JSS Academy of Higher Education & Research (JSS AHER), Mysore, India

Compendium

SDG-7

SUSTAINABLE DEVELOPMENT GOAL 7

AFFORDABLE AND CLEAN ENERGY

1. Introduction to Goal

Renewable energy solutions are becoming cheaper, more reliable, and more efficient every day. Our current reliance on fossil fuels is unsustainable and harmful to the planet, which is why we must change the way we produce and consume energy. Implementing these new energy solutions as fast as possible is essential to counter climate change, one of the biggest threats to our own survival.

It consists of Universal access to affordable, reliable, and modern energy services. Increase the share of renewable energy in the global energy mix. Double the global rate of improvement in energy efficiency. Between 2000 and 2016, the number of people with electricity increased from 78 to 87 percent, and the numbers without electricity dipped to just below one billion.

Yet as the population continues to grow, so will the demand for cheap energy, and an economy reliant on fossil fuels is creating drastic changes to our climate. Investing in solar, wind and thermal power, improving energy productivity, and ensuring energy for all is vital if we are to achieve SDG 7 by 2030.

Expanding infrastructure and upgrading technology to provide clean and more efficient energy in all countries will encourage growth and help the environment.

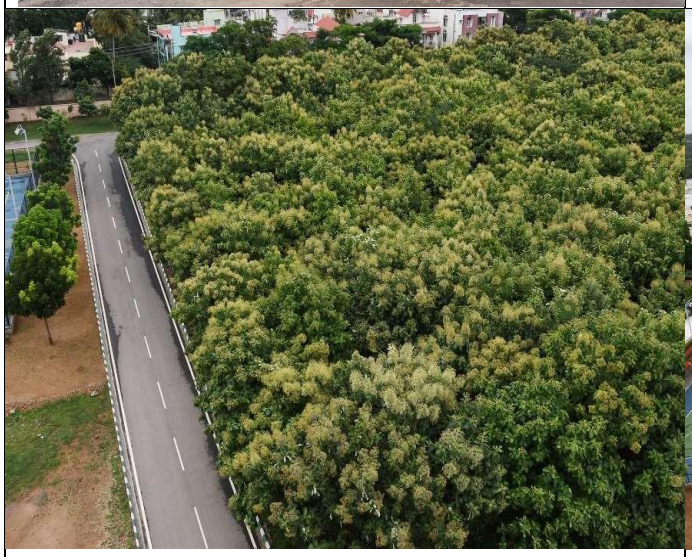
2. Efforts at glance

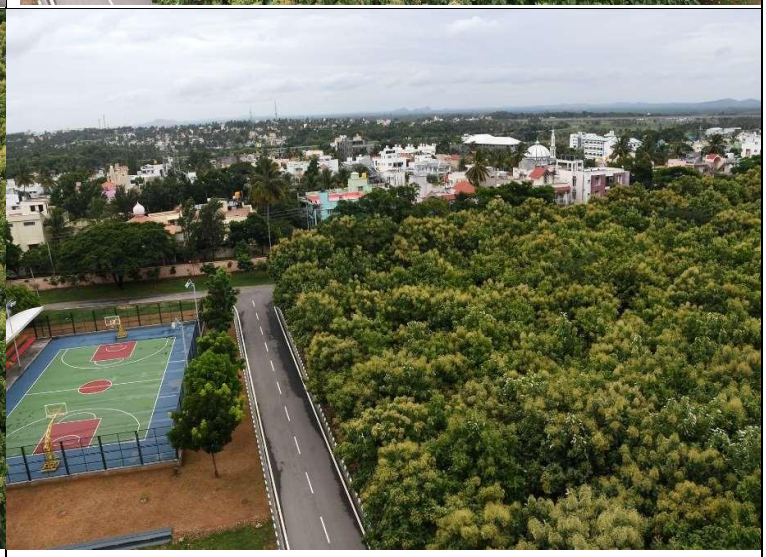
- Green and clean campus
- Use of solar panels
- Rainwater harvesting
- Signboards for efficient use of electricity and water
- Use of LED bulbs in the campus

Sign boards on water and electricity preservation
Solar panel at hostel

LED Bulbs in the campus

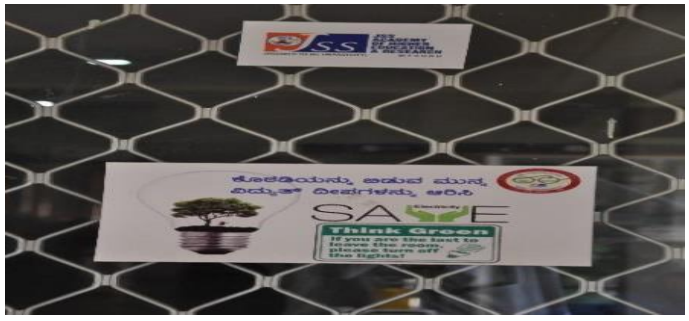
JSS Medical College campus received first place in flower exhibition on the occasion of Mysuru Dasara

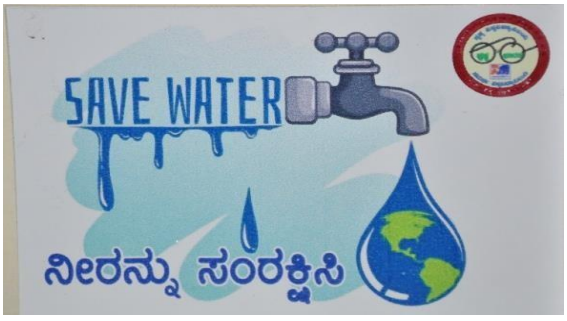




Greenery in the campus

Sign boards on water and electricity preservation





Greenery in the campus

3. Renewable energy

Fossil fuel has dominated our lives from the past 100 years as the major source of energy. The growing demand for energy has increased the consumption of fossil fuels resulting in an unsustainable and harmful environmental impact such as depletion of ozone layer, global warming, loss of biodiversity etc., Renewable energy has become a boon to mankind in reducing the dependency on fossil fuel for our energy needs. Hence the nations across the world are implementing policies and initiatives to produce cheaper, more reliable, and more efficient clean energy sources. Initiation for the Universal access to affordable, reliable, and modern energy services is being carried out on a large scale to increase the share of renewable energy in the global energy mix. Between 2000 and 2016, the number of people with electricity has also increased from 78 to 87 percent, and the numbers without electricity dipped to just below one billion. Yet as the population continues to grow, so will the demand for cheap and clean energy which shall increase exponentially. Investing in solar, wind and hydro power to improve energy productivity and ensuring energy for all is vital if we are to achieve SDG 7 by 2030.Expanding infrastructure and upgrading technology to provide clean and more efficient energy in all countries will encourage growth and help sustain the environment.

