

Minutes of the Meeting of Green Committee of IIT Roorkee held on Sept 13, 2023

The following members were present:

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| 1. Prof K K Pant, Director | - Chairman |
| 2. Prof U P Singh, Dy Director | - Special Invitee |
| 3. Prof Arun Kumar, HRED | - Convenor |
| 4. Prof Umesh Kumar Sharma, Dean Infrastructure | - Member |
| 5. Prof Sujay Chattopadhyay, Dean SRE | - Member |
| 6. Prof M L Kansal, WRDM | - Member |
| 7. Prof Anubrata Dey, Asso. Dean Infra (El) | - Member |
| 8. Shri Ajay Sharma, Institute Engineer | - Member |
| 9. Shri Bhavneesh Lal, Institute Architect | - Member |
| 10. Prof Avlokita Agarwal, Arch & Planning | - Member |
| 11. Prof Bhanu Prakash Vellanki, CED | - Member |
| 12. Prof Abhijit Maiti, PPE | - Member |

Associate Dean (Bhawan Mess), Prof Ram Manohar Singh and 2 Student members could not join the meeting.

Prof K K Pant, Director asked Prof Arun Kumar, Convenor Green committee to present the agenda scheduled for the meeting

1. Action taken report on the last meeting
2. Miyawaki forest in campus
3. planting of 1100 trees in all three campuses during July-Aug 2023
4. No carbon emitting vehicle days in the campus
5. Use of plastics (water bottles, plastic bags etc) in the campus
6. Global ranking towards Sustainability
7. Drainage of the campus
8. Any other item

1. Action taken report on the last meeting

The last meeting was held on Jan 16, 2023 and minutes were circulated vide email dated Feb 07, 2023 and were uploaded on the website https://www.iitr.ac.in/GP/green_committee.html.

Action taken on the minutes are highlighted in *italic*.

1. The E&W put up a tender for IITR solid waste management many months ago. The management was to include shredder, trommel, conveyor belt for separation of around 4.6 TPD waste, followed by in vessel composting/vermicomposting/aerated windrow composting of segregated organic. Part of sale value of recycled waste was to be given to IITR, in the principle of waste to wealth.

Also, as discussed in the green committee meeting and put up in the bid, all the sanitary pads from 3 girls hostels were to be collected in vacuum operated and sealed bins sold by Padcare Labs and were to be recycled into cellulose.

The status of whether the bid was awarded to any vendor and if the vendor has developed the required infrastructure for waste management and sanitary pad management, and wealth from waste value be presented and discussed in the Green Committee meeting.

Photos of infrastructure developed and quality of compost can be provided so that it can be put up in GC website.

Action Taken: The facility has been developed by outsourcing contractor and are running smoothly. The service provider is already taking up the work of collection, recycling and disposal of sanitary pads as per SWM Rules from each girls Hostel. Photos of the facility are attached herewith.



The tender was for in-vessel composting and aerated composting. Vermi composting cannot be done for our unsegregated waste. None of the two possible options are being followed. It looks like some old compost pits of 100 kg/day capacity are being shown rather than infrastructure being developed in line with the tender requirement. No compost is being shown.





Tender spec: A new facility for segregation was to be created.





Current status: The tender was to be awarded only after the facility was created according to tender requirements. This is not the case. The waste is just being dumped in an area. Further this may create legacy waste issues, creating legal problems for IIT Roorkee.



The committee expressed concerns with the current state of the solid waste management infrastructure set up by the company the task was outsourced to, leading to possible legacy waste and related concerns. The inadequacy of the infrastructure to segregate and then biodegrade the segregated biodegradable waste may be got done as per the tender norms at the earliest. Estate and works informed that the infrastructure will be set right and operations improved in a month.

2. Sanitary Waste Management: PadCare Labs are proposed to be developed for which may cost a sum of Rs. 4 – 5 lakhs per year as per the bids which has been invited and may be finalised by March 31, 2023. It is estimated that about 1.5 – 2 Lakh sanitary pads are to be disposed off annually in the campus. Proposed technology gives sterilized output out of used sanitary pads which is further used in manufacturing objects like plant pots, paper, paver blocks, and utilization in the Agri industry with the help of their patented technology of Sensor Operated Dustbins.

Observations: The last Green committee meeting specified that PadCare labs-based sensor-operated and vacuum-sealed sanitary napkin disposal bins would be set up, followed by these sanitary napkins being recycled to cellulose and other products at their facility. Institute was to showcase an ideal management system.

