GREEN AUDIT
M.L.K.P.G. College, Balrampur
Session 2017-2018

Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. The College recognizes the importance of environmental matters and believes that environmental auditing will help to improve existing human activities.

An Environmental Audit Committee was constituted for this purpose, with Sri Ajay Mishra, Secretary , Tarai Environment Awareness Samiti Balrampur, Dr. R.B. Srivastava, Principal, M.L.K.P.G. College, Balrampur, Dr.N.K.Singh, Associate professor & Head Department of Botany ,M.L.K.P.G.College, Balrampur and Dr. P. K. Singh, Associate professor Physics, M.L.K.P.G.College, Balrampur to carry out the auditing of 2017-18. The committee comprises representatives from Faculty and Management. The audit was undertaken with the help of Tarai Environment Awareness Samiti. The format for the Green Audit was prepared by this team in consultation with experts in this area.

1. LAND USAGE PATTERN

As land area is not increasing, effective utilization of available land is of vital importance in the development of campus. Data collected on this parameter gives insight into the current usage of the land on campus. The data pertaining to current land usage are given in table 1.0

Table 1.0: Current land usage

Sl. No.	Particulars	Area (m^2)
1	Total Campus area	114769
2	Buildings (Ground Area)	29960
4	Roads	8341
5	Hockey Ground	8424
6	Vehicle Parking	1086
7	Guest house	757
8	Pond	5783
9	Park 1	2169
10	Park 2	1960
11	Park 3	366
12	Park 4	544
13	Park 5	368
14	Park 6	713
15	Park 7	178
15	Park 8	490
16	Park9	171
17	Jhanda wala Park	677
18	Hostel (Boys + Girls)	3780
19	Teachers Colony	9480
20	Play Ground (Chota Parade)	35508
21	Free Land	4014

2. ELECTRICITY USAGE

Electricity is the major source of power on campus. However, vehicles are running either on petrol or diesel. It is the need of the hour to conserve energy as natural sources of energy are fast depleting. We should also try to tap non-conventional sources of energy such as solar energy, wind energy, biogas, etc.

Sources of energy on campus

- Electricity
- Diesel
- Solar Energy

Electrical Equipment

A comprehensive list of electrical equipment used on campus and their power consumption are given **table 2.1.**

Table 2.1: Electrical equipment and power consumption

Sl. No.	Item	Number	Power(W)	Total Load(W)
1	Incandescent Bulb	22+70	(60/15)	2370
2	Fluorescent Tube	45	40	1800
3	CFL	48	24	1152
4	LED	590	14	8260
5	Ceiling Fan	325	60	19500
6	Pedestal Fan	10	100	1000
7	Air conditioners	16	1500	24000
8	Refrigerator	13	200	2600
9	Electric Heater	8	1500	12000
10	Induction cooker	02	1500	3000
11	Electric Kettle	4	1000	4000
13	Water cooler	5	750	3750
14	Desktop computers	145	120	17400
15	Laptops	74	20	1480
16	Printer	25	40	1000
17	Scanner	8	25	200
18	UPS	75	15	1125
19	Invertor	15	500	7500
20	Television	20	60	1200
21	Projectors	19	430	8170
22	Smart boards	5	15	75
23	Public address system			
i	Amplifiers	3	300	900
ii	Speakers+microphones	36	40/20	1080
24	Photocopier	8	280	2240
25	Laboratory Instruments	157	(various)	35000
26	Coffee vending machine	1	2000	2000
28	Miscellaneous items	10		200
Total Connected Load				**163002**

Electricity Consumption

Average monthly and annual electricity consumption was calculated based on last 12 months electricity bills. The finding is presented in table 2.2. The monthly bills were around Rs. 125,000/-

Table 2.2: Electricity consumption

Sl. No.	Item	Quantity (KW)
1	Avg. Monthly Electrical Consumption	18.27 KW
2	Annual Electricity Consumption	219.24 KW

3. WATER CONSUMPTION

No system for closely monitoring the use of water exists on campus. Hence the data on water usage were prepared by interviewing staff concerned and closely observing the water usage habits of students. The findings are presented in tables 3.0.