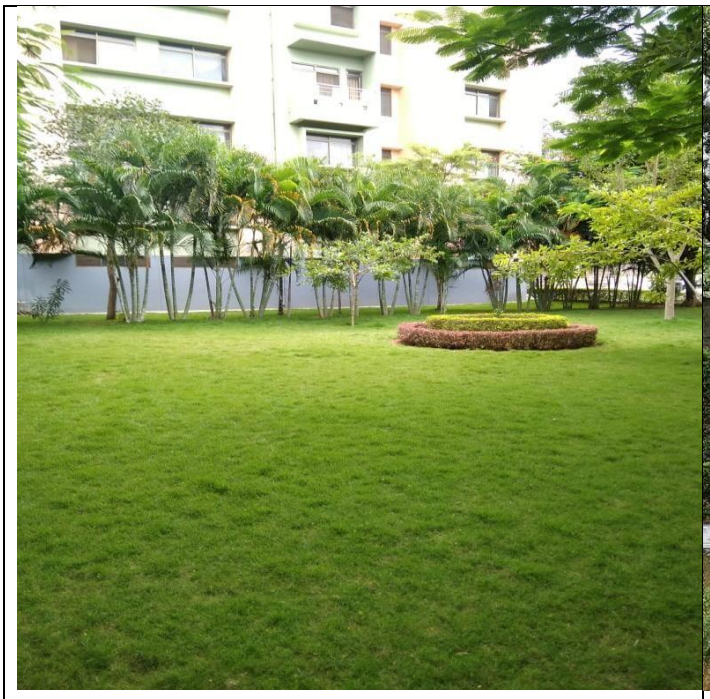
4. Smart Campus initiatives

- Solar Roof Top Panels (400 Nos) are installed to generate electricity and are working. It caters to 50 % of electricity requirements of the campus.
- Proposal for Sewage Treatment Plant submitted to JSSAHER and actively pursued.
- College encourages car pooling for staffs and students as an effort to save fuel consumption.
- Steam energy is used for cooking food at hostels.
- Availability of trained personal to monitor energy utilization.
- Solar water heater at hostels. • Carbon foot print is measured by carrying out energy audit.
- AMC of important instruments helps in reduced power consumption.
- The consumption of Electricity in the campus was at around 45,000 watts. It has now reduced to 31,000/- watts with the replacement of incandescent light bulbs with LED light bulbs.
- The total dependency for electricity was at around 100% from the governmental agency (CESCOM). The dependency has reduced by 45 % or more after the installation of Solar panels.

Sign boards on water and electricity preservation

Solar panel at hostel

Greenery in the campus



Greenery in the campus

Greenery in the campus

5. World Environment Day 2020 5th June 2020

World Environment Day was celebrated by planting sapling by Registrar, Director (Academic), JSSAHER, Mysuru and Principal, JSS College of Pharmacy, Mysuru.

6. Affordable and Clean Energy

Between 2000 and 2016, the number of people with electricity increased from 78 to 87 percent, and the numbers without electricity dipped to just below one billion.

Yet as the population continues to grow, so will the demand for cheap energy, and an economy reliant on fossil fuels is creating drastic changes to our climate.

Investing in solar, wind and thermal power, improving energy productivity, and ensuring energy for all is vital if we are to achieve SDG 7 by 2030.

Expanding infrastructure and upgrading technology to provide clean and more efficient energy in all countries will encourage growth and help the environment.

By 2030, ensure universal access to affordable, reliable, and modern energy services.

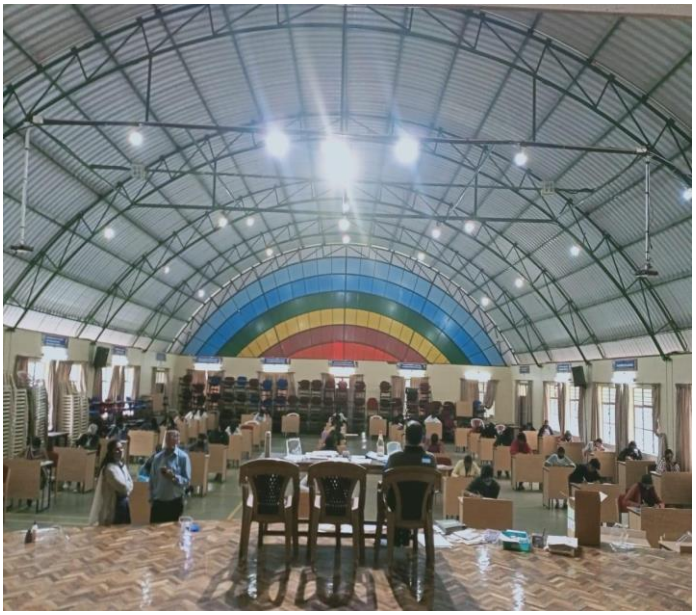
Increasing infrastructure and upgrading technology to provide clean and more efficient energy in all countries will encourage growth and help the environment.

Investing in solar, wind and thermal power, improving energy productivity, and ensuring energy for all is vital if we are to achieve SDG 7 by 2030.

The college has an excellent infrastructure for academic and residential purpose with the centralized gas facilities for laboratories and hostels. Exclusive high-power transformer for stabilized voltage and generator machines to support uninterrupted power supply to the campus is available.

The other goal is to implement and to replace all phosphorous bulbs with the LED bulbs.

Energy Efficient LED Lights



Energy Efficient LED Lights in Exam Hall

Power Generator

Power Generator

	
Electrical Control System	**Electrical Control System**
	
Centralized Gas Facilities	Centralized Gas Facilities
	

By 2030, increase substantially the share of renewable energy in the global energy mix.
The main goal of college is to implement solar street light at a pilot level. To replace all phosphorous bulbs with the LED bulbs in a short time.

	
Energy Efficient Sensor Lights	Energy Efficient Sensor Lights

A well-established energy system supports all sectors: from businesses, medicine and education to agriculture, infrastructure, communications and high-technology. Countries can accelerate the transition to an affordable, reliable, and sustainable energy system by investing in renewable energy resources, prioritizing energy efficient practices, and adopting clean energy technologies and infrastructure.

JSSAHER has enhanced installation of clean energy technologies for light appliances across the sections including solar based lighting and heating systems. It has initiated to install energy efficient and less pollution emission technologies in laboratories and classrooms.

JSSAHER has initiated advanced research on the production of renewable energy using solid waste and catalysts-based water treatment processes using natural sunlight as an alternative driving energy.

At the Institution level, solar panels have been installed which has considerably brought down the power consumption by at least 50% compared to earlier years. In order to set an example, the institution shares some of the electricity generated by solar energy to the local electricity board. Proper signages have been installed advising the users to always switch off the electricity when not in use.

Most of the lights have been replaced by energy saving bulbs and LEDs to save power. Continuous monitoring and maintenance of Air Conditioning, generators and other power appliances are being carried out to ensure that no power is being wasted under any circumstances.

7. Natural Lighting System

A Natural Lighting System has been fixed in the buildings within the Department which absorb sunlight. The absorbed sunlight is allowed to reflect among the small panels and most of the light is not allowed to refract due to aluminium foiling around the channel, leading to concentration of light which is then allowed to pass through the channel into the rooms.

8. Executive summary of Vermicompost plant

JSS Academy of Higher Education and Research is committed to its JSS AHER's Social responsibilities statement and vision to provide sustainable and eco – friendly campus. Under the initiative of Smart Campus JSSAHER has constructed 4 no's. of vermicompost units with the guidance of Dr. Arun Balamatti, Senior Scientist and Head, ICAR, JSS KVK, Suttur.

Sl. No.	Particulars	Details
1	Dimension of the Unit	15'0"(L) x 3'0"(B) x 3'0"(D)
2	No. of Units	04 units
3	Duration for Generation of Vermicompost per cycle	03 months
4	Generation of Vermicompost per unit a) Approximate quantity of (in kgs) b) Money Value *(100 kg x 4 units x 4 cycles x Rs. 10/- per kg)*	 100 – 125 kgs Rs. 16,000 per annum

Highlights of the Vermicompost:

a) Each unit is surrounded by a channel containing water to avoid entry of ants into the plant.

b) 2 units are covered by metacular sheet roofing to avoid falling of rainwater into the units.

c) Water point has been provided near the plant as per the requirement of plant in charge.

d) Constructed by using (400x200x150mm) 1'4"x0'8"x0'6" cement solid blocks with cement plastering internal as well external surface.

e) A sum of Rs. 1.27 lakhs is incurred towards construction of 4 units and Rs. 0.65 lakhs is incurred towards providing metacular sheets for 2 units.

f) Approximately, about 1,600 – 1,800 kgs of vermicompost is generated annually and the same is being used for the maintenance of inhouse gardening.






