



Dr.P.D.B.H.Govt. P.G.  
College Kotdwar

# Green Audit Report-2021



**An IQAC Initiative**

**For-  
Dr.P.D.B.H.Govt.P.G.College  
Kotdwar UK**

# Dr P. D. B. H. GOVT PG COLLEGE KOTDWAR

## GREEN AUDIT INITIATIVE REPORT

### OBJECTIVES:

- To calculate the consumption of water (usage and wastage) in college campus.
- To calculate the number of trees and herbal plants in the college campus.

### METHODOLOGY:

In order to perform green audit, the methodology included different steps/tools such as:

- Preparation of questionnaire
- Physical inspection of the campus
- Observation and review of the documentation
- Interviewing key persons
- Findings
- Suggestions

The Study will cover the following areas to summarize the present status of environment management in the campus:

- Water management
- Green Area management

## QUESTIONNAIRE

### A. FOR WATER MANAGEMENT

1. List the uses of water in the college?

Drinking/Gardening/Laboratory experiment/Washroom/Washing purpose  
etc.

**2.** What are the sources of water in the college?

Tube well (Borewell) /Jalsansthan.

**3.** How many Tube wells are there in the college?

Only one.

**4.** No. of motors used for pumping water from each bore well?

01(175 hp)

**5.** What is the depth of each bore well?

N/A

**6.** What is the present depth of water in each bore well?

N/A

**7.** How does college store water?

The College stores water in Collection Tanks placed on the Ground and Building roofs.

**8.** Quantity of water stored in your overhead water tank? (In liters)

58,000 liters.

**9.** Quantity of water pumped every day? (In liters)

1.00 Lac liters by Tube Well Tank.

**10.** If there is water wastage, specify why.

Water wastage is due to a lack of proper drainage and rainwater harvesting system.

**11.**Where does waste water come from?

Waste water comes from laboratory, washroom, RO system etc.

**12.**Where does the waste water go?

Drainage.

**13.**What are the uses of waste water in the college?

There is no proper use of waste water.

**14.** Is there any treatment for the lab water?

No.

**15.** Whether green chemistry methods are practiced in Labs?

No.

**16.** Record water use from the college water meter for last six months.

The state water supply department send the fix amount bill per quarter

**17.** Trimonthly water charges paid to water connections.

₹ 3000/- (June–August, 2021), ₹ 3000/- (September –December, 2021)

**18.** No. of water coolers. Amount of water used per day? (In liters)

There are 06 water coolers (functional 05, nonfunctional 01). The total capacity is 1000 liters (200 L each).

**19.** No. of water taps in the canteen. Amount of water used per day?

No. of water taps in the canteen is one only, and 500liters water is used per day.

**20.** Amount of water used per day for garden use.

Approx. 500 liters per day.

**21.** In there any water used for agricultural purposes?

No.

**22.** Does College harvest rain water?

No.

**23.** How many of the taps are leaky? Estimate the amount of water lost per day?

10% of total tap.

**24.** Are there signs reminding people to turn off the water? Yes/No

No.

**25.** Are there any waterless toilets?

Yes, 03.

26. Is there any water management plan in the college?

Yes, the principal does water management planning from time to time.

27. Any other significant point with regard to water conservation / wastage in the campus?

There is a need to set up a rainwater harvesting system and use wastewater for gardening.

## **B. FOR GREEN CAMPUS MANAGEMENT**

1. Is there a garden in college?

Yes, there is one Botanical Garden in the college.

2. Do Students spend time in the garden?

Yes, post graduate students visit in garden for study purpose.

3. List the trees in the Campus, with approx. numbers of each species

There are 43 trees species on the campus. (Enclosure 01).

4. List the species planted by the students, with numbers

The students planted species of ornamental plants in the Botany Department and the botanical garden. (Enclosure 02)

5. Whether you have displayed scientific names of the trees in the campus?

Yes.

6. Is there any plantation in college campus? If yes specify area and type of Plantation.

Yes, beside road side, garden, principal's room and office area.

7. Is there any vegetable garden in the College?

No.

**8.** What is the medicinal garden in the College?

There is no separate medicinal garden, but medicinal plants spread over the campus and botanical garden.

**9.** What are the vegetables cultivated in your vegetable garden?

No.

**10.**How much water is used in the vegetable garden and other garden?

No.

**11.**Who is in-charge of gardens in the College?

Dept. of Botany.

**12.**Are you using any type of recycled water in your garden?

No.