Table 3.0: Purposes of water usages

Sl. No.	Purpose	Quantity (L/month)	Quantity (L/year)
1	Toilets & Washing	22,500	2,25,000
2	Gardening	1,50,000	15,00,000
3	Laboratories	1,00,000	10,00,000
4	Drinking	12,000	1,20,000
	Total	2,84,500	28,45,000

4. GREEN COVERAGE CENSUS

Green spaces are a great benefit to our environment. They filter pollutants and dust from the air, they provide shade and lower temperatures in urban areas, and they even reduce erosion of soil into our waterways. These are just a few of the environmental benefits that green spaces provide. Thus green space must be a key consideration in campus planning. It can also be taken as an indicator of environmental health of a campus. The findings of the base-level survey of vegetation on campus are presented in table 4.0.

Table 4.0: Green cover census

Sl. No.	Vegetation Type	Number
1 a	No. of Large trees	258
1 b	No. of Medium trees	132
1 c.	No. of Small trees	187
2	Shrubs (Species)	16
3	Herbs (Species)	50
4	Medicinal Plants (Species)	25
5	Ornamental Plants (Species)	27

5. WASTE MANAGEMENT

Proper management of wastes is essential to maintain the environment clean and healthy. The study reveals the need to approach the issue in a more practical and scientific manner. The findings are presented in table 5.0

Waste categories

Sl. No.	Waste category	Quantity (Kg/day)
1	Kitchen waste from Canteen	20 Kg
2	Food wastes by students	Data not available
3	Paper	Data not available
4	Plastic Waste	Data not available
5	Wastes of plant origin (fallen leaves, logs, broken furniture etc.)	20 Kg
6	Solid Waste from Labs	5.0Kg
7	Liquid wastes	Data not available
8	Electronic wastes	5.0Kg
9	Electrical wastes	Data not available

COLLECTION OF WASTES

How does the Wastes generated at the campus collected?

The Wastes generated at the campus have been collected in a number of ways as follows:

a. Waste bins: As per requirement 24 sites are identified for placement of big size garbage bins in the campus. A set of two bins are placed at each spot, one for Bio-degradable and other for non- degradable wastes.

b. Canteen Waste: blue and green waste bin are placed separately to collect liquid and solid waste in the canteen so that they can be processed.

c. Waste baskets in Departments: A waste basket is placed in each department to collect the classroom wastes. Cleaning staff collect them regularly and send to the processing site.

d. Collection by cleaning staff: Eight full-time sweepers have been appointed to keep the

campus neat and clean. Each one is given charge of a specific area. They collect the wastes regularly and sort them into different categories to enable quicker processing.

e. Periodic collection: Other types of wastes such as paper (old newspapers, old answer scripts, old question papers, packaging materials), broken furniture, electric and electronic gadgets, equipment, bulbs, tubes, etc. are simply kept at the site itself and removed periodically.

Collection by student clubs: NSS and NCC students collect and segregated wastes in the campus periodically to make it litter-free.

What strategies are employed at the campus to manage solid Wastes?

A number of strategies are being practiced at the campus for effective waste management. The following are the important ones:

a. **Collection and segregation of wastes:** Proper collection and segregation are basic to an efficient system for collecting wastes. We successfully collect the solid wastes generated at different places in the campus from waste baskets provided in the class rooms, and by engaging sweepers.
b. **Vermicomposting:** Bio-wastes other than food wastes (mainly plant wastes) are sent to the Vermicomposting plant for composting in the campus adjacent to seed technology department under the supervision of department of zoology.
c. **Disposing in dump pit:** Carcasses and other biological wastes especially from Zoology labs (UG, PG and Research) are disposed in the dumping pit (a deep well closed with concrete slab) constructed near the Zoology department.
d. **Selling to waste collectors:** Paper wastes (old newspapers, old answer scripts, old question papers, packaging materials, etc.) are regularly sold to waste collectors.
e. **Open burning:** Although not a good practice, at times we are forced to resort to open burning of wastes. We adopt this method only when the wastes pile up in excess or when the size of the waste components is too large for the incinerator or vermicomposting.
f. **Toilet wastes:** Toilet wastes are discharged directly into well protected underground pits. While digging these pits ample care is taken to see that these are sufficiently away from water sources.
g. **Electrical and Electronic wastes:** Electrical and Electronic devices are maintained properly to avoid their breakdown. They are routinely serviced in time by experts. As far as possible crashed devices are repaired and reused. Devices that are beyond redemption are sold to agencies involved in the recycling of such wastes.
h. **Plastic wastes:** Plastic wastes are stored temporarily in the yard and sold to waste pickers.
i. **Land filling:** Broken glassware , dead LED bulbs and tubes are buried deep under soil at places away from water sources.

