

## Waste Management Practices

# Solid Waste Management

**CLEAN UP AND FLUORISH, ELSE PILE UP AND PERISH**

### 5.1 SOURCES OF SOLID WASTE GENERATED IN THE CAMPUS

15. Does your institute generate any waste? If so, what are they?

Yes the Institute generates following types of wastes are generated in the RIE, Bhubaneswar campus from different sources.

**Table 13. Details of Waste Generated in RIE, Bhubaneswar campus**

Sl.No	Type of Waste	Description
1.	<i>Solid waste</i>	Waste paper, pens, refills, Rejected clothes, bags, and unused houseware, glass wastes, Online parcels received via cardboard packagings, food packets, used paper cups, plates,gunny bags
2.	<i>Food waste</i>	Leftover food from hostels and staff quarters
3.	<i>Canteen waste</i>	Food waste and other wastes inclusive of paper and plastic waste
4.	<i>Plastic waste</i>	Plastic wrappers, cans, Pens, Polythenesetc.
5.	<i>Construction &amp; Demolition waste</i>	The waste is generated due to expansion of buildings, Construction of hostels etc. Coloring of the Institute
6.	<i>Toiletry waste</i>	Sanitary napkins and Tissues
7.	<i>Horticultural waste</i>	Dead leaves, twigs, branches etc.
8.	<i>Chemical waste</i>	From laboratories
9.	<i>E-waste</i>	Outdated Desktops, Phones, Charging cables etc.
10.	<i>Medical Waste</i>	Used needles, blades, saline bottles, medicine strips, Used Bandage



**Fig. 15a & b - Food and dry waste generated from hostels**

**16. Is there any waste treatment system in the Institute?**

Currently we don't have a waste treatment plant in the Institute.

**17. What is the approximate amount of waste generated per day? (in kg/month)**

**Table 14- Details of Wet and Dry Waste Generated in the Institute on Monthly Basis**

Waste collected from	Wet waste collected	Dry waste collected
Hostel	180 kg	100 kg
Quarters	30 kg	20 kg

**5.2 WASTE MANAGEMENT CYCLE OF THE INSTITUTE**

**18. How is the waste generated in the Institute managed?**

- Wastes from all the departments of Institute along with the administrative offices are collected in respective color segregated dustbins which are then collected by the housekeeping staffs regularly. It is collected by waste collecting vehicles deputed by Bhubaneswar Municipal Corporation (BMC) on regular basis.



Fig. 16a & b - Collection of Food and Dry Waste Generated from Hostels by BMC workers



Fig. 16c & d - Collection of Food and Dry Waste Generated from Canteen and Hostels by BMC workers