The tender also mentioned this, along with a capacity to hold/collect 8,000 pads per a given period.

The picture indicates a simple foot-operated dustbin kind of setup. There is no arrangement with PadCare for collection and recycling.



E&W was requested to ensure that the contractor follows tender specifications and the recommendations made by Green Committee Jan 16, 2023 meeting be followed by ensuring collection in sensor-operated bins and recycling, to show case as a good example to others.

3. Regarding bio methanation plant.

Action Taken: *Consultant has been appointed. The concept was presented by the Consultant after carrying out the survey of the type and quantum of the waste is being generated, Draft DPR has been received and some comments have been sent to the Consultant by Prof. Bhanu.*

The Director suggested that the plan to extract energy or methane by anaerobic digestion is the more sustainable option and that this be prioritised with the task to construct the anaerobic digester to be led by Prof Vellanki.

The committee reemphasized to the pressing need to ensure segregation at source to ensure successful and sustainable solid waste management. The committee resolved that awareness sessions will be carried out for 5 months, followed by a period during which waste will not be picked up.

The committee also agreed to levy a nominal charge for solid waste management from each household. The canteens and mess vendors are also to be levied a charge to ensure segregation at source. E&W to suggest a charge to be levied on the households and the canteen & mess vendors.

4. Water supply - Based on the results of the GPR survey, the following tasks were to be performed:

Action Taken: *Status on date giving the reference of the meeting held on April 14,2023 is attached for both the points.*

a. Water quality testing at dead zones/ critical locations and assessment of the risks/related measures

b. Locations for installation of bidirectional and/or unidirectional flow meters within the network Further, preliminary decisions on installation of low-flow, water saving fixtures (related to cost, locations etc.) will be explored.

A detailed report from Estate and works is awaited and shall be deliberated in next meeting.

Prof ML Kansal has been requested to discuss with E&W and guide further in the matter.

5. As per the biodiversity report, labelling of trees to be carried out by Institute Horticulture Section

As per the biodiversity report, labelling of trees to be carried out by Institute Horticulture Section –

Action Taken: The work is already being awarded for Phase-I (around 800 tree) in the areas around the J.T Building including Director Lodge, N.C Nigam Visitor's Hostel, nursery etc and shall be completed in two months' time.

The same has been noted and expected to be carried out at the earliest.

6. E -bikes Indeanta: Use of e - bikes within the campus be increased. This matter may be dealt by Dean Infra and DOSW being related to student affairs. Sufficient charging points may be installed.

Action Taken: Charging points for e-scooters have already been provided at Canal View Apartments, Shivalik Apartments, Hill View Apartments and River View Apartments. Photographs of the same are enclosed at Annexure-3. Estimate for installation of EV chargers for entire IITR campus has been prepared. Tender will be invited after administrative approval and allocation of budget





DOSW was requested to sign the MoU with Indeanta at the earliest.

7. To encourage the use of e -Cars, e -scooters and e -cycles by institute community (staff), it has been decided that the charging points shall be installed at the different location in the campus and details of those be informed to the institute community frequently.

Action Taken: ***A comprehensive proposal related to installation of charging point in complete campus has already been prepared but because of large budget requirement amounting to Rs. 5.00 Crores approximately, it could not be initiated further seeking other priority of the Institute.***

Currently installed e charging points are to be made accessible and user friendly by E&W.

8. E -Waste Management: To avoid the hazardous effect of these wastes on environment, institute is in discussion and is in the process of collaborating with Attero, who is India's Electronic Asset Management Company dedicated to the recycling of the electrical and electronic industry with zero landfill. As per MOU proposed by them, Attero will be picking up the e -waste from Bhawans and faculty apartments. They will recycle this waste by using their cutting edge technologies. In exchange for e -waste, Attero will provide monetary benefits to the waste generators. Bids process expected to be completed by March 31, 2023.

Action Taken: After the discussion with the administration, few changes in MoU were suggested to the Attero but we haven't heard from them again, even after follow-up from our side. Recently, we have contacted another company, Threco, and they have shared their common MoU. I am attaching the same MoU that i have received from them.


Dean, E&W has been suggested to sign MoU with Attero or Threco, for e waste collection from households and hostels at regular intervals. The companies will pay the private households or students for e waste that can be recycled. E-waste from labs that cannot be recycled and must be disposed as per law, will be taken by the companies after payment by the E&W.