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Does the Institution take any positive steps to create awareness among the stake holders to reduce waste generation?

Yes. No doubt, all the abatement strategies discussed above will definitely help to establish a perfectly green campus. However, its sustainability depends on the level of environmental awareness of all the sectors including students, staff and management. Being the prime stakeholder, a number of programs have been arranged for the students to help them grow in harmony with nature. However, this initiative is not seriously covering the staff and management personnel.

a. Talks and seminars on sustainable development and waste reduction have been conducted for students.
b. Environmental science is taught as part of curriculum in all UG courses.
c. As part of the curriculum, videos and slide shows highlighting the harmful impacts of pollution and human exploitation of nature have been shown to students frequently.
d. To remind all the stakeholders the importance of an environment friendly living, boards such as do not litter, plastic free campus, smoke free campus, keep the campus clean, etc. are fixed at different places on the campus. Similarly, stickers carrying conservational messages are fixed in class rooms, labs, office, library and other important places. These prompt everyone to act immediately to conserve our resources such as water, electricity, and greenery.

6. CONSERVATION EFFORTS

Efforts taken to Green the campus (trees removed or planted dung the last 5 years)

Year	Number of trees removed	Purpose	Number of trees Planted
2014-15	10	Dead	15
2015-16	05	Construction	8
2016-17	04	Construction	25
2017-18	00	--	50
TOTAL	23		218

Energy Conservation

All our conventional energy resources such as coal, petroleum and hydroelectric power are fast depleting. However, our energy demands are increasing day by day. We need to adapt ourselves to such a critical situation. We need a clear action plan which should be executed with great caution. All our efforts should be centered on two strategies: reducing conventional energy utilization and finding new alternative sources. Keeping this in mind the institution has initiated several best practices. Some of the important ones are the following:

a. **Purchase of energy efficient appliances and instruments:** As a policy the institution gives due weightage to energy efficiency while purchasing new electrical and electronic equipment.

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b. **Upgradation of computers**: Old computers with cathode ray monitors have almost completely been replaced with new ones having LCD or LED monitors.

c. **CFL & LED lighting:** New constructions on the campus are being fitted with energy efficient LED lighting and other devices with higher energy rating. Besides, incandescent bulbs and fluorescent tubes in other parts are being replaced in a time bound manner. These steps would help reduce electricity consumption substantially.

d. **Rewiring:** Old electrical wiring is being replaced with modern wiring to prevent electricity leakage and to enhance security.

e. **Finding alternative sources of energy:** A practical way to reduce usage and our dependence on conventional energy is by finding more and more innovative and alternative energy resources. The following initiative is being taken up in this direction.

Solar lighting: 10 Solar street lights have been installed throughout the campus of college in 2014. These have been working satisfactorily till date. As a pilot project 2.5kilowatt electricity generating Solar panels are placed on the roof of central office.

f. **Behavioral practices:** A lot of energy could be saved through simple deeds like turning the lights, fans, computers and air conditioners off when not required. By merely keeping the windows and doors open, we can light up a room with natural day light and let fresh air come in. Through public announcements and informal talks students and staff are continuously reminded of this practice.

Water conservation:

Several steps have been taken to address the shortage of water on the campus especially during summer months.

a. **Rain water harvesting:**
   - A comprehensive water harvesting project has been developed for the entire campus.
   - Finally, overflowing water is not allowed to run off instead made to drain into soil by constructing contour trenches in the open fields.

b. **Distillation unit at Chemistry department**: Distillation units are the major causes of water wastage as running cooling water drainage. Although a micro set up the distillation unit installed at the M.Sc. Chemistry lab is a true model for a low cost water conservation system. This simple set up enables us to save at least 50,000 liters of water in a year.

Green action Plan for the next five years

a. Ensure a fourfold increase in the vegetation coverage by 2022.
b. Increase the floral & faunal species diversity by at least 20%.
c. Meet at least 50% of the energy requirements with solar energy by 2025.
d. Model Biogas Plant: Set up a model biogas plant near the Seed Technology Dept. to process the organic wastes.
e. Make the campus self-sufficient in water resources by 2022.
f. Make the entire campus a natural abode of butterflies.