Details of Expenditure Incurred Towards Maintenance of Bio-Medical Wastage

Sl. No.	Particulars	Jan -June		TOTAL
		2019-20	2020-21	
1	JSS CPM	8,400.00	4,200.00	**12,600.00**
2	JSS DCH	219,324.00	109,494.00	**328,818.00**
3	JSS CPO	14,000.00	14,000.00	**28,000.00**
4	JSS MC	148,078.00	117,054.00	**265,132.00**
Total		**389,802.00**	**244,748.00**	**634,550.00**

Details of Normal and LED Lightings at Campus

Sl. No.	Location	Ordinary light	LED light
JSSMI Campus			
1	JSS AHER	0	100
2	Medical College	50	50
3	Dental college	85	15
4	Life science	90	10
5	Guest House	0	100
6	Boys hostel	0	100
7	Girls hostel	70	30
JSSCP Campus			
1	Pharmacy College	50	50
2	Boys hostel	0	100
3	Girls hostel	75	25

Calculation Of Energy For Electrical Appliances

Appliance	Power used in (watts)	Power used in (KWH)	Usage per day (hours)	Number of Appliances (No's)	Average KWH per day	Average KWH per month (24Days)
CFL	18	0.018	4	143	10.30	247.10
LED 4 feet tube light	20	0.02	6	2067	248.04	5952.96
LED 2 feet tube light	10	0.01	4	846	33.84	812.16
LED surface/down light	15	0.015	5	1573	117.98	2831.40
LED Bulb	9	0.009	6	297	16.04	384.91
FAN	50	0.05	6	2537	761.10	18266.40
ordinary Tube light fitting	72	0.072	6	1779	768.53	18444.67
Led fancy light	20	0.02	1	40	0.80	19.20
Geyser	2000	2	0.5	54	54.00	1296.00
Streetlight	50	0.05	12	105	63.00	1512.00
Heat pump water heater	75000	76	2	18	2736	65664
Motors	46336	46.33	3	14	1945.86	46700.64
Total					**6755.48**	**162131.45**

Expenditure Incurred Towards Maintenance of Green Campus during the Financial Year 2017 - 18 to 2019 - 20

Sl. No.	Name of the Institutions	2017 - 18	2018 - 19	2019 - 20	Total
1	JSSMI Campus	2,080,417.00	2,392,412.00	2,282,592.00	**6,755,421.00**
2	JSSCPM Campus	349,310.00	480,214.00	371,783.00	**1,201,307.00**
3	JSSCPO Campus	6,427.00	7,216.00	11,181.00	**24,824.00**
4	**TOTAL AMOUNT**	**2,436,154.00**	**2,879,842.00**	**2,665,556.00**	**7,981,552.00**

Consolidated details of expenditure incurred towards Fuel (for the vehicles) at JSS AHER & its Constituent Colleges, Mysuru for the month from January 2019 to June - 2020

Sl No.	Year / Month	Name of the Institution					Total Amount *(in Rs.)*
		JSS AHER, Mysuru	JSS Medical College, Mysuru	JSS Dental College and Hospital, Mysuru	JSS College of Pharmacy, Mysore	JSS College of Pharmacy, Ooty	
1	January 2019	38,959.64	-	17,662.54	18,983.64	13,691.00	89,296.82
2	February 2019	52,151.50	-	18,255.00	27,256.47	30,206.00	1,27,868.97
3	March 2019	52,357.02	1,38,482.00	13,329.45	24,775.82	46,036.00	2,74,980.29
4	April 2019	55,185.60	1,12,385.00	18,441.05	23,731.00	39,105.00	2,48,847.65
5	May 2019	40,297.23	1,11,519.00	15,757.55	14,592.70	40,270.00	2,22,436.48
6	June 2019	52,139.05	1,13,169.00	14,378.40	15,617.65	32,640.00	2,27,944.10
7	July 2019	33,647.54	1,42,776.00	15,220.49	20,015.91	30,296.00	2,41,955.94
8	August 2019	34,669.20	1,77,912.00	28,334.76	15,608.45	34,847.00	2,91,371.41
9	September 2019	40,637.41	1,25,636.00	13,716.93	28,114.87	30,130.00	2,38,235.21
10	October 2019	51,176.74	1,99,208.00	9,700.00	18,676.15	33,123.00	3,11,883.89
11	November 2019	51,832.59	1,74,855.00	17,011.85	24,292.85	40,624.00	3,08,616.29
12	December 2019	38,244.62	1,14,880.00	11,536.10	25,459.23	22,657.00	2,12,776.95
	Total	**5,41,298.14**	**14,10,822.00**	**1,93,344.12**	**2,57,124.74**	**3,93,625.00**	**27,96,214.00**
1	January 2020	61,025.84	1,55,135.00	18,112.00	28,046.54	21,437.00	2,83,756.38
2	February 2020	42,173.00	1,45,725.00	15,994.22	28,422.07	35,536.00	2,67,850.29
3	March 2020	64,061.83	1,10,218.00	14,573.04	15,570.53	28,541.00	2,32,964.40
4	April 2020	-	-	-	-	-	-
5	May 2020	19,698.90	55,338.00	-	3,176.00	6,036.00	84,248.90
6	June 2020	35,858.36	64,827.00	5,413.21	4,145.40	3,202.00	1,13,445.97
	Total	**2,22,817.93**	**5,31,243.00**	**54,092.47**	**79,360.14**	**94,752.00**	**9,82,265.54**

N.J.Devarajareddy, M.Sc.,
Hydrogeologist & Rain water harvesting Consultant.
Geo Rain Water Board (R)
Opp. Ayyappaswamy temple, M.H. Road,
Chitradurga, Karnataka,

Mobile: 9448125498
Res: 08194-225458
E-mail: devraj05@gmail.com
Blog: http://georainwaterboard.blogspot.com

Date: 21-6-2019

TO
JSS Medical College
JSS Academy of Higher Education
Mysore
Karnataka

Dear Sir,

Sub: - Rain water harvesting & Bore we recharge works Visit report from Geo Rain Water Board (a NGO) at your esteemed JSS Medical College Campus, Mysore

* * * * *

I wish to inform you that, I the undersigned ***Sri N.J.Devaraja Reddy*** as a Chief Consultant under Geo Rain Water Board (a NGO), Chitradurga since 2000 in and around Karnataka State. I have carried out and served for various types of project works related to Rain Water Harvesting and Ground Water Recharging structures for Rural and Urban Communities. The details of works and projects carried out by our Organization is enclosed for your kind reference.

ABOUT OUR ORGANIZATION :

We take liberty to inform your good self regarding our organization and activities all over Karnataka. We have installed more than30,000 Bore-wells with recharging system and 5500 Roof Top Rain Water Harvesting System , Ten Lakh different species of plants throughout Karnataka and parts of Andhra Pradesh.

During past 32 years of our operation, Quality and Quantity of water has improved wherever we have applied Rain Water Harvesting system. We took almost 25 years to come through in this method of recharging successfully by continues research.

We have well Trained Team with Technical Expertise to handle the installation of recharging properly.

At some places even dried Bore-wells have become rejuvenated and PH value of water has improved and **salinity, TDS and fluoride** content of water has decreased considerably.

We have enclosed list of some of our clients who have installed this system at various places in Karnataka and parts of India.

DETAILS OF VISIT :

With reference to the above-cited subject and reference, I have personally visited Your Esteemed JSS Medical college campus Mysore on 21-6-2019

DETAILS :

Name	**:**	JSS Medical College.
Location	:	Mysore
Type of soil	:	Red Soil
Water Quality	:	Medium
Rainfall	:	1200 mm (ave.) per year.
Vegetation	:	teak garden well maintained
Rock type	:	Granitic gneiss Hard Rock
No. of Bore-wells Drilled	:	around 10 Nos
Water conservation Works	:	No.
Daily Consumption of Water	:	3 lakh Litters/ Per day.

REPORT :

Based on the Geological, Hydro Geological, Geo Morphological, & Environmental study we have observed the following things. At JSS medical,college campus Mysore Is depending upon the Bore well and corporation water supply.

Due to hard rock in the subsurface water-holding capacity is less. Runoff is more. Almost 95% of rain water sources are moving to nearby tanks.

Water conservation works not done scientifically in the JSS medical college campus premises.

High Intensity of rainfall in these areas.

Water quality in the subsurface is hard water.