Material and Management section has been suggested to coordinate with Eco Group to ensure that the recyclable e waste from the Departments/Institute is disposed only to authorized e waste recyclers. M&M is requested to explore the possibility of short-listing one e-waste recycler for a certain period, who will be responsible for taking the e waste generated by the departments of the institute after paying the institute the necessary amount at the rates for different e waste.

9. Majority of canteens are using biodegradable cutlery but some like Vigyan Kunj canteen & night canteen, Kasturba canteen, Jawahar Canteen and RKB night canteen are not using it. Associate Dean (Bhawan) has been advised to issue notification of different rates for the commodity in the canteen who are using biodegradable cutlery and who are bringing their owned cutlery. No non-biodegradable cutlery shall be used in the bhawans.

Status:

ADoSW (Bhawan and Mess) issued a notification banning use of non-biodegradable cutlery from the canteens in the campus. Most of the canteens have started the use of either biodegradable or steel-cutlery but several instances were reported where some canteens were found using plastic cutlery as show below.

	
<p>Radhakrishnan Night canteen Picture from RKB Night Canteen showing use of plastic spoons and non-biodegradable plates.</p>	<p>SAC canteen Picture of SAC Canteen with plastic spoons in the canteen</p>

		
Kasturba Day canteen	Sarojini Day canteen	Jawahar Day canteen

DOSW (Bhawan and Mess) may take immediate action to penalise and curb those canteens that are still using plastic cutlery, in violation of the law.

10. Data Related to Solar Energy Produced in the Last Five years:

Energy: As per decision taken in the last meeting data related to solar generation is also submitted as an attachment for your record and reference.

Solar Energy Generation with following SPV Systems

1	1.812 MWp SPV System installed by M/s. Tata Power				
Year	April 2018 to March 2019	April 2019 to March 2020	April 2020 to March 2021	April 2021 to March 2022	April 2022 to March 2023
KWh	2133050.1	2089061	2034752	1769079	1783500
				9809442.1	
2	1.0 MWp SPV System installed under RESCO Model				
Year				July 2021 to March 2022	April 2022 to March 2023
KWh				801032	1320384
Total				2121416	
	Grand Total		KWh	11930858.1	

Agenda 2:

NEW MIYAWAKI FOREST PROPOSAL – LAND IDENTIFICATION

In addition to the successful agenda of implementation of Mini-forests in IITR in the form of Miyawaki Forest beside the temple, here is a proposal for next Miyawaki forest implementation.

Proposal 1: Miyawaki around an artificial pond recharged with treated STP water

Area, including pond and Miyawaki: 1,800 m², including the pond.

Proposal 2: Miyawaki along the periphery:

The area of the proposed site is 480 square meters

Proposal 3:

Identified area:- Beside Saraswati Mandir

- Area can be used for miyawaki forest - 330 sq.m
- Water survey plan shows that selected area does not have any manholes or underground services.
- 1000-1300 saplings can be planted in the identified area which is one sapling per 0.25-0.3 sq.m.



Selected area is marked in Yellow.

Proposal 3 is recommended for implementation. IA may process the matter to seek the consent from institute space management committee and thereafter the implementation shall be taken up.

Further A Miyawaki Forest proposal in SRE campus of IITR was proposed by Dean SRE campus. Committee suggested him to share the site location and budget details for further consideration. The concept of installing Miyawaki Forest in SRE campus is agreed in principle.

Agenda 3: Use of Biodegradable items instead of disposal Plastic items specially

It is proposed to use biodegradable plates.

Locally produced women Self Help Group (SHG) products and their costs, in collaboration with UBA, may be considered for use in hostels and canteens:

1. Biodegradable *dona pattal* as an alternative to plastic plates.
2. Citrus fruit fermented bio-enzyme as an alternative to chemical floor cleaners
3. Plastic-free sanitary pads

The DOSW and DOSW (SA) are requested to take steps to ensure that the hostels, canteens, and messes use the above environmentally sustainable and local women SHG manufactured products.

Eco Group shall liaison with caretakers of Departments to propagate use of the environmentally sustainable and locally manufactured products in the Institute.

Agenda 4: Massive Tree Plantation Drive: One Student One Tree-2023 under the “MeriLiFE” Mission of the Dept. of Higher Education, Ministry of Education, our Institute has planned for the plantation of about 1,100 nos. of saplings at its three campuses.