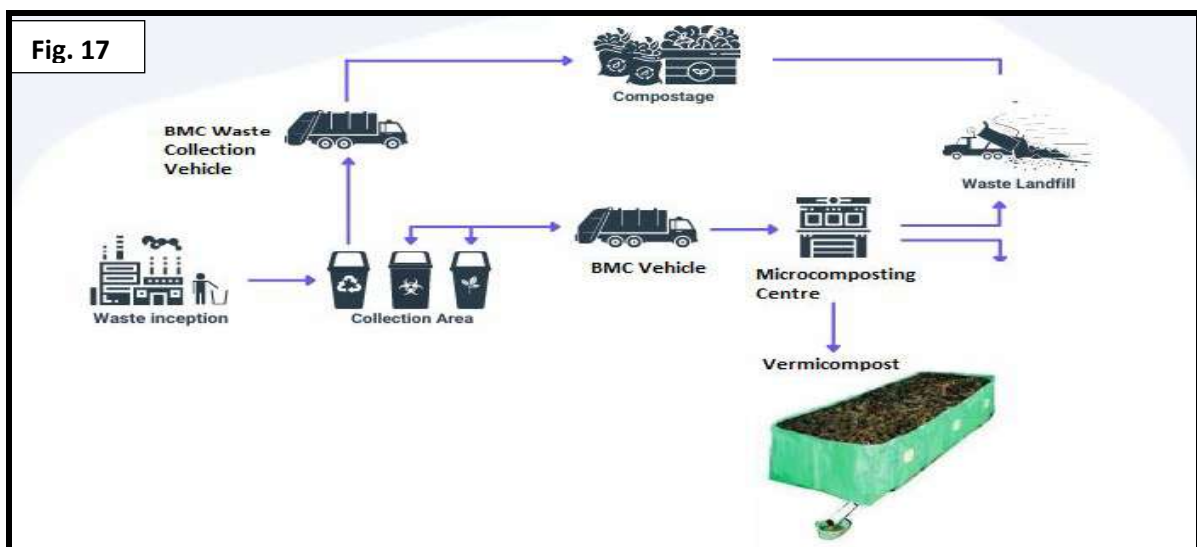


Fig.17- Waste Collection and Disposal Diagram of the Institute

- The electronic wastes of the campus are collected by the BMC vehicles on Saturdays.
- Wood waste is used by the training teachers and students to develop various models which are displayed in the wood workshop of the Institute.
- Kitchen wastes (e.g. vegetable peels etc.) are used to maintain the kitchen garden of the hostels
- **Student Initiative:** The students initiated an innovative process to collect the plastics/polypacks in the plastic bottles to capture the macro-sized plastics to micro-sized plastics. This process will avoid spreading of plastics, choking of the drains by those plastics. These bottles can be further given to BMC or it can be creatively used for decorative purposes.

Additionally, the waste generated in the Institute is managed by Institute's Waste Management Policy





**Fig. 18(a – f) -Kitchen Gardens from Kitchen Wastes Maintained by the Hostels in the Backyard and Frontyard of Different Hostels of RIE, Bhubaneswar.**



**Fig. 19 (a –b) - The non-biodegradable plastics and single use plastics are carefully collected in bottles and are handed over to BMC.**



**Fig. 19 (c – d) – Paintings Made out of Paper Wastes by the Students of the Institute to Spread Awareness Regarding Recycling of Paper Wastes**

**19. Do you use reused paper in the institute?**

Yes, we reuse the newspapers for developing teaching resource models, Blank pages of discarded printed documents are reused by the faculties and office works for notices etc.

**20. Do you use recycled paper in the institute?**

No, however, we have proposals for the use of recycled paper

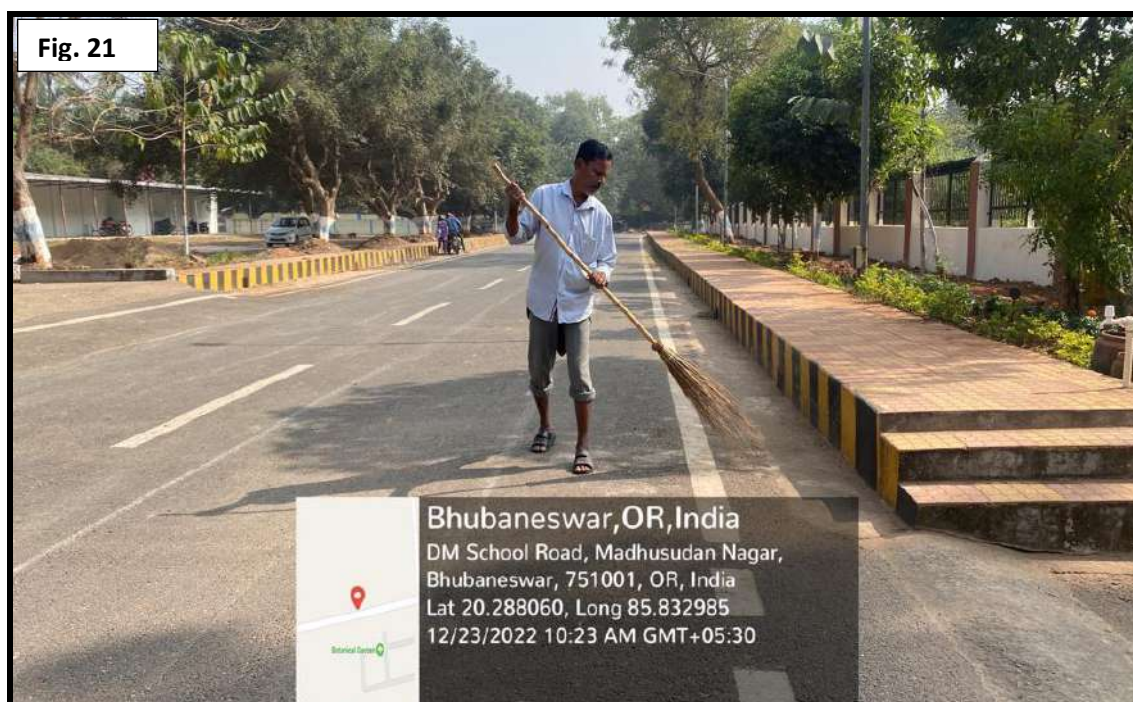
**21. How would you spread the message of recycling to others in the community? Specify the initiatives taken?**