The depth of bore wells more than 1000 feet, the Diameter of Bore wells 160 mm

MEASURES TO BE TAKEN :

A) Bore well recharge system for 8 Bore-wells
B) Farm ponds for 4 bore wells 30x60x 8 ft deep
C) Rain water storage tank 1 lakh litters Capacity all the blocks
D) Rooftop Rain water harvesting system for all the blocks
E) Trench cum bunds , Boundary Glirecedia plantation

A) Bore well Recharge Estimate

Bore well recharge is an ideal concept to improve ground water in the dry bore wells at JSS Medical college campus, 8 No of bore wells are drilled all the bore wells less yield. The bore well site is ideal for recharging. Bore well water quality& TDS is very high; due to continuous pumping the water yield in the bore wells may be reduced. Every year the TDS percentage increasing in your bore well because of depleting the ground water levels. By implementing the above said modern techniques and scientific

methods; you will surely gain the sufficient groundwater in the bore wells for Your JSS medical college campus Mysore.

Your Scope **Material required for one Bore well Recharge**

Sl. No.	*Description /Quantity*	*Each BW*
1	Bore well recharge pit – Earth work Excavation around bore well JCB/ITACHI/LABOUR	8x8x10 ft Deep
2	Boulders 6" To 8" Size Small Boulder	2 00 CFT
3	40 mm dia jelly	200 CFT
4	20 mm dia jelly	200 CFT
5	6mm chips Jelly	200 CFT
6	Labor Charges for laying all the above materials in layers	8 No
7	5 or 6 ft Dia Concrete Rings 2 No	2 No
8	Lead off drain For rain water Flow , silt Trap ,etc , depending upon the bore well Site condition	Bore well
9	Cement 1 Bag/Bore well	1 Bag
10	Charcoal 2 Bags/BW	40 KG/Bw
11	Water Test	
12	Painting to Casing Pipe	
13	Water Flow Meter	
14	Required Quantity of PVC Pipes up to bore well recharge unit	
15	Rain water flow channel stone work etc	

CONSULTANCY CHARGES FOR ONE BORE WELL RECHARGE WORK

Sl. No.	***Description***
1	**Consultancy Charges**:-Designing one Bore well recharge structure consultancy services supervision for each Borewell, study the litho logy making decisions in the spot.
2	Bore-well recharge filter materials like **AQUAMESH**
3	NYLON MESH FILTER
4	SAND FILTER
5	HDPE NET MAT
6	Casing pipe holding bracket with bolts and nuts
7	Technical person for preparing filter bed, fixing of filters to the casing pipe Completion of Work
8	Filters Binding material
	Total RS 25,000 /ONE BORE WELL Conveyance charges Rs 10,000 Preliminary survey charges 21.6.2019 Rs 10,000

Note: Taxi charges for materials transport not included

RAIN WATER HARVESTING

Sl. No.	***Description***	***Charges***
1	Your scope /Rain water harvesting for Each Building Plumbing work up to sump tank as per our direction pipe size fittings, plumber work etc up to sump tank	Your scope
2	**Consultancy Charges**:- Plumber charges fixing is our scope	15,000
3	Rain water purification filters	15,000

RAIN WATER HARVESTING IS ESSENTIAL BECAUSE :

1 Surface water is inadequate to meet our demand and we have to depend on ground water.
2 Due to rapid urbanization, infiltration of Rain Water into the sub soil has decreased drastically and recharging of ground water has reduced.
3 Capturing Rain Water in the land and augmenting water supply at a marginal cost.
4 Reducing pollution and contamination
5 Reducing the water bill.
6 Providing clean and safe water
7 Least capital investment with maximum benefits at household, industrial Agriculture levels.
8 To reduce power consumption.

By installing the above methods, conservation of Rain Water Harvesting at your JSS medical college Mysore it can be done effectively.

By implementing Rain Water Harvesting Technology, water quantity and quality gets improved. The water stored in Lakes can be used for Industrial purposes, Drinking, Cooking & Plantation also. This will keep the environment green.

Humidity of surrounding environment automatically improves; Temperature reduces 2-3^{0}C compared to adjacent areas (This is called as "**Micro-Climate Area**").

Note: Follow-up of work should be done immediately as per our guidelines and measures to be taken in this regard so as to implement effective green belt development & RWH works.

All materials like boulders, sand, jelly, charcoal and works like Earthwork excavation, PVC pipes fittings, plumbing Masin work (For Rain Water Harvesting) should be arranged by your side.

We are planning JSS medical college campus it is one of the Eco-Friendly Education Institution also a resource center for all the above said activities.

CONCLUSION :

Before monsoon rainy season we should complete the work.

Scientific way with rain water harvesting with expert guidance

Save Rain water save the mother Earth ……

Thanking you,

Yours Truly,

(N.J. DEVARAJA REDDY)
CEO
Geo Rain Water Board, Chitradurga

Expenditure Incurred Towards Electricity Charges during the FY 2017 - 18 to 2019 - 20

Sl. No.	Name of the Institutions	2017 - 18	2018 - 19	2019 - 20	Total
1	JSSMI Campus	3,315,111.00	3,008,695.00	2,202,543.00	**8,526,349.00**
2	JSSCPM Campus	3,229,400.00	3,726,861.00	3,489,220.00	**10,445,481.00**
3	JSSCPO Campus	3,775,885.00	3,464,457.00	3,805,025.00	**11,045,367.00**
4	JSSAHER Off Campus Block	385,003.00	665,111.00	1,023,156.00	**2,073,270.00**
5	**TOTAL AMOUNT**	**10,705,399.00**	**10,865,124.00**	**10,519,944.00**	**32,090,467.00**

JSS Academy of Higher Education & Research
(Deemed to be University)
Accredited 'A+' Grade by NAAC
Sri Shivarathreeshwara Nagara
Mysuru – 570 015, Karnataka, INDIA

JSS Academy of Higher Education & Research

Mysuru

"Waste disposal Policy"

"Reduce – Recycle – Reuse" is a social responsibility, let us work together for a better tomorrow

Waste disposal Policy Statement

This policy document contains information on the procedure being followed at the JSS Academia of Higher Education & Research and its constituent colleges and departments. The document is prepared based on the Central Pollution Control Board, Govt of India and Karnataka State Pollution Control Board guidelines. The document will undergo revision as and when the central pollution control board makes amendments / changes and also as per the academia documentation policy. Sharing or copying the information in written, photocopy or any other mode without prior consent of the academia is discouraged.

Key personnel in waste disposal management

S No	Waste Disposal Activity	Function	Key Personnel	Contact details
1	Solid waste	Supervision of Collection and disposal	Mr Prashanth	9980613010
2	Green waste	Supervision of Collection and disposal	Mr Shivamanju	9886260635
3	E-waste	Supervision of Collection and disposal	Dr Ravindra	8105278665
4	Radioactive waste	Supervision of Collection and disposal	Dr Mahesh KP	9845189703
5	Biomedical waste	**Supervision of collection and disposal of Biomedical waste disposal** ▪ Collection ▪ Segregation at source ▪ Packing and Transport to central storage area ▪ Storage and Handover to CBMWTF	Dr Saravana Babu C	9042222277
		Disposal	Mr Umesh	9900970844
		Updating of biomedical waste register		
		Updating and Display of reports on website		

JSS Academy of Higher Education & Research

JSS Academy of Higher Education & Research (JSS AHER), formerly known as JSS University, is a deemed to be university located in Mysore, Karnataka. It was established in the year 2008 under Section 3 of the UGC Act 1956. JSS AHER is recognized by MHRD and accredited with A^+ Grade (CGPA of 3.47 out of 4) by National Assessment and Accreditation Council (NAAC) during re-accreditation in 2018. National Institutional Ranking Framework (NIRF) has listed JSS AHER at 37 ranks in the Universities Category. JSS AHER has the credit of being the top YOUNG University in the Karnataka State Universities Rating Framework (KSURF).