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g. Set up a model organic farm.
h. Make the campus a knowledge centre of best practices.
i. Creation of a Biodiversity registry: Create an exhaustive biodiversity registry of the campus and take efforts to conserve it.
j. Give back policy: While buying new equipment we strictly insist the supplier to take back the old ones. This not only avoids piling up of wastes but ensures recycling of materials also.

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As land area is not increasing, effective utilization of available land is of vital importance in the development of campus. Data collected on this parameter gives insight into the current usage of the land on campus. The data pertaining to current land usage are given in table 1.0

Table 1.0: Current land usage

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3	CFL	38	24	912
4	LED	470	14	6580
5	Ceiling Fan	305	60	18300
6	Pedestal Fan	10	100	1000
7	Air conditioners	10	1500	15000
8	Refrigerator	12	200	2400
9	Electric Heater	8	1500	12000
10	Induction cooker	01	1500	1500
11	Electric Kettle	3	1000	3000
13	Water cooler	4	750	3000
14	Desktop computers	105	120	12600
15	Laptops	74	20	1480
16	Printer	20	40	800
17	Scanner	8	25	200
18	UPS	70	15	1050
19	Invertor	12	500	6000
20	Television	20	60	1200
21	Projectors	15	430	6450
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24	Photocopier	8	280	2240
25	Laboratory Instruments	157	(various)	30000
26	Coffee vending machine	1	2000	2000
28	Miscellaneous items	10		200
Total Connected Load				**134642**

Electricity Consumption

Average monthly and annual electricity consumption was calculated based on last 12 months electricity bills. The finding is presented in table 2.2. The monthly bills were around Rs. 125,000/-

Table 2.2: Electricity consumption

Sl. No.	Item	Quantity (KW)
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2	Annual Electricity Consumption	18.14 KW

3. WATER CONSUMPTION

No system for closely monitoring the use of water exists on campus. Hence the data on water usage were prepared by interviewing staff concerned and closely observing the water usage habits of students. The findings are presented in tables 3.0.

Table 3.0: Purposes of water usages

Sl. No.	Purpose	Quantity (L/month)	Quantity (L/year)
1	Toilets & Washing	20,500	2,05,000
2	Gardening	1,20,000	13,00,000
3	Laboratories	1,00,000	10,00,000
4	Drinking	11,000	1,30,000
	Total	2,56,500	26,35,000

4. GREEN COVERAGE CENSUS

Green spaces are a great benefit to our environment. They filter pollutants and dust from the air, they provide shade and lower temperatures in urban areas, and they even reduce erosion of soil into our waterways. These are just a few of the environmental benefits that green spaces provide. Thus green space must be a key consideration in campus planning. It can also be taken as an indicator of environmental health of a campus. The findings of the base-level survey of vegetation on campus are presented in table 4.0.

Table 4.0: Green cover census

Sl. No.	Vegetation Type	Number
1 a	No. of Large trees	246
1 b	No. of Medium trees	142
1 c.	No. of Small trees	177
2	Shrubs (Species)	19
3	Herbs (Species)	58
4	Medicinal Plants (Species)	25
5	Ornamental Plants (Species)	29

5. WASTE MANAGEMENT

Proper management of wastes is essential to maintain the environment clean and healthy. The study reveals the need to approach the issue in a more practical and scientific manner. The findings are presented in table 5.0

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Sl. No.	Waste category	Quantity (Kg/day)
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3	Paper	Data not available
4	Plastic Waste	Data not available
5	Wastes of plant origin (fallen leaves, logs, broken furniture etc.)	23 Kg
6	Solid Waste from Labs	4.5Kg
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INTERNAL QUALITY ASSURANCE CELL
M.L.K.P.G

GREEN AUDIT
M.L.K.P.G. College, Balrampur
Session 2018-2019

Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. The College recognizes the importance of environmental matters and believes that environmental auditing will help to improve existing human activities.