- Cleanliness drives are organized in the campus for cleaning of campus as well as hostels where the students, teachers and non-teaching staffs participate to clean each and every corner of the campus.



**Fig. 20 (a – d) – Cleanliness Drives Organized in the Institute in Different Occasions Involving Faculty Members, Staff Members and Students.**

- Student led initiatives like collection of plastic wastes in bottles, developing crafts from the trash etc. are encouraged in the campus.
- Developing different teaching models from the plastic waste, paper waste is greatly encouraged which spreads a message of environmental sustainability as well as educational resource.
- As partial fulfillment of the courses, “Working with Community” is made compulsory for all the final year students. Through this program they spread the message of recycling to others in the community.



**Fig. 21 – Cleanliness of the Surroundings Maintained by the Institute Staffs on Daily Basis**

## ***22. Can you achieve zero garbage in the Institute?***

Yes. For this purpose we need to work on minimal waste generation and different management practices for waste disposal based on expert advices.

### **5.3 BIOGAS**

#### ***FOOD & KITCHEN WASTE BASED BIO-GAS DIGESTER***

- ❖ The bio-gas produced from food waste, decomposable Organic materials and kitchen waste consisting of methane & a little amount of Carbon dioxide is an alternative fuel

for cooking gas (LPG). Also the waste materials can be disposed of efficiently without any odour or flies and the digested slurry from the bio-gas unit can be used as Organic manure in the garden.