JSS AHER focuses on Medical and health-sciences studies through its constituent colleges, JSS Medical College, JSS Dental College & Hospital, JSS College of Pharmacy, Mysuru and JSS College of Pharmacy in Ootacamund, Faculty of Life Science. With a view to extend the academic horizon in the field of Health Sciences, Faculty of Life Science & Faculty of Health System Management was formed. Water health, HSMS, W&H

WASTE MANAGEMENT POLICY

Scope

This document provides information on the procedure being followed on waste management in the Deemed to be University

Applies to

All the teaching and non-teaching faculties, contractors and housekeeping staff

Preamble

Definitions

"Authorization" means permission granted by the Deemed to be University for the generation, collection, reception, storage, transportation, treatment, processing, disposal or any other form of handling of bio-medical waste in accordance with the rules and guidelines issued by the Central Pollution Control Board, Govt of India.

"Authorized person" means a person authorized by the Deemed to be University to generate, collect, receive, store, transport, treat, process, dispose or handle bio-medical waste in accordance with the rules and guidelines issued by the Central Pollution Control Board, Govt of India

"Biological" means any preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in the diagnosis, immunization or the treatment of human beings or animals or in research activities

"Bio-medical waste" means the wastes generated during the diagnosis, treatment or immunization of human beings or animals or research activities

"Bio-Medical Waste Treatment and Disposal Facility" means the facility wherein treatment, disposal of bio-medical waste or processes incidental to such treatment and disposal is carried out, and includes common bio-medical waste treatment facilities

"Handling" in relation to bio-medical waste includes the generation, sorting, segregation, collection, packaging, storage, loading, transportation, unloading, treatment, destruction, transfer, disposal of waste.

"Healthcare facility" means a place where diagnosis, treatment or immunization of human beings is provided irrespective of type and size of health treatment system, and research activity

"Occupier" means a person having day to day administrative control over the clinic / lab generating bio-medical waste, which includes a hospital, mortuary, anatomical wastes, pathological laboratory, animal house, blood bank, irrespective of their system of medicine

"Operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste.

"Prescribed authority" mean the State Pollution Control Board in respect of State and Pollution Control Committee in respect of Union Territory. In Karnataka it is Karnataka State Pollution Control Board (KSPCB)

"Point of Generation" means the location where wastes initially generate and accumulate.

"Storage" means the holding of biomedical waste for a temporary period at the end of which the bio-medical waste is treated or disposed.

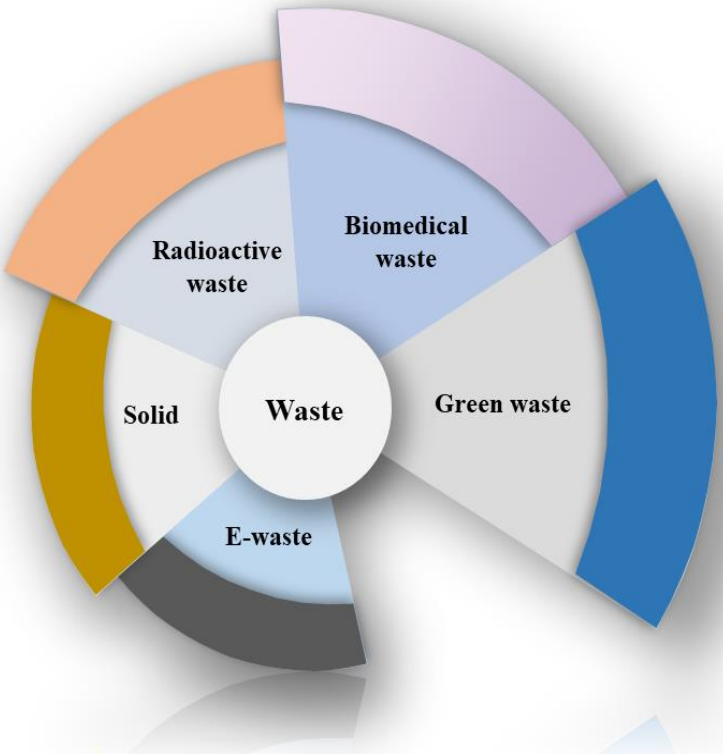
"Treatment" means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological characteristics or composition of any hazardous waste

"Waste" any substance which is discarded after the primary use, or it is worthless, defective, and of no use

Policy

Classification of waste generated from the University, hospital and laboratories:

- **General solid wastes**: Domestic garbage, food and food packing materials, papers and cardboards, construction and demolition debris, sanitation residues, packaging materials, usually disposed through municipality
- **Bio-medical wastes**: Solid or liquid wastes including containers, intermediate or end products generated during diagnosis, treatment & research activities of medical sciences.
- **Green waste**: Wastes generated from gardens and herbal gardens activities. These substances are mostly biodegradable.
- **Radioactive wastes**: Waste containing radioactive materials. Usually these are byproducts of nuclear processes. e.g. radio-isotopes, chemical sludge etc.
- **E-wastes**: Electronic wastes generated from electrical or electronic devices. Electronic scrap components, such as CRTs, may contain contaminants such as Pb, Cd, Be or brominated flame retardants.



Procedure

General Wastes

It constitutes all the waste other than bio-medical wastes and which has not been in contact with any hazardous or infectious, chemical or biological secretions and does not includes any waste sharps. This waste consists of mainly:

1) Newspaper, paper and card boxes (dry waste)
2) Plastic water bottles (dry waste)
3) Aluminum cans of soft drinks (dry waste)
4) Packaging materials (dry waste)
5) Food Containers after emptying residual food (dry waste)
6) Organic / Bio-degradable waste - mostly food waste (wet waste)
7) Construction and Demolition wastes

These general wastes are further classified as dry wastes and wet wastes and should are collected separately. The quantity of such waste is around 80 % to 90 % of total waste generated from the University, hospital and laboratories.

Food wastes

Food wastes from the hostels are collected in closed containers in respective collection area and are taken to piggery to feed the pigs. Food waste is disposal ensured through third party contract. Pilot trials under process to convert food waste in to organic manure and biogas

Green waste

The dried / wet plants materials such as leaves, stem, trunk, roots, flowers etc collected or cut or shred from the garden. Approximately 20 tonnes per year green waste is generated from the campus. The collected materials are processed in pits and approximately 12 tonnes of manure are prepared from the green wastes which are used for gardening purpose spread over in different locations of the campus.

Construction and Demolition waste

As part of infrastructure development in the Deemed to be University, as and when renovation or new construction are planned, the solid debris generated are cleared from the campus through the contractors taking-up the construction work. These wastes are disposed through trucks and used as landfill (approximately 5 acre) at Belavatha site located 1 km from the main campus

E-waste

Electronic wastes – computers, televisions, circuit boards, hard disks, printers and copiers, used batteries, which are not covered under biomedical wastes are disposed as and when such wastes are generated as per the provisions laid down under E-Waste (Management) Rules, 2016, Batteries (Management & Handling) Rules, 2001, and Rules/guidelines under Atomic Energy Act, 1962 respectively. This is outsourced through third part contract.

Radioactive isotopes

Dept of Radiology, JSS Dental College and Hospital, is practising a safe way of radiology waste disposal as required by the Bhabha Atomic Research Centre (BARC), Govt of India, since decades. Following are the radiology wastes generated at JSSDC & H

1. Fixing Solution.
2. Lead foils.
3. Radiographs (X- Ray Hard copies).
4. Developer Solution.

Depleted Fixing solution is given to a private agency party (Amaron, Pit stop) to recycles and extract silver from it. The same is followed in the case of x-ray films once, which were collected for so many years excluding the last 10 years record. Lead foils are collected over a period of time and are given to battery manufacturers for recycling. Depleted Developing solution is with excessive water and disposed in drains as suggested by BARC.

"Bio-medical waste" means waste that are generated during diagnosis, treatment or immunization of human beings or animals or research activities or in the production or testing of biologicals. Medical waste includes all the waste generated from the Health Care Facility which can have adverse effects on the human health or to the environment in general if not disposed properly. In general, the quantity of biomedical waste will be 5% to 10% of total waste generated from the campus, hospitals and laboratories. These wastes consist of the materials originated patient or animals blood, secretions, infected parts, biological liquids such as chemicals, medical supplies, medicines, lab discharge, sharps metallic and glassware, plastics etc.