An Environmental Audit Committee was constituted for this purpose, with Sri Baqullah Khan, Range officer ,Kuwanah Range, Gonda Forest Division ,Gonda,Sri K.K.Tiwari Jr.Eng.U.P.P.C Ltd Balrampur and Dr.N. K .Singh, Associate professor and Head Department of Botany ,M.L.K.P.G.College, Balrampur to carry out the auditing of 2018-19. The committee comprises representatives from Faculty and Management. The audit was undertaken with the help of Tarai Environment Awareness Samiti. The format for the Green Audit was prepared by this team in consultation with experts in this area.

1. LAND USAGE PATTERN

As land area is not increasing, effective utilization of available land is of vital importance in the development of campus. Data collected on this parameter gives insight into the current usage of the land on campus. The data pertaining to current land usage are given in table 1.0

Table 1.0: Current land usage

Sl. No.	Particulars	Area (m^2)
1	Total Campus area	114769
2	Buildings (Ground Area)	29960
4	Roads	8341
5	Hockey Ground	8424
6	Vehicle Parking	1086
7	Guest house	757
8	Pond	5783
9	Park 1	2169
10	Park 2	1960
11	Park 3	366
12	Park 4	544
13	Park 5	368
14	Park 6	713
15	Park 7	178
15	Park 8	490
16	Park9	171
17	Jhanda wala Park	677
18	Hostel (Boys + Girls)	3780
19	Teachers Colony	9480
20	Play Ground (Chota Parade)	35508
21	Free Land	4014

2. ELECTRICITY USAGE

Electricity is the major source of power on campus. However, vehicles are running either on petrol or diesel. It is the need of the hour to conserve energy as natural sources of energy are fast depleting. We should also try to tap non-conventional sources of energy such as solar energy, wind energy, biogas, etc.

Sources of energy on campus

- Electricity
- Diesel
- Solar Energy

Electrical Equipment

A comprehensive list of electrical equipment used on campus and their power consumption are given **table 2.1.**

Table 2.1: Electrical equipment and power consumption

Sl. No.	Item	Number	Power(W)	Total Load(W)
1	Incandescent Bulb	22+60	(60/15)	2220
2	Fluorescent Tube	50	40	2000
3	CFL	37	24	888
4	LED	630	14	8820
5	Ceiling Fan	342	60	20520
6	Pedestal Fan	12	100	1200
7	Air conditioners	26	1500	39000
8	Refrigerator	14	200	2800
9	Electric Heater	8	1500	12000
10	Induction cooker	02	1500	3000
11	Electric Kettle	6	1000	6000
13	Water cooler	6	750	4500
14	Desktop computers	244	120	29280
15	Laptops	84	20	1680
16	Printer	27	40	1080
17	Scanner	9	25	225
18	UPS	81	15	1215
19	Invertor	20	1000	20000
20	Television	28	60	1680
21	Projectors	27	430	11610
22	Smart boards	10	15	150
23	Public address system			
i	Amplifiers	3	300	900
ii	Speakers+microphones	36	40/20	1080
24	Photocopier	9	280	2520
25	Laboratory Instruments	157	(various)	35000
26	Coffee vending machine	1	2000	2000
27	Deep freezer	00	00	00
28	Miscellaneous items	11		200
Total Connected Load				211568

Electricity Consumption

Average monthly and annual electricity consumption was calculated based on last 12 months electricity bills. The finding is presented in table 2.2. The monthly bills were around Rs. 125,000/-

Table 2.2: Electricity consumption

Sl. No.	Item	Quantity (KW)
1	Avg. Monthly Electrical Consumption	18.27 KW
2	Annual Electricity Consumption	219.24 KW

3. WATER CONSUMPTION

No system for closely monitoring the use of water exists on campus. Hence the data on water usage were prepared by interviewing staff concerned and closely observing the water usage habits of students. The findings are presented in tables 3.0.

Table 3.0: Purposes of water usages

Sl. No.	Purpose	Quantity (L/month)	Quantity (L/year)
1	Toilets & Washing	22,500	2,25,000
2	Gardening	1,50,000	15,00,000
3	Laboratories	1,00,000	10,00,000
4	Drinking	12,000	1,20,000
	Total	2,84,500	28,45,000

4. GREEN COVERAGE CENSUS

Green spaces are a great benefit to our environment. They filter pollutants and dust from the air, they provide shade and lower temperatures in urban areas, and they even reduce erosion of soil into our waterways. These are just a few of the environmental benefits that green spaces provide. Thus green space must be a key consideration in campus planning. It can also be taken as an indicator of environmental health of a campus. The findings of the base-level survey of vegetation on campus are presented in table 4.0.