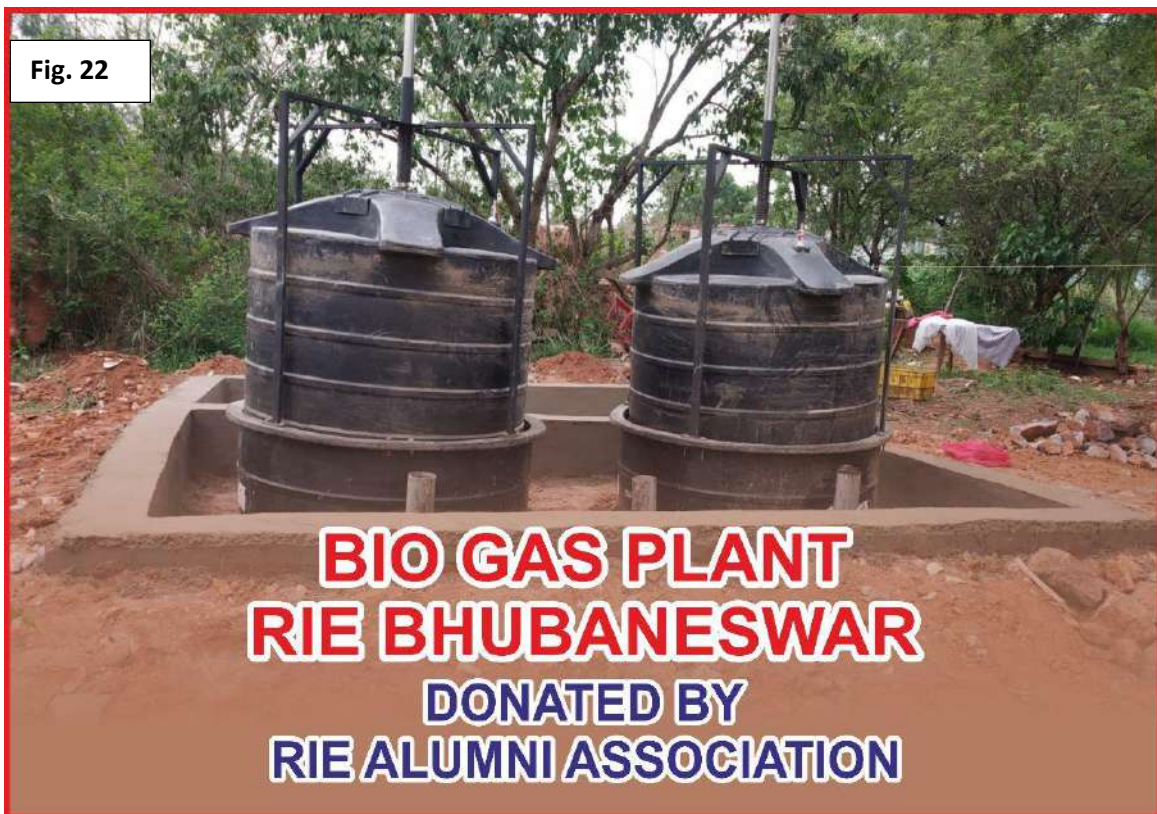
- ❖ The major components of the bio-gas plant are a digester tank, food crusher, an inlet for feeding the kitchen waste, gas holder tank, an outlet for the digested slurry, bio-gas purification system & the gas delivery system for taking out and utilizing the produced gas.
- ❖ The project is also useful to have a hands-on learning experiences in Bio-Gas plant construction and operation.
- ❖ This is a basic prototype of a Bio-Gas system using the food waste, decomposable organic materials and kitchen waste to produce gas .The medium size biogas plant can be installed for the waste generated from different hostels Dairy farm and agricultural residues in the campus.

**Table 15 – Specifications of Biogas Plant Installed in the Institute**

Sl No.	Description	Unit	Capacity of Bio gas Digester
1	Capacity of bio-gas Digester	cum	4
2	Availability of kitchen waste /Day	kg	40
3	Waste Requirement/Day	L	40
4	Bio-Gas Generation /Day	cum	4.13
5	Bio-Gas Generation/Month	cum	110.35
6	Bio-Gas Generation/Day	kg	2.41
7	Slurry Generation /Day	L	50
8	Equivalent Bio Manure Production /Day	kg	12
9	Equivalent Liquid Fertilizer Production /Day	L	46
10	Cost of Bio-gas /kg	kg	Rs. 2953
11	Cost of Bio manure /kg	kg	Rs. 2025



12	Cost of Liquid fertilizer /Day	kg	Rs, 1148
13	Area Required	Sq.ft	04ft × 7ft
14	Revenue Generated from Bio-Gas/Month	kg	Rs. 2953
15	Revenue Generated from Bio manure /Month	kg	Rs.2025
16	Revenue Generated from Liquid fertilizer/Month	kg	Rs.1148
17	Total Revenue Generated /month	kg	Rs.6126



**Fig.22- Biogas Plant Installed in the Institute Behind the Canteen**



क्षेत्रीय शिक्षा संस्थान, भुवनेश्वर  
REGIONAL INSTITUTE OF EDUCATION, BHUBANESWAR-751022  
(राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्)  
(National Council of Educational Research & Training)

(Campus & Welfare Section)

F.No. RIEB/C&W/2021/MTax/3443

Date: 23-08-22

**C I R C U L A R**

In order to maintain cleanliness and as per instructions received from the BMC, Bhubaneswar vide Notice dated 03.08.2022 all the residents of the Institute Campus, Hostel Wardens and all staff of the Institute and D. M. School are hereby directed to strictly adhere to the following provisions of different Acts and By-laws communicated by the BMC, Bhubaneswar.