**13.**List the name of fertilizers used in your gardens?

Organic fertilizer.

**14.** Do you have any composting pit in your college?

No.

**15.** Any threatened plant species planted?

Yes, there are two such threatened species: Sandal (*Santalum album*-vulnerable), Rudraksh (*Elaeocarpus ganitrus*-critically endangered).

**16.** Is there a nature club in your college?

Yes, Environment Cell.

**17.**Is there any fruit yielding plant in your college? If yes details of the trees planted.

Yes. There are many fruit yielding plants: Mango, Black plum, Gooseberry Guava etc. in the campus. (Enclosure 3)

**18.**Any other significant point regarding green campus management?

Suggestions – Need of Rain water harvesting system, Vermicompost pit, Organic manure.

19. List the innovative Practices by the college to reduce the environmental pollution? The students take part in the plantation at various college activities.

## **PHYSICAL INSPECTION OF THE CAMPUS**

Four days physical inspection of the campus was through indates 23/08/21,18/11/21,20/11/21 and22/11/21 by Green Audit Team. The main emphasis of the inspection was on evaluation the state of the green cover of the college and water sources.

## **OBSERVATION AND REVIEW OF THE DOCUMENTATION**

Green Audit in college began to assess the status of the green cover of the campus, followed by water management practice. The Green Audit team monitored different facilities of the college and determined different types of utilities (taps, toilets, water tanks etc.) as well as measuring the usage per item. Data collection was done in the sector like water use. College records and documents were verified several times to clarify the data received through surveys and discussions.

## **INTERVIEWING KEY PERSONS**

The Green Audit Team visited over college campus during the inspection period. The team talked to all HODs and non-teaching staff. The data relating to the laboratories, classrooms, stores etc. were given by non-teaching staff. The person authorized by the principal manages water supply in all departments, laboratories, canteen, botanical garden, toilets etc. helped the Green Audit team with water supply on campus. Botany Department helped us to prepare the list of plants with their botanical name and families.

## **FINDINGS**

Govt. P.G. College, Kotdwar has an ecofriendly environment. It has a long legacy of healthy environmental practices including periodic plantation, preservation and maintenance.

The college campus also has an adequate water supply.

## **SUGGESTIONS**

In order to increase the greenery of the college, it is recommended to plant more indigenous and evergreen /Fruit trees inside the campus.

The green audit team also suggested the demand for a Rainwater harvesting system in college. The rainwater of the harvesting tank can be used for Laboratory, Gardening purposes and as a coolant for the distillation unit.

There is a need to renovate and to make ready to use toilets that are currently out of use toilets.



## Enclosure 01

### List of Tree species of college campus

SNo.	Common Name	Botanical Name	Family	No of plant
1	Ashoka	<i>Polyalthia longifolia</i>	Annonaceae	05
2	Teak/Sagon	<i>Tectona grandis</i>	Verbenaceae	81
3	Silk Oak	<i>Gravillea robusta</i>	Proteaceae	37
4	Hedge Plant	<i>Duranta repens</i>	Verbenaceae	22
5	Oleander	<i>Nerium oleander</i>	Apocynaceae	65
6	Bottle Brush	<i>Callistemon lanceolatus</i>	Myrtaceae	12
7	Neem	<i>Azadirachta indica</i>	Meliaceae	12
8	Daikan/ Pahadi Neem	<i>Melia azadirach</i>	Meliaceae	07
9	Papd i/Chilbil	<i>Holoptelia integrifolia</i>	Ulmaceae	09
10	Safeda	<i>Eucalyptus sp.</i>	Myrtaceae	05
11	Amaltas /Drumstick	<i>Casia fistula</i>	Caesalpinaceae	09
12	Varun	<i>Crataeva religiosa</i>	Capparidaceae	09
13	Citrus	<i>Citrus sp.</i>	Rutaceae	08
14	Cassia	<i>Cassia sp.</i>	Caesalpinaceae	03
15	Babool	<i>Acacia nilotica</i>	Mimosaceae	02
16	Castor oil plant	<i>Jatropha curcas</i>	Euphorbiaceae	03

