilets/Washroom	×	5	×	×	×	×	×	×	×	×	×	×	×	×	1	×
20	Seminar Hall	12	5	×	×	×	×	1	×	×	×	×	×	×	×	×	×
21	Passage and Parks	12	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
22	Girls' Common Room	5	4	1	×	×	×	×	×	×	1	1	×	×	×	1	×
23	<b>Total Quantity</b>	201	165	44	49	7	1	1	2	1	1	2	1	2	3	9	3



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	Electric Appliances	Fan	LED	CFL	Computer	Printer/Scanner	Xerox	Projector	Tube well	Grass Cutter	Water Cooler	Water DC	TV	Air Cooler	AC	Exhaust Fan	Fridge
	<b>Total Quantity</b>	<b>201</b>	<b>165</b>	<b>44</b>	<b>49</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>9</b>	<b>3</b>
	<b>Power Rating</b>	<b>80</b>	<b>20</b>	<b>30</b>	<b>300</b>	<b>50</b>	<b>1100</b>	<b>300</b>	<b>14000</b>	<b>1500</b>	<b>750</b>	<b>25</b>	<b>80</b>	<b>250</b>	<b>1500</b>	<b>100</b>	<b>150</b>
<b>Per day Usage on average (h)</b>	<b>April,2020</b>	3	3	3	3	0.1	0.1	2	0.1	0.5	6	6	3	6	6	6	24
	<b>May,2020</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>June,2020</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>July, 2020</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>August, 2020</b>	1	1	1	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
	<b>September, 2020</b>	1	1	1	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
	<b>October, 2020</b>	1	1	1	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
	<b>November, 2020</b>	3	5	5	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
	<b>December, 2020</b>	0	5	5	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
	<b>January,2021</b>	0	5	5	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
	<b>February, 2021</b>	0	5	5	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24
<b>March, 2021</b>	5	5	5	5	0.1	0.1	2	0.1	0.5	5	5	3	5	5	5	24	
	<b>Total Run Time</b>	11	28	28	40	0.8	0.8	16	0.8	4	40	40	24	40	40	40	192
*	Total Power Consumption from April, 2020 to March, 2021 (kWh)	4245	2217	887	14112	8.4	18	115.2	34	90	720	48	46	480	4320	864	2073

**Total Power Consumption from April, 2020 to March, 2021 (kWh)= Total quantity\*power Rating\*Run Time \*24 (working days in a month)**

Total Power Consumption from April, 2020 to March 2021 = 30279 kWh

During Lockdown period the institute remained closed, From August 2020 to November 2020 students were not allowed to come in campus.

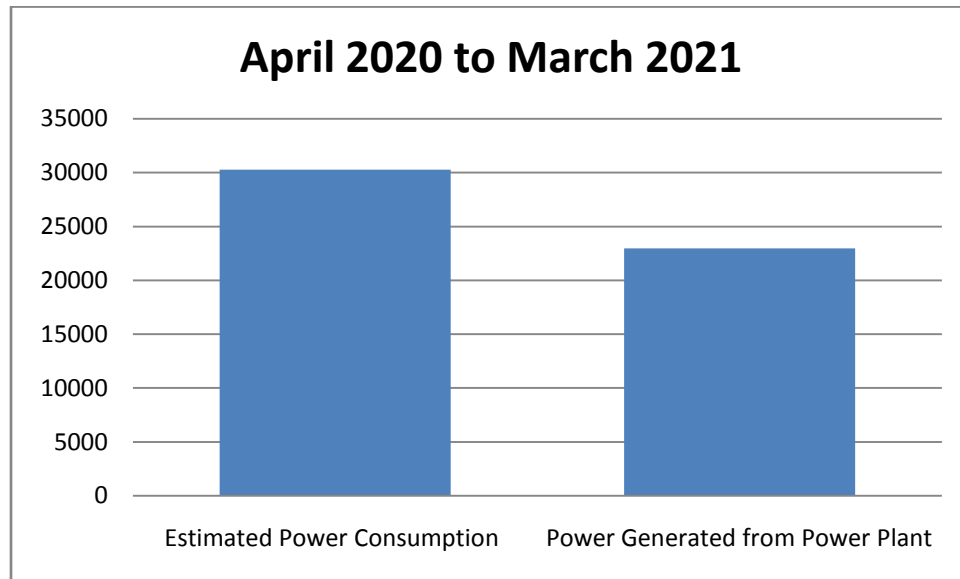
## Green Audit Report 2020-21

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### ENERGY PRODUCTION BY SOLAR CELL PLANT

S. NO	Month	Initial Reading	Final Reading	Unit Produced (kWh)
1	April, 2020	24566	27218	2652
2	May, 2020	27218	29816	2598
3	<b>June, 2020</b>	<b>29816</b>	<b>29816</b>	<b>0</b>
4	<b>July, 2020</b>	<b>29816</b>	<b>29816</b>	<b>0</b>
5	<b>August, 2020</b>	<b>29816</b>	<b>29816</b>	<b>0</b>
6	September, 2020	29816	33118	3302
7	October, 2020	33118	35830	2712
8	November, 2020	35830	38496	2666
9	December, 2020	38496	40414	1918
10	January, 2021	40414	42758	2344
11	February, 2021	42758	45223	2465
12	March, 2021	45223	47533	2310

- From June, 2020 to August, 2020 the solar power plant remained in operative due to technical problems which could not be resolved due to Nationwide Lockdown caused by COVID-19 pandemic.
- Total Unit Produced by Solar Cell Plant from April, 2020 to March, 2021 = 22967 kWh