1. Whereas Section 343(s) of Orissa Municipal Corporation Act, 2003 prohibits any person from littering or depositing any solid waste in or along any public street, public places or open land.
2. And Whereas, Rule 2 (clause -2) of the Solid Waste Management Rule, 2016 prohibits every waste generator from throw, burn or bury the solid waste generated by him on public streets, open public places, outside his premises or in the drains or water bodies.
3. And whereas, Municipal Solid Waste Management By – law, 2018 of Bhubaneswar Municipal Corporation specifies that imposition of penalty under Chapter- XV for the violators whoever contravenes any of the provisions of these bye- laws shall be punished with fine as prescribed under Schedule-6.

Further all the residents of the Campus and Wardens of all Hostels are hereby directed to handover their daily waste / garbage (dry & wet separately) to the Vehicle of the B M C, Bhubaneswar visiting this Institute regularly and to discontinue dumping of any waste in the Cemented Dustbins nearby to their premises. It is also to inform that if any electronic waste is to be disposed, the same can also be handed over to the collection vehicle of BMC but only on Saturdays.

It is also reiterated that in-spite of issuance of circulars / notices to all concerned it has been found that initiatives taken towards making the Campus "Plastic Free" is discouraging, hence all concerned are once again requested to take necessary action towards achieving the entire Institute Campus – Plastic Free.

This issues with the approval of the Competent Authority.

(Puskar Behera)

Administrative Officer

Copy to:

1. PA to Principal
2. Zonal Dy. Commissioner, South East Zone, BMC for information with a request to kindly make arrangement for reaching of the waste collection vehicle before 9.00 am in the residential areas of this Campus enabling all staff to dispose / handover waste before attending their duty hours.
3. All Heads of Departments / Section In-charges with a request to circulate among all the staff working with them.
4. Chief Warden with a request to forward to all Hostel Wardens for strict adherence.
5. In-charge New Guest house / Sarojini Guest hostel for information and necessary action.
6. Headmaster D.M.School with a request to circulate among all the staff working in the School
7. I/e. Caretaker / Security Supervisor for information and necessary action.
8. Office Copy.

## REGIONAL INSTITUTE OF EDUCATION: BHUBANESWAR

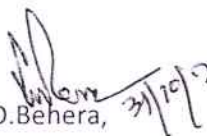
MINUTES OF THE MEETING HELD ON 31.10.2018 at 4.00PM IN THE OFFICE OF LIBRARIAN  
ON PREPARATION OF SWACHHATA ACTION PLAN FOR THE YEAR 2018-19 AND 2019-20

As per notice No. 235 dated 30.10.2018 a meeting was held on 31.10.2018 at 4.00pm in the office of the Dr. P. L. Negi , Librarian to prepare the Swachhata Action plan for the year 2018-19 and 2019 -20 . Following members were present:-


1. Dr. P.L.Negi, Librarian - Chairperson
2. Dr. L.D.Behera, Asso. Prof. - Member
3. Mr. A. Mishra, HM DMS -Member
4. Sh. S.K.Rout, SO, C & W - Member (invited as section i/c)
5. Sh. P.K.Behera, ASO, - Member
6. Sh. B. Bhoi, TGT , DMS - Member
7. Sh. Sahadev Dharua, UDC A/c - Member
8. Sh. B.K.Nayak, Assistant, C & W – Member

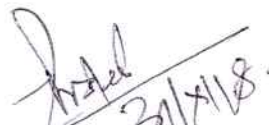
At the Outset, Chairperson of the Committee welcomed all the members present in the meeting. Then all the Committee members verified the Action Plan prepared as per the discussion held in the previous meeting. After minor correction the Committee has recommended Plan to send for approval of the Competent Authority.

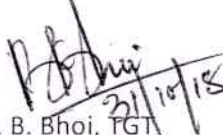
The Meeting was ended with vote of thanks to the Chair.

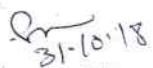
  
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Asso. Prof.