Table 4.0: Green cover census

Sl. No.	Vegetation Type	Number
1 a	No. of Large trees	258
1 b	No. of Medium trees	132
1 c.	No. of Small trees	187
2	Shrubs (Species)	16
3	Herbs (Species)	50
4	Medicinal Plants (Species)	25
5	Ornamental Plants (Species)	27

5. WASTE MANAGEMENT

Proper management of wastes is essential to maintain the environment clean and healthy. The study reveals the need to approach the issue in a more practical and scientific manner. The findings are presented in table 5.0

Waste categories

Sl. No.	Waste category	Quantity (Kg/day)
1	Kitchen waste from Canteen	20 Kg
2	Food wastes by students	Data not available
3	Paper	Data not available
4	Plastic Waste	Data not available
5	Wastes of plant origin (fallen leaves, logs, broken furniture etc.)	20 Kg
6	Solid Waste from Labs	5.0Kg
7	Liquid wastes	Data not available
8	Electronic wastes	5.0Kg
9	Electrical wastes	Data not available

COLLECTION OF WASTES

How does the Wastes generated at the campus collected?

The Wastes generated at the campus have been collected in a number of ways as follows:

a. Waste bins: As per requirement 24 sites are identified for placement of big size garbage bins in the campus. A set of two bins are placed at each spot, one for Bio-degradable and other for non- degradable wastes.
b. Canteen Waste: blue and green waste bin are placed separately to collect liquid and solid waste in the canteen so that they can be processed.
c. Waste baskets in Departments: A waste basket is placed in each department to collect the classroom wastes. Cleaning staff collect them regularly and send to the processing site.
d. Collection by cleaning staff: Eight full-time sweepers have been appointed to keep the campus neat and clean. Each one is given charge of a specific area. They collect the

wastes regularly and sort them into different categories to enable quicker processing.

e. Periodic collection: Other types of wastes such as paper (old newspapers, old answer scripts, old question papers, packaging materials), broken furniture, electric and electronic gadgets, equipment, bulbs, tubes, etc. are simply kept at the site itself and removed periodically.

Collection by student clubs: NSS and NCC students collect and segregated wastes in the campus periodically to make it litter-free.

What strategies are employed at the campus to manage solid Wastes?

A number of strategies are being practiced at the campus for effective waste management. The following are the important ones:

a. **Collection and segregation of wastes:** Proper collection and segregation are basic to an efficient system for collecting wastes. We successfully collect the solid wastes generated at different places in the campus from waste baskets provided in the class rooms, and by engaging sweepers.

b. **Vermicomposting:** Bio-wastes other than food wastes (mainly plant wastes) are sent to the Vermicomposting plant for composting in the campus adjacent to seed technology department under the supervision of department of zoology.

c. **Disposing in dump pit:** Carcasses and other biological wastes especially from Zoology labs (UG, PG and Research) are disposed in the dumping pit (a deep well closed with concrete slab) constructed near the Zoology department.

d. **Selling to waste collectors:** Paper wastes (old newspapers, old answer scripts, old question papers, packaging materials, etc.) are regularly sold to waste collectors.

e. **Open burning:** Although not a good practice, at times we are forced to resort to open burning of wastes. We adopt this method only when the wastes pile up in excess or when the size of the waste components is too large for the incinerator or vermicomposting.

f. **Toilet wastes:** Toilet wastes are discharged directly into well protected underground pits. While digging these pits ample care is taken to see that these are sufficiently away from water sources.

g. **Electrical and Electronic wastes:** Electrical and Electronic devices are maintained properly to avoid their breakdown. They are routinely serviced in time by experts. As far as possible crashed devices are repaired and reused. Devices that are beyond redemption are sold to agencies involved in the recycling of such wastes.

h. **Plastic wastes:** Plastic wastes are stored temporarily in the yard and sold to waste pickers.

i. **Land filling:** Broken glassware , dead LED bulbs and tubes are buried deep under soil at places away from water sources.

Does the Institution take any positive steps to create awareness among the stake holders to reduce waste generation?