17	Norfolk Island pine / Monkey Puzzle	<i>Araucaria heterophylla</i>	Araucariaceae	03
18	Arjun	<i>Terminalia arjuna</i>	Combretaceae	01
19	Temple tree	<i>Plumeria obtusa</i>	Apocynaceae	03
20	Amrud/ Guava	<i>Psidium guajava</i>	Myrtaceae	07
21	Jamun	<i>Eugenia jambolana</i>	Myrtaceae	03
22	Peepal	<i>Ficus religiosa</i>	Moraceae	01
23	Morpankhi	<i>Thuja occidentalis</i>	Cupressaceae	13
24	Peacock tree	<i>Caesalpinia pulcherrima</i>	Caesalpinaceae	01
25	Shal	<i>Shorea robusta</i>	Dipterocarpaceae	01
26	Stone apple (bel)	<i>Aegle marmelos</i>	Rutaceae	01
27	Cheer	<i>Pinus roxburghii</i>	Pinaceae	01
28	Amla/ Indian gooseberry	<i>Phyllanthus emblica</i>	Phyllanthaceae	05
29	Mango	<i>Mangifera indica</i>	Anacardiaceae	03
30	Calliandra	<i>Calliandra</i>	Fabaceae	03
31	Bamboo	<i>Bambusa vulgaris</i>	Poaceae	02
32	Kachnar	<i>Bauhinia variegata</i>	Fabaceae	02
33	Tejpatta	<i>Cinnamomum tamala</i>	Lauraceae	01
34	Trumpet bush	<i>Tecoma stans</i>	Bignoniaceae	02
35	Golden trumpet	<i>Allamanda cathartica</i>	Apocyanaceae	04
36	Walnut/akhrot	<i>Juglans regia</i>	Juglandaceae	01
37	Pakad	<i>Ficus virens</i>	Moraceae	01

38	Raat ki rani	<i>Cestrum nocturnum</i>	Solanaceae	01
39	Parijat / Harsingar	<i>Nyctanthes arbor-tristis</i>	Oleaceae	01
40	Rudraksh	<i>Elaeocarpus ganitrus</i>	Elaeocarpaceae	01
41	Chandan /Sandal	<i>Santalum album</i>	Santalaceae	01
42	Peach/Aadu	<i>Prunus persica</i>	Rosaceae	02
43	Black Myrobalan	<i>Terminalia chebula</i>	Combretaceae	01
44	Pride of India	<i>Lagerstroemia speciosa</i>	Lythraceae	01

## Enclosure 2

### Ornamental Plants

SNo.	Common Name	Botanical Name	Family
1	Oleander	<i>Nerium oleander</i>	Apocynaceae
2	Ashoka	<i>Polyalthia longifolia</i>	Annonaceae
3	Silk Oak	<i>Gravillea robusta</i>	Proteaceae
4	Hedge Plant	<i>Duranta repens</i>	Apocynaceae
5	Oleander	<i>Nerium oleander</i>	Apocynaceae
6	Bottle Brush	<i>Callistemon lanceolatus</i>	Myrtaceae
7	Amaltas / Drumstick	<i>Casia fistula</i>	Caesalpinaceae
8	Norfolk Island pine/ Monkey Puzzle	<i>Araucaria hetrophylla</i>	Araucariaceae
9	Raat ki rani	<i>Cestrum nocturnum</i>	Solanaceae
10	Parijat / Harsingar	<i>Nyctanthes arbor-tristis</i>	Oleaceae
11	Trumpet bush	<i>Tecoma stans</i>	Bignoniaceae
12	Golden trumpet	<i>Allamanda cathartica</i>	Apocynaceae
13	Calliandra	<i>Calliandra haematocephala</i>	Fabaceae
14	Bamboo	<i>Bambusa vulgaris</i>	Poaceae
15	Kachnar	<i>Bauhinia variegata</i>	Fabaceae
16	Cheer	<i>Pinus roxburghii</i>	Pinaceae
17	Morpankhi	<i>Thuja occidentalis</i>	Cupressaceae