Bio Medical Waste Management Rules, 2016 categorizes the bio-medical waste generated from the health care facility into four major categories based on the segregation pathway and colour code:

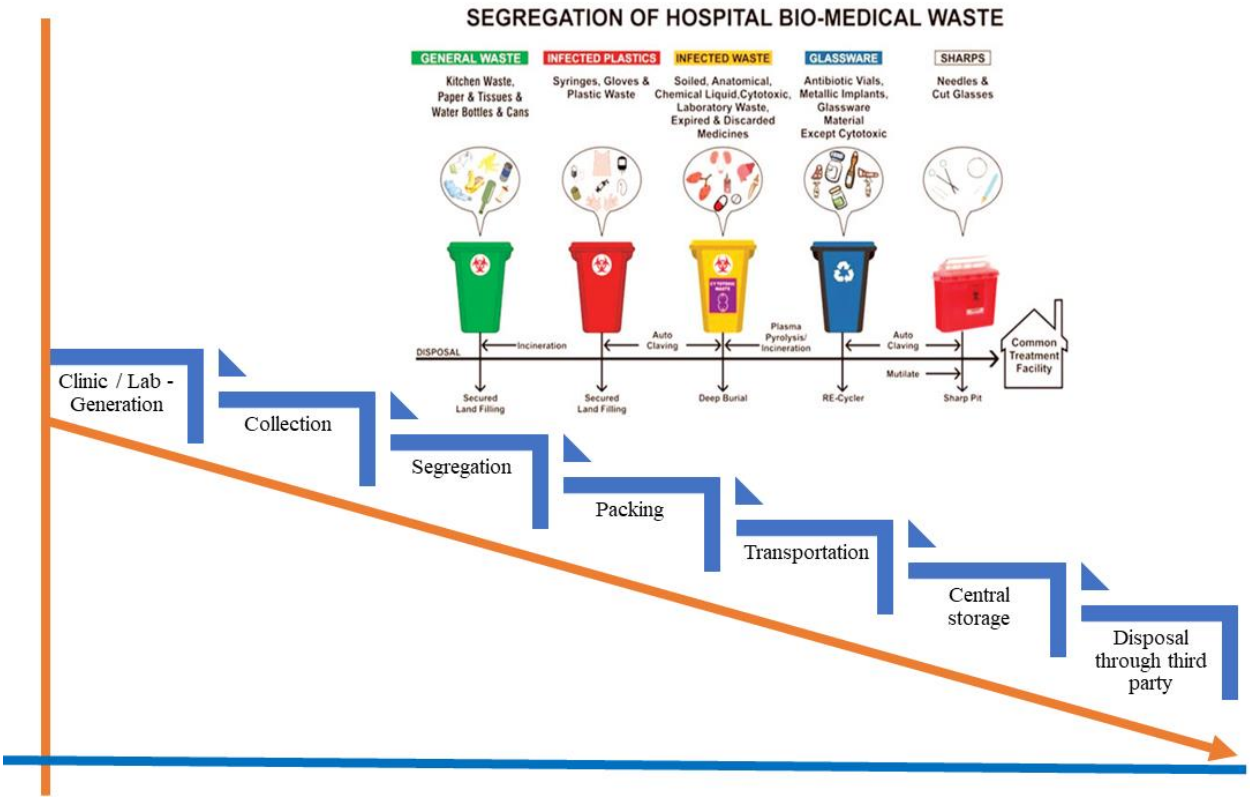
1. **Yellow Category**
2. **Red Category**
3. **White Category**
4. **Blue Category**
5. **Black Category**

S.No	Category	Type of waste	Color & Type of container
1	YELLOW	➢ Human Anatomical Waste ➢ Animal Anatomical Waste ➢ Soiled Waste ➢ Discarded or Expired Medicine ➢ Microbiology, Biotechnology and other clinical laboratory waste ➢ Chemical Waste ➢ Chemical Liquid Waste	Yellow colored Non-Chlorinated Plastic Bags (having thickness equal to more than 50 µ) or containers  Note (i) Infected secretions, aspired body fluids etc from laboratory are disinfected before mixing with another wastewater (ii) Liquid chemical wastes are pre-treated/ neutralised before mixing with other wastewater from hospital.
2	RED	➢ Contaminated Waste (Recyclable)	Red Colored Non-Chlorinated Plastic Bags (having thickness equal to more) 
3	WHITE	➢ Waste Sharps including metals	White Colored translucent, puncture proof, leak proof, Temper Proof containers 
4	BLUE	➢ Glassware ➢ Metallic Body Implants	Cardboard boxes with blue colored marking or blue colored puncture proof, temper proof containers 

BIOMEDICAL WASTE SEGREGATION

Biomedical waste generated from the hospital and laboratories are segregated at the point of generation as per the colour coding stipulated under Schedule I of BMWM Rules, 2016.

- Personnel Protective Equipment are provided to the bio-medical waste handling staff.
- Waste are segregated at the point of generation of source and not in later stages. “Point of Generation” means the location where wastes initially generate, accumulate and is under the control of doctor / nursing staff / lab etc. who is providing treatment to the patient / animals and in the process generating bio-medical waste.
- Posters / placards for bio-medical waste segregation are installed at the point of generation.
- Adequate numbers of colour coded bins / containers or bags are available at the point of generation of bio-medical waste.



BIO MEDICAL WASTE COLLECTION

Time of Collection

- Bio-medical waste should be collected on daily basis from each ward of the hospital / lab at a fixed time. There can be multiple collections during the day. All the biomedical waste should collected, segregated, packed and sent to central biomedical waste storage every evening before 4.30 pm
- Clinics and labs should ensure collection, transportation, and disposal of bio-medical waste within 48 hours.
- Bio-medical waste bags and sharps containers should be filled to no more than three quarters full. Once this level is reached, the bags are tied or sealed with plastic tags.
- Replacement bags or containers are available at each waste-collection location so that full ones can immediately be replaced.
- All the bags and containers to be transported to CBWTF are labeled with following details:
    - Date of Generation
    - Type of waste category
    - Dept name
    - Contact Person Name and Phone Number

Interim Storage

Interim storage of biomedical waste is discouraged in the clinics / labs

- If waste is needed to be stored on interim basis in the departments it is stored in the dirty utility/sections.
- In absence of dirty utilities/ sections such BMW must be stored in designated place away
- No waste is in patient care area / working area and procedure areas

General waste should not be collected at the same time or in the same trolley in which bio-medical waste is collected.

Labeling

All the bags/ containers/ bins used for collection and storage of bio-medical waste, are labelled with the warning Symbol of Bio Hazard or Cytotoxic Hazard as the case may be as per the type of waste in accordance with the BMWM Rules, 2016.

Bio-Hazard Label

Cyto-Toxic label

In-house Transportation of Biomedical waste

Transportation Trolleys & Carts

In-house transportation of biomedical waste from site of waste generation/ interim storage to central waste collection, with in the premises is done in closed trolleys/containers fitted with wheels for easy maneuverability. Such trolleys or carts are dedicated only for the purpose of biomedical waste transportation.

Waste Collection Cart

Waste Transport Trolley for a Particular category of waste

Route of transportation is planned in such a way that:

- Transportation does not occur through traffic and high-risk areas
- Supplies and waste are transported through separate routes
- Central waste collection area is accessed easily through the route adopted

Central waste collection area – for temporary storage

A central collection center situated within its premises for storage of bio-medical waste, till the waste is transported for treatment and disposal to CBMWTF. Center storage is manned and is under lock and key under the responsibility of a designated person. Central collection area has proper ventilation through the use of exhaust fan, hand wash area, weighing balance etc.