Yes. No doubt, all the abatement strategies discussed above will definitely help to establish a perfectly green campus. However, its sustainability depends on the level of environmental awareness of all the sectors including students, staff and management. Being the prime stakeholder, a number of programs have been arranged for the students to help them grow in harmony with nature. However, this initiative is not seriously covering the staff and management personnel.

a. Talks and seminars on sustainable development and waste reduction have been conducted for students.
b. Environmental science is taught as part of curriculum in all UG courses.
c. As part of the curriculum, videos and slide shows highlighting the harmful impacts of pollution and human exploitation of nature have been shown to students frequently.
d. To remind all the stakeholders the importance of an environment friendly living, boards such as do not litter, plastic free campus, smoke free campus, keep the campus clean, etc. are fixed at different places on the campus. Similarly, stickers carrying conservational messages are fixed in class rooms, labs, office, library and other important places. These prompt everyone to act immediately to conserve our resources such as water, electricity, and greenery.

6. CONSERVATION EFFORTS

Efforts taken to Green the campus (trees removed or planted dung the last 5 years)

Year	Number of trees removed	Purpose	Number of trees Planted
2014-15	10	Dead	15
2015-16	05	Construction	8
2016-17	04	Construction	25
2017-18	00	--	50
2018-19	04	Due to Strom	120
TOTAL	23		218

Energy Conservation

All our conventional energy resources such as coal, petroleum and hydroelectric power are fast depleting. However, our energy demands are increasing day by day. We need to adapt ourselves to such a critical situation. We need a clear action plan which should be executed with great caution. All our efforts should be centered on two strategies: reducing conventional energy utilization and finding new alternative sources. Keeping this in mind the institution has initiated several best practices. Some of the important ones are the following:

a. **Purchase of energy efficient appliances and instruments:** As a policy the institution gives due weightage to energy efficiency while purchasing new electrical and electronic equipment.

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b. **Upgradation of computers**: Old computers with cathode ray monitors have almost completely been replaced with new ones having LCD or LED monitors.

c. **CFL & LED lighting:** New constructions on the campus are being fitted with energy efficient LED lighting and other devices with higher energy rating. Besides, incandescent bulbs and fluorescent tubes in other parts are being replaced in a time bound manner. These steps would help reduce electricity consumption substantially.

d. **Rewiring:** Old electrical wiring is being replaced with modern wiring to prevent electricity leakage and to enhance security.

e. **Finding alternative sources of energy:** A practical way to reduce usage and our dependence on conventional energy is by finding more and more innovative and alternative energy resources. The following initiatives are being taken up in this direction.

   a. **Solar lighting:** 10 Solar street lights have been installed throughout the campus of college in 2014. These have been working satisfactorily till date. As a pilot project 2.5kilowatt electricity generating Solar panels are placed on the roof of central office.

f. **Behavioral practices:** A lot of energy could be saved through simple deeds like turning the lights, fans, computers and air conditioners off when not required. By merely keeping the windows and doors open, we can light up a room with natural day light and let fresh air come in. Through public announcements and informal talks students and staff are continuously reminded of this practice.

Water conservation:

Several steps have been taken to address the shortage of water on the campus especially during summer months.

a. **Rain water harvesting:**
   - A comprehensive water harvesting project has been developed for the entire campus.
   - Finally, overflowing water is not allowed to run off instead made to drain into soil by constructing contour trenches in the open fields.

b. **Distillation unit at Chemistry department**: Distillation units are the major causes of water wastage as running cooling water drainage. Although a micro set up the distillation unit installed at the M.Sc. Chemistry lab is a true model for a low cost water conservation system. This simple set up enables us to save at least 50,000 liters of water in ayear.

Green action Plan for the next five years

a. Ensure a fourfold increase in the vegetation coverage by 2022.
b. Increase the floral & faunal species diversity by at least 20%.
c. Meet at least 50% of the energy requirements with solar energy by 2025.
d. Model Biogas Plant: Set up a model biogas plant near the Seed Technology Dept. to process the organic wastes.
e. Make the campus self-sufficient in water resources by 2022.
f. Make the entire campus a natural abode of butterflies.

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g. Set up a model organic farm.
h. Make the campus a knowledge centre of best practices.
i. Creation of a Biodiversity registry: Create an exhaustive biodiversity registry of the campus and take efforts to conserve it.
j. Give back policy: While buying new equipment we strictly insist the supplier to take back the old ones. This not only avoids piling up of wastes but ensures recycling of materials also.

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