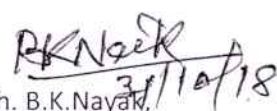
  
Mr. A. Mishra  
HM DMS

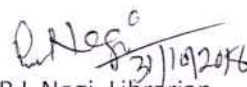
  
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ASO

  
Sh. B. Bhoi, TGT  
DMS

  
Sh. Sahadev Dharua,  
UDC

  
Sh. B.K.Nayak,  
Assistant, C & W

  
Dr. P.L.Negi, Librarian  
Chairperson

**SWACHHTA ACTION PLAN (SAP)  
YEAR 2019-20**

Name of the Ministry :- MHRD

Name of the Department :- Regional Institute of Education (NCERT) Bhubaneswar


SL No	Programmes/Schemes /Activites	Budget	Target Date for completion of Activity	Designation of Official responsible for implementation of activity and adherence to timelines	Nodal Officer for overall supervision of the Activity
<b>A</b>	<b>Basic Maintenance</b>				
1	Cleaning of Institute and DMS premises, toilets and dustbins.	By Sweepers	Daily	Caretaker	Administrative Officer
2	Cleaning of computers and peripherals, water coolers, furniture's, polishing of name plates and dusting of walls, doors, windows.	NIL	Weekly	All Head of Deptts & all i/c of Sections..	Administrative Officer
3	Disposal of General Waste out materials like Furniture, equipment/newspapers/magazines etc.	Nil	31.12.2019	Store Officer and SO, C & W	Administrative Officer
4	Disposal of Computers, printers /scanners/photocopiers	Nil	30.12.2019	Prof. B. N. Panda and his Committee	Administrative Officer
5	Replacement of old and unused dustbins with new one 100 Nos	20,000	30.11.2019	Store Officer	Administrative Officer
6	Fitting of Liquid shop container with regular filling of liquids 20 toilets	40,000	25.5.2019	SO, C & W	Administrative Officer
<b>B</b>	<b>Cleanliness and beautification of Surroundings</b>				
	The Courtyard gardens and outer lawn and outer lawn will be well maintained and painted with seasonal flowers and ornamental plants.	1,00,000	Throughout the year	Lab Assistant cum Store keeper, DESM	Administrative Officer Head DESM
<b>C</b>	<b>Swachhta Awareness at local level/Display and Banner/Foster healthy Competition</b>				
	Awareness Creation :-	60,000	First week of	Advisor student Council & HM,	Dean(I)
	(iv) Conducting of competitions like		October 2019	DM School	
	(e) Essay Competition				

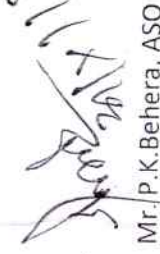
	(f) Cartoon Competition and (g) Slogan Competition (h) Best section working towards Swacchta drive, for sensitization on cleanliness. Certificate signed by Principal/HM would be given to winners. (V) Display of banners/posters on Swachh Bharat in Institute/ school premises (VI) Action Taken/Photographs of the activities to be uploaded/displayed on www. Swachha bharat, Mygov.in, e Samiksha portal, Institute's website	5000	Throughout the year		
D	Swachhta Pledge		On 2 <sup>nd</sup> October 2019	I/c CAC	Administrative Officer
E	Shramdan of One hour in a week by all employees, students of DMS and Institute, NCC, NSS etc. (purchase of Swords, Broom stick, Belcha, Spade, other cleaning equipments etc.)	100000	Every Saturday	SO, C & W Dr. L.D.Behera and his Committee	Principal/HM Administrative Officer


  
 Dr. L.D. Behera, Asso. Prof.