- Location of central waste collection facility is away from the public/visitors' access.
- The space allocated for collection is sufficient for the quantity of waste generated from premises
- Space is sufficient to store at least two days generation of waste
- Center has a concrete ramp for easy transportation of waste collection trolleys
- Flooring is of tiles with slope so as to easy the cleaning of the area
- Center has good ventilation through the use of exhaust fan and by use of wire meshes window
- Central storage station ensured for fire hazard like installation of fire extinguisher, smoke detector etc.
- Water supply is provided for cleaning and washing of this station containers. The drainage from the storage and washing area is routed to the effluent treatment plant (ETP).
- Sign boards indicating relevant details such as contact person and the telephone number is provided.
- It is ensured that no general waste is stored in the central waste collection area.
- Healthcare facilities need to maintain the record of waste generated and handed over to the authorized recycles.
- Centre is protected from stray animals in the academia and has installed cattle traps at main gate
- Pest control program is in place

Colour codes for Biomedical waste collection and Packing

				
▪ Human and animal anatomical wastes ▪ Soiled wastes, ▪ Discarded or expired medicines ▪ Chemical wastes, ▪ Blood and body fluids ▪ Microbiology / Biotechnology wastes	▪ Contaminated waste (recyclable)	▪ Sharps including metals ▪ Needles ▪ Scalpels ▪ Blades	▪ Broken and contaminated glass including vials and ampoules ▪ Metallic body implants	▪ Food items ▪ Papers / paper plates, ▪ Water bottles, etc

References

- https://kspcb.gov.in/aboute.html (Bio-Medical Waste Management Rules, 2016)
- https://kspcb.gov.in/aboute.html (Construction & Demolition Waste Management Rules, 2016)
- https://kspcb.gov.in/aboute.html (E-waste Management Rules 2016)
- https://kspcb.gov.in/aboute.html (Solid Waste Management Rules, 2016)
- http://www.barc.gov.in/randd/rwm.html (Bhabha Atomic Research Centre)

JSS ACADEMY OF HIGHER EDUCATION &RESEARCH

Energy Conservation & Recycling Policy

Introduction

JSS Academy of Higher Education & Research (JSSAHER) is conscious of its responsibility and role in materialising its green policy using renewable energy, management of its water resources, and disposal of waste.

Purpose

In order to minimize energy usage, improve the efficiency of all energy/ resources (natural resources, water, electricity) consuming systems and equipment, and improve the environment in all facilities, JSS Academy of Higher Education & Research has adopted an energy / resources conservation and recycling policy.

Definitions

- Energy conservation : Energy conservation is a practice of decreasing the quantity of energy used and achieved through efficient energyuse.
- Recycle: Recycle is a process of collecting and reprocessing materials that would typically be consideredwaste.

Policy

Conservation of energy and natural resources and recycling process is an integral part of JSS Academy of Higher Education & Research (JSSAHER) facilities' design and usage. The JSSAHER employs a variety of energy conservation, recycling, and other techniques to lessen the consumption of resources and achieve the lowest feasible life cycle costs. However, occupant health, safety, comfort, and program requirements shall always be the primary concerns. Energy conservation measures will be achieved by using the most cost-effective, energy-efficient approach with consideration given for flexibility of use and future remodeling convenience. Recycling efforts are encouraged at the Institution/departmentlevel.

Responsibilities

- All faculty, staff, students, design consultants, and construction contractors must observe energy and resource conservation measures employed by thecampus.
- The Campus Facilities Maintenance & Management Authority- Deputy Registrar shall be the principal coordinator of all design disciplines, which includes responsibility for the implementation of thispolicy.
- Constituent Colleges & Departments shall be responsible for internal energy conservation, recycling efforts.

Related Policies

The energy conservation and recycling policy of JSS Academy of Higher Education &Research (JSSAHER) supports:

- Smart Campus Policy of JSSAHER
- The Swachh Bharat Mission (Urban) guidelines- Government ofIndia.
- National conservation strategy and policy statement on environment and development- Government of India.

Energy conservation measures:

Light Bulb Replacement

- It is estimated that replacing traditional incandescent bulbs with CFLs/LED can cut lighting costs by up to 75%. JSSAHER, Constituent Colleges & Departments shall exchange such traditional incandescent bulbs across campus with CFLs/LED in a phased manner. Thus 75 % of the bulbs shall be changed with CFLs/LEDs by 2017.
- Sticker Reminders as part of their 'Energy Awareness Campaign' shall be placed on switch boards to remind everyone to conserve energy by turning off the lights.
- Small pamphlets emphasizing the importance of energy saving shall be prepared and circulated to all the staff and students of the college.
- Solar water heaters installed in colleges and hostels and especially for cooking, solar energy is utilized in the hostels and in guest houses. Step shall be taken to replace use of LPG completely with solar energy by 2020.

Water conservation

- Awareness program shall be held in campus once in 3 months for Sensitizing the staff and students
- The students in hostels shall be sensitized about water conservation in their orientation meetings.
- Printed stickers / labels with the slogan 'Save Water' to be fixed in strategic places of the college and hostels.
- Reducing car washing and the vehicles on the campus shall be washed based on the real needs rather than regular washing.
- The gardens shall be irrigated only with sprinklers and drip irrigation systems to save the wastage of water in plantations.
- All the existing flushes in the toilets to be changed into duel flush system in a phased manner.
- Sticker Reminders as part of the 'Energy Awareness Campaign' shall be placed near taps to

remind everyone to conserve water by reducing wastage and closing the tap.

Recycle

- Green wastes shall be composted and reused as composts manure.
- All the waste bins to be replaced with duel bins with tag and pictorial signs “biodegradable waste” & nondegradable waste”.
- The biowaste disposal shall be only through Government approved disposal service contracts.

Rainwater harvest

To meet the needs and sustainable management of fresh water, the rainwater harvesting and utilisation systems have been established in all the campuses of the JSSAHER to aid towards the greater objectives of water management and conservation and increasing recharge of groundwater by capturing and storing rainwater, rainwater harvesting from rooftop run-offs and natural waterbodies and the community development. The below-mentioned models are established in the various buildings based on the size of the building and the extent and topography of the land.

The systems include –

- Simple roof water collection systems - Most of the rooftop rainwater harvesting has been completed by constructing five water storage structures with a storage capacity of 1000 m3.
- Land surface catchments – a simple way of collecting rainwater by retaining the flows (including flood flows) of small creeks and streams in small storage reservoirs (on surface or underground) created by low-cost dams
- Collection of storm water – The surface runoff collected in stormwater ponds/reservoirs is subject to a wide variety of contaminants and every effort is made to keep these catchments clean

JSSAHER and the constituent colleges shall continue to establish a combination of the above techniques to have meet the groundwater needs.

Response of JSSAHER towards conservation of energy:

The staff and students of JSSAHER shall be aware of the following response of JSSAHER towards conservation of energy to support its activities:

- Green Policy to be strictly followed in all its campuses
- Maintenance of clean, green and smart campus – waste segregation and planned disposal of waste through authorized agencies only
- Disposal of biomedical waste, Chemicals, and e-waste as per the norms of the Government
- Pollution control Board
- No Smoking campuses
- Energy conservation strategies – use of CFL/LED lights
- Solar heaters and Air source heat
- Pumps in the hostels
- Plastic-free campuses
- Conservation of water resources - Rainwater harvesting and wastewater treatment
- Reducing paper communication
- Organizing Swachh Bharat Abhiyan and creates awareness and consciousness amongst students.

- Including a subject “Environmental Sciences” in all courses
- Organizing Environment Day and Water Day.
- Preserving traditional knowledge and herbal medicine. Established medicinal plants garden and promotes eco-friendly cultivation practices by organizing medicinal plants exhibition.

Responsible Office

Office of the Vice Chancellor, Registrar & Deputy Registrar
Office of Principal, Administrative Officer & Warden.

Approval& Implementation of the Policy

This policy has been approved by the Registrar and shall be reviewed annually by Deputy Registrar and shall ensure that continued progress is being made. The Campus maintenance committee shall advise on the sustainability agenda related conservation of energy.