In a meeting under the chairmanship of Dy. Director on July 20, 2023, the letter of MOE was discussed and decision was taken to plant only 1100 trees in July – Aug 2023 in view of limited space in the campus. Institute Architect was to get executed.

Action Taken: *Planting of 1100 trees in all three campuses during July-Aug 2023 - Till date around 515 trees were planted in various places in the Roorkee Campus of different varieties of wooden, fruit & flowering trees in 3 Drives conducted for which volunteers from NCC, NSS, Students, Faculty & Staff wards joined hand for the plantation. Furthermore, identification of the areas for the balance plantation is underway & thereafter the Plantation Drive shall be scheduled.*

The Committee appreciated the E&W for plantation drive. The committee suggested the Saharanpur campus for the denser plantations such as the Miyawaki plantations on a larger scale, to alleviate local air pollution and as an ideal for the society.

Agenda 5: No carbon emitting vehicle

With an eye on moving towards sustainability and pollution reduction, institute observed Thursday, June 15th, 2023, (8 AM to 6 PM) as a petrol/diesel-based vehicle-free day on campus. Cooperation by using more sustainable means of transport on this day was thought from the institute community.

Commuters were encouraged to walk or use bicycles in support of this day. e-rickshaw and e-vehicles were used without any restriction on June 15th. Additionally, for convenience commuters, please note that e-rickshaws and e- buggy plied on the campus as per the designated route

Exemptions were made to Government (GA numbered), milk, food, grocery, postal material delivery vehicles ↑ (Army), campus security, fire services, ambulance, and local administration vehicles.

1. Vehicles carrying differently-abled persons/people with health concerns.
2. Institute and Department guests from outside Roorkee.
3. Taxis.

Noise and particulate matter pollution were measured on no motor vehicle day (June 15th) and the typical day (June 16th). The weighted equivalent noise level on no petrol-diesel vehicle day was less than of 1/4th of typical day in the campus with petrol-diesel vehicle day.

After deliberation it was decided that the 1st of every month IITR campus will follow no carbon-emitting vehicle day. PIC, Security is requested to ensure timely reminders to the campus community before each no carbon emitting day and to ensure the community is sensitized to follow the necessary guidelines. Dean Admin is requested to send information to this effect to NIH and CBRI.

Agenda 6: World Sustainability Ranking

Institute participate for world sustainability ranking in two systems every year.

- (a) QS World Sustainability Ranking
- (b) UI Green Metric System

At the time of filing information most of the data is generally prepared based on assumption and many times become difficult to gather with limited resources, time and understanding of the matter. Now a Professor in charge has been appointed as coordinator/chairman for this purpose.

Institute loses lot of points on the following fronts

- (a) Setting - Open permeable space – Every year we lose / reduce this space and reduce on account of concrete based car parking/tiling.
- (b) Energy and Climate Change
- (c) Solid waste management
- (d) Education and research

Institute need to review the whole procedure of handling this matter to get high score for raising the institute rank.

The Director requested E&W to develop a centralized parking lot on campus. It was also resolved not to develop any department-specific parking lots and accordingly department are advised not to send the request to E&W for making the paved parking facility .

- (a) A committee of Prof Avlokita Agarwal and IE is constituted to look into the kind and extent of paving to ensure the right balance between sustainability, longevity and user comfort.
- (b) E&W shall check and will remove unnecessary and symbolic lighting from the campus after due counselling. The E&W is to issue a reminder to the hostels and Departments to not set up lighting without the approval of the E&W. Unauthorized and excessive lighting within hostels and departments is to be removed after the hostels and departments are given due notice. Green Committee will send a notification/guideline to this effect.
- (c) Sustainable anaerobic degradation based bio methanation is to be implemented.

Agenda 7: Regarding Drainage and possible retention of storm water

Action Taken: *During the recent rains the problem of drainage was observed specially in the Sheel Kunj and old Solani Kunj area and also near Gate No. 10 in the Vikas Nagar. Largely this problem was happened of because of shrinkage of outside Nulhas due to encroachment. For this problem the local authority has been apprized many times. At the same time the case has already been initiated for appointment of Consultant for preparing a comprehensive planning for drainage problem in the campus. IWD is making best efforts to ensure the cleanness of the drains inside the campus as well as outside nearby drains.*

E&W informed that the action is being taken by them rigorously.

Agenda 8: Any Other Item.

Meeting ended with the vote of thanks to the chair.