  
 Mr. A.K. Mishra, HMS


  
 Mr. S.K. Rout, SO, C & W

  
 Mr. B. Bhoi, TGT

  
 Mr. P.K. Behera, ASO

  
 Mr. Sahadev Dharua, UDC,

  
 Mr. B.K. Nayak, Assistant

  
 Dr. P.L. Negi, Librarian  
 Chairman

**SWACHHTA ACTION PLAN (SAP)  
YEAR 2018-19**

Name of the Ministry :- MHRD

Name of the Department :- Regional Institute of Education (NCERT) Bhubaneswar

SL No	Programmes/Schemes /Activites	Budget	Target Date for completion of Activity	Designation of Official responsible for implementation of activity and adherence to timelines	Nodal Officer for overall supervision of the Activity
<b>A</b>	<b>Basic Maintenance</b>				
1	Cleaning of office premises, toilets and dustbins on daily basis.	NIL	Daily	Caretaker	Administrative Officer
2	Cleaning of computers and peripherals, water coolers, furniture's, polishing of name plates and dusting of walls, doors, windows.	NIL	Weekly	Head/i/c of each Section/Deptts.	Administrative Officer
3	Disposal of General Waste out materials like Furniture, equipment/newspapers/magazines etc.	Nil	31.12.2018	Store Officer and SO, C & W	Administrative Officer
4	Disposal of Computers, printers /scanners/photocopiers	Nil	30.01.2019	Prof. B. N. Panda and his Committee	Administrative Officer
5	Replacement of old and unused dustbins with new one 100 Nos	20,000	30.11.2018	Store Officer	Administrative Officer
6	Renovation of damaged toilets of DMS and Institute with fitting of sensor.	CPWD	28.02.2019	SO, C & W through CPWD	Administrative Officer
7	Fitting of Liquid shop container with regular filling of liquids 20 toilets	40,000	25.11.2018	Store Officer	Administrative Officer
8	Providing Bucket, Mug, Hanger in 20 nos of toilets of Institute and DMS	10,000	30.11.2018	SO, C & W and Store Officer	Administrative Officer
9	Fixing of 15 nos of exhaust fans in toilets of DM School and Institute	AR/MO	20.12.2018	SO, C & W	Administrative Officer
10	Correction and proper fixing of all loose wires in all the Institute Building	Nil	20.11.2018	SO, C & W through CPWD	Administrative Officer
11	Cleaning of Drains in the Campus		January to March 2019	SO, C & W through CPWD	Administrative Officer
<b>B</b>	<b>Cleanliness and beautification of Surroundings</b>				
	The Courtyard gardens and outer lawn and outer lawn will be well maintained and painted with seasonal	1,00,000	Throughout the year	Lab Assistant cum SK	Administrative Officer

	flowers and ornamental plants.				
C	<p><b>Swachhta Awareness at local level/Display and Banner/Foster healthy Competition</b></p> <p>Awareness Creation :-</p> <p>(I) Conducting of competitions like            (a) Essay Competition            (b) Cartoon Competition and            (c) Slogan Competition            (d) Best section working towards Swacchta drive, for sensitization on cleanliness.            Certificate signed by Principal/HM would be given to winners.</p> <p>(II) Display of banners/posters on Swachh Bharat in Institute/ school premises</p> <p>(III) Action taken/Photographs of the activities to be uploaded/displayed on www. Swachha bharat, Mygov.in, e Samiksha portal, Institute's website</p> <p>Swachhta Pledge</p>	60,000	First week of October 2018 (work completed )	Advisor student Council & HM, DM School	Dean(I)
D	Swachhta Pledge	5000	Throughout the year	I/c CAC	Administrative Officer
E	Shramdan of One hour in a week by all employees, students of DMS and Institute , NCC, NSS etc. ( purchase of Swords, Broom stic, Belcha, Spade, other cleaning equipments etc. )	100000	On 2 <sup>nd</sup> October 2018 ( Taken by staff members) Every Saturday	SO, C & W Dr. L.D.Behera and his committee.	Principal/HM Administrative Officer

Dr. L.D.Behera, Asso. Prof.



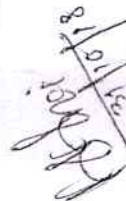
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Mr. Sahadev Dharua, UDC,



Mr .B.K.Nayak, Assistant



Dr. P.I.Negi, Librarian



Chairman



# BIOGAS PLANT



*Together for ever*

**Sponsored by**

**The Alumni Association of Regional Institute of Education,  
(NCERT), Bhubaneswar, Odisha**



**Submitted to**

**Dr. Ritanjali Dash**  
**Coordinator of IQAC, RIE, Bhubaneswar**

**Submitted by**

**Mr. Sahadev Mallick**  
**Secretary, Alumni Association of RIE, Bhubaneswar**