- **Percentage of Electricity Requirement met by Renewable Energy Sources = 75 %  
Approx.**
- **A total of 52,219 kg Carbon dioxide (CO<sub>2</sub>) gas emission is saved by Solar Power plant from December 2018 to August 2021.**



**20 KV SOLAR POWER PLANT**

## WATER HARVESTING AND RECHARGE

The college is situated in a belt of paddy crop, which requires sufficient irrigation facilities. Hence, water table is depleting gradually. Therefore, the college is concerned about water conservation and has initiated water recharging process at the campus. The objectives behind the water harvesting in college are to recharge the underground water table, curb the water logging during rainy season, reduce soil erosion and meet the demand of water for the lawns and ground irrigation. The college has setup a rain harvester in the ground of sports complex. The water logging in the area is prominent during rainy season. Hence, a bore well is installed in the area to recharge the ground water.



**Water Harvesting Plant**

# Green Audit Report 2020-21

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## **SOLID WASTE DISPOSAL SYSTEM**

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The College is equally concerned about environment management and conservation. The college is collecting its solid waste through dustbins and major proportion of waste is coming from the leaves of the trees, for which bio-compost pit on the college premise is setup to decompose wastes into organic manure. The organic manure is used for potted plants and lawns of the college. The other solid waste includes paper, plastic and non bio-degradable waste, the college provides separate dustbin for the same. Plastic wastes are disposed off to the scrap dealer.



**Solid Waste Pit**

## CHEMICAL WASTE DISPOSAL

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The wet waste is disposed off in the sewer of the municipal committee. The source of chemical waste in Markanda National College is Chemistry lab where the students from the undergraduate course from the science department perform experimental practices as prescribed in the syllabi of the Kurukshetra University, Kurukshetra. All the chemical waste generated in the Chemistry lab is disposed off under strict adherence to environment safety. The waste chemical produced through such practices by students is first collected in a plastic barrel. The release is ensured only after careful dilution of the chemicals and by monitoring the PH of the neutralized chemicals. The pH of the chemical is then checked for possible toxic effects in environment. The chemical waste then treated with the reagent to adjust the pH and then dispose to underground pit prepared for the purpose nearby the chemistry lab. The expired solid chemical, used filter papers, Broken test tubes, pipettes and beakers from the chemistry lab are crushed properly and buried in ground or used in land filling area.

**GREEN CAMPUS INITIATIVES**

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**Dust-Bin placed throughout the campus**





**Restricted Parking Area**



**Concrete Pedestrian Pathway**

### **PROMOTING ORGANIC MANURE**

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Markanda National College Shahabad takes initiatives to promote the organic manure and avoiding the use of phosphate fertilizers and chemical insective/pesticides. During the last few years, it was observed that the plant and trees start decaying fastly and became dead due to termite attacks on their roots. A number of chemical pesticides used to cure the trees but its exerted negative effects on plants and trees. The organic manure cum pesticide prepared by buttermilk, Jaggery and water by fermentation has medicinal effect which cures the plant from termite problems. It also helps in healthier and faster growth of plant and trees. The organic fertilizers prepared from the grass and leaves of the tree by Vermicomposting used in the Garden and Lawn of the college.

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## CONCLUSIONS AND RECOMMENDATIONS

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One of the most efficient ways to identify the strength and weakness of environmental sustainable practices is through Green Audit. The utilization of economic, financial, social and environmental resources of an institution is possible through Green Audit. There is scope for further improvement, particularly in relation to waste, energy and water management in every institute with development of technology. In recent years college main focus is to makes a concerted effort to act in an environmentally responsible manner.

The committee goes through detailed analysis of the data and observations during the campus visit. Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its actions and become one of the more sustainable institutions in Northern Haryana.

Some of the very important suggestions are:-

- The increase in awareness of Environmentally Sustainable Development among the various stakeholders is required. Use every opportunity during fest, function seminars, webinars and other occasions to raise public, government, industry, foundation, and university awareness by openly addressing the urgent need to move toward an environmentally sustainable future.
- The college needs to establish programs to produce expertise in environmental management, sustainable economic development so that all graduates are environmentally literate and have the awareness and understanding to be ecologically responsible citizens.
- Establish institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations to set an example of environmental responsibility.

## RECOMMENDATIONS

- i. The college should install Biogas plant and Compost units

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- ii. Add more dustbins to segregate the waste on basis of their disposal.
- iii. The compost pits must be updated and maintained.
- iv. More trees of different variety and medicinal values should be added in campus.
- v. The college should extend rain water harvest method for water from roof top and ground.
- vi. More rain water pits in campus should be dig and maintain it regularly.
- vii. Water recycling unit for using the recycled water for gardening in college and hostels.
- viii. Display boards of fauna diversity to generate enthusiasm for learners.
- ix. Effort should be made to reduce or eliminates the use or generation of hazardous substances in the design, manufacture and application of chemical products.
- x. The college should install waste water system for chemistry labs.
- xi. The step should be taken to make college free from plastic and declare the campus plastic free and implement it thoroughly.
- xii. Establish an E-waste collection centre in campus.
- xiii. The participation of students and teachers in local environmental issues should be encouraged.
- xiv. Replace incandescent and CFL lamps with LED lights and LCD computer monitors with LED monitors.
- xv. Conduct seminars, workshops and exhibitions on environmental education for all stakeholders of the society.

## Glimpses of Green Audit



**Stabir Singh Kait, Block Officer, Forest Complex, Pipli Kurukshetra visited the campus**