18	Peacock tree	<i>Caesalpinia pulcherima</i>	Caesalpinaceae
19	Temple tree	<i>Plumeria obtusa</i>	Apocynaceae
20	Red flag bush	<i>Mussaenda erythrophylla</i>	Rubiaceae
21	Chandni / Crape Jasmine	<i>Tabernaemontana divaricata</i>	Apocynaceae
22	Arabian Jasmine	<i>Jasminum sambac</i>	Oleaceae
23	Flame of Wood	<i>Ixora coccinea</i>	Rubiaceae
24	Rubber vine	<i>Cryptostegia grandiflora</i>	Apocynaceae
25	Pride of India	<i>Lagerstroemia speciosa</i>	Lythraceae
26	Keli /Canna lily	<i>Canna indica</i>	Cannaceae
27	Pencil Cactus	<i>Euphorbia tirucalli</i>	Euphorbiaceae
28	The crown of throne/ Christ Plant	<i>Euphorbia millii</i>	Euphorbiaceae
29	Purple Knight	<i>Alternanthera dentata</i>	Amaranthaceae
30	Sparrow Grass	<i>Asparagus officinalis</i>	Asparagaceae
31	Pattharhatta	<i>Kalanchoe pinnata</i>	Crassulaceae
32	Kamini	<i>Murarya paniculata</i>	Rutaceae
33	Zammia	<i>Zamia furfuracea</i>	Zamiaceae
34	Sago Palm	<i>Cycas revoluta</i>	Cycadaceae`
35	Spider Plant	<i>Chlorophytum comosum</i>	Asparagaceae
36	Devil's vine	<i>Epipremnum aureum</i>	Araceae
37	Umbrella Plant	<i>Schefflera heptaphylla</i>	Araliaceae
38	Arrowhead Plant	<i>Syngonium podophyllum</i>	Araceae

39	Aloe vera	<i>Aloe barbadensis miller</i>	Asphodelaceae
40	Marigold / Genda	<i>Tagetus erectus</i>	Asteraceae
41	Croton	<i>Codiaeum variegatum</i>	Euphorbiaceae
42	Rubber Plant	<i>Ficus elastica</i>	Moraceae
43	Flame nettle	<i>Coleus scutellarioides</i>	Lamiaceae
44	Santa rita flower	<i>Bougainvillea spectabilis</i>	Nyctaginaceae
45	Rose	<i>Rosa indica</i>	Rosaceae
46	China Rose/ Gudhal	<i>Hibiscus rosa sinensis</i>	Malvaceae
47	Giloe / Heart Leaved Moonseed	<i>Tinospora cordifolia</i>	Menispermaceae
48	Spiderwort	<i>Tradeschantia virginiana</i>	Commelinaceae
49	Dumb Cane/Tuft root	<i>Dieffenbachia seguine</i>	Araceae
50	Cactus	<i>Echinopsis tubiflora</i>	Cactaceae
51	Creeping inch plant	<i>Callisia repens</i>	Commelinaceae
52	Song of India	<i>Dracaena reflexa</i>	Asparaganceae
53	Devils Backbone	<i>Euphorbia Tithymaloides</i>	Euphorbiaceae
54	Ti Plant	<i>Cordyline fruticosa</i>	Asparagaceae
55	Snake Plant	<i>Dracaena trifasciata</i>	Asparagaceae


## Enclosure 3

### Medicinal Plants

S No.	Common Name	Botanical Name	Family
1	Jamun	<i>Eugenia jambolana</i>	Myrtaceae
2	Amla/ Indian gooseberry	<i>Phyllanthus emblica</i>	Phyllanthaceae
3	Morpankhi	<i>Thuja occidentalis</i>	Cupressaceae
4	Neem	<i>Azadirachta indica</i>	Meliaceae
5	Tejpatta	<i>Cinnamomum tamala</i>	Lauraceae
6	Citrus	<i>Citrus sp.</i>	Rutaceae
7	Sugi	<i>Cryptomeria japonica</i>	Cupressaceae
8	Varun	<i>Crataeva religiosa</i>	Capparidaceae
9	Rudraksh	<i>Elaeocarpus ganitrus</i>	Elaeocarpaceae
10	Parijat/Harsingar	<i>Nyctanthes arbor-tristis</i>	Oleaceae
11	Amaltas /Drumstick	<i>Casia fistula</i>	Caesalpinaceae
12	Chandan /Sandal	<i>Santalum album</i>	Santalaceae
13	Peach /Aadu	<i>Prunus persica</i>	Rosaceae
14	Bamboo	<i>Bambusa aurandinacea</i>	Poaceae
15	Broom Grass	<i>Thysanolaena maxima</i>	Poaceae
16	Baheda	<i>Terminalia bellerica</i>	Combretaceae
17	Lemon Grass	<i>Cymbopogon citratus</i>	Poaceae

## *The members of the GREEN AUDIT*

1. Department of Botany- Prof. M.D. Kushwaha- Convener
2. Department of Botany- Prof. S.R. Katiyar- Member
3. Department of Botany- Dr. Neeta Bhatt- Member
4. Department of Chemistry- Dr. Anita Bisht- Member
5. Department of Geography- Dr. Kishor Chauhan- Member

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Principal

Note: This was only suggestive questionnaire from IQAC.