The policy Effective Date

The energy conservation and recycling policy of JSS Academy of Higher Education & Research shall be effective from 1st December 2016. The revision of policy shall take place once in two years and (or) as per the suggestions made by campus maintenance committee on the sustainability agenda on conservation of energy.

Related Documents

1.Approval for bio waste disposal and E waste disposal at JSSAHER by Government approved disposal service contract.
2.Memerandum of understanding between service provider and JSSAHER.
3.Membership certificate from society for biomedical waste management.
4.Rainwater harvest plan.
5.Standard operating procedure for waste disposal

All the documents related to agreements made with service providers shall be maintained in the office of Registrar and Deputy Registrar , JSS Academy of Higher Education & Research, Mysuru.

Questions related to the daily operational interpretation of this policy shall be directed to Registrar and Deputy Registrar, JSS Academy of Higher Education & Research, Mysuru.

The Vice Chancellor, Registrar and Deputy Registrar of JSSAHER shall be the officials responsible for the interpretation and administration of this policy.

ENERGY CONSERVATION MEASURES

- Light Bulb Replacement
- Sticker Reminders as part of their 'Energy Awareness Campaign' is placed on switch boards to remind everyone to conserve energy by turning off the lights.
- Small pamphlets emphasizing the importance of energy saving shall be prepared and circulated to all the staff and students of the college.
- Solar water heaters installed in colleges and hostels and in guest houses.

ELECTRICITY – UNDERGROUND CABLE WORKS COMPLETED






Underground Cable works and power backup

POWER / ELECTRICITY (Power back up: 24 x 7)

JSSAHE&R has created the facility of providing 24 x 7 power / electric supply either in the form of power connection through CHESCOM / TNEB and in case of failure in power supply, generators are installed in all the campuses for providing uninterrupted electric / power supply.

Campus	RR No.	Contracted Demand in KVA	Motor Constant	Date of Connection / Service	Generator
JSSMI Campus	HT – 166	450 KVA	2500	May 1995	2 dedicated generators of 450 KVA & 500 KVA capacity is provided with auto switch over facility
JSSCPM Campus	HT – 384	150 KVA	750	May 1995	82.5 KVA & 160 KVA
JSSCPO Campus	HT - 107	150 KVA	200	May 1995	100 KVA, 125 KVA & 150 KVA capacity is provided

Solar Projects

At the Institution level, solar panels have been installed which has considerably brought down the power consumption by at least 50% compared to earlier years. In order to set an example, the institution shares some of the electricity generated by solar energy to the

local electricity board. Proper signages have been installed advising the users to always switch off the electricity when not in use.

Most of the lights have been replaced by energy saving bulbs and LEDs to save power. Continuous monitoring and maintenance of Air Conditioning, generators and other power appliances are being carried out to ensure that no power is being wasted under any circumstances

Emergency Power Backup & Smart Micro Grids

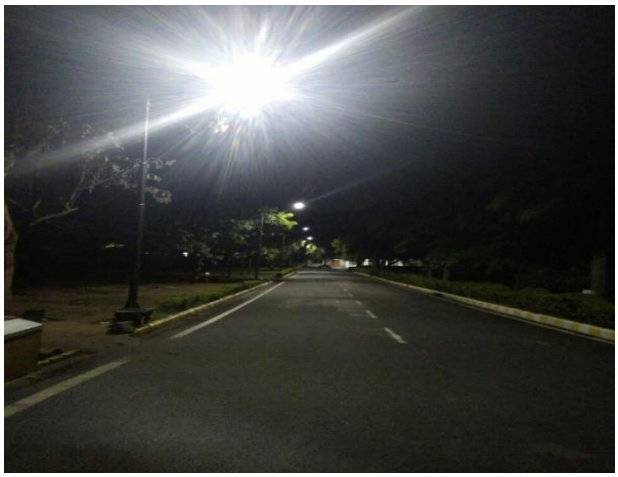

POWERICA
Cummins
POWERICA

Summary Of Power Generation With The Aid Of Solar Panels

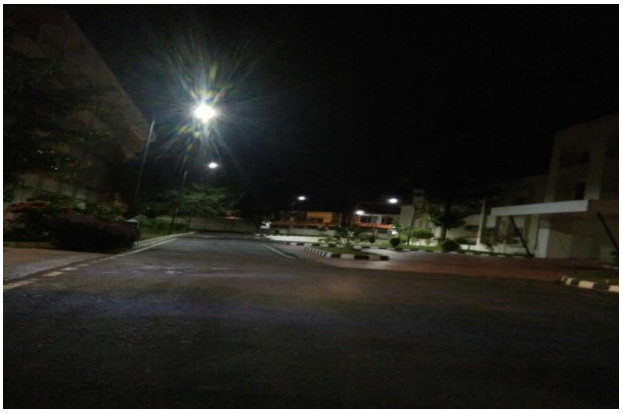
1	2				3		4		5	6
Month	KEB				Solar Units Generated		Total		KEB Rate	Saving
	A	B	C	D	A	B	A	B		
	Import Units KEB	Export Units from Solar	Actual Consumption of Units (2A-2B)	Amounts	Total Units	Amounts	Units	Amounts (2D+3B)		
Apr-19	144450	0	144450	1314716	0	0	144450	1314716	1314716	0
May-19	153225	0	153225	1419601	11909	73835.8	165134	1493436.8	1535134	41697.2
Jun-19	118150	75	118075	1096122	24708	153189.6	142783	1249311.6	1332678	83366.4
Jul-19	109425	450	108975	1023980	22879	141849.8	131854	1165829.8	1231164	65334.2
Aug-19	101250	1025	100225	944791	35607	220763.4	135832	1165554.4	1267196	101641.6
Sep-19	93125	4325	88800	850504	46215	286533	135015	1137037	1266547	129510
Oct-19	96375	7275	89100	852928	53755	333281	142855	1186209	1337953	151744
Nov-19	89025	10125	78900	764651	60973	378032.6	139873	1142683.6	1310793	168109.4
Dec-19	83575	9025	74550	720964	54812	339834.4	129362	1060798.4	1204710	143911.6
Jan-20	85600	3975	81625	781752	72663	450510.6	154288	1232262.6	1429742	197479.4
Feb-20	81425	17675	63750	628170	69004	427824.8	132754	1055994.8	1235333	179338.2
Mar-20	76300	19800	56500	560793	66086	409733.2	122586	970526.2	1132504	161977.8
Total	**1231925**	**73750**	**1158175**	**10958972**	**518611**	**3215388**	**1676786**	**14174360**	**15598470**	**1424110**

Proper Lighting

All the institutions campus of JSSAHE&R at Mysuru and Ooty are provided with LED lightings to promote security in the campus and to increase the quality of life by artificially extending the hours in which it is light and for the safety of hostel students.





GREEN, CLEAN, SAFE AND ECO FRIENDLY CAMPUS

1. Sustainable development practices of JSS AHER / Green campus maintenance in JSS AHER

JSSAHER has published books or compendium with respect to sustainable development practices / green campus maintenances followed by JSSAHER and its constituent colleges. Following practices are in place and is updating itself with growing requirement and changing environmental behaviour as the day to day activities.

a) SDG's is being aligned with the Smart Campus initiative documents.

b) Tree Survey Report – **JSSAHER is having 2828+ trees** *viz.,*

   a. 2,397+ trees with 52 varieties at JSSAHER Main Campus,
   b. 182+ of trees with 28 varieties at Mysuru Pharmacy College Campus and
   c. 249 of trees with 11 varieties at Ooty Campus.

c) Initiated for 3rd party evaluation of the green certification of JSSMI Campus, Mysuru.

d) JSSAHER is having rainwater harvesting tank and connectivity of about 30,000 ltrs storage. 10 no's of ground water and bore well recharge pits / points and 02 no. of infiltration tank of 15,000 ltrs capacity. One tank of 10,000 ltrs capacity is made for re-use of RO rejected water for gardening purpose. Water sprinklers are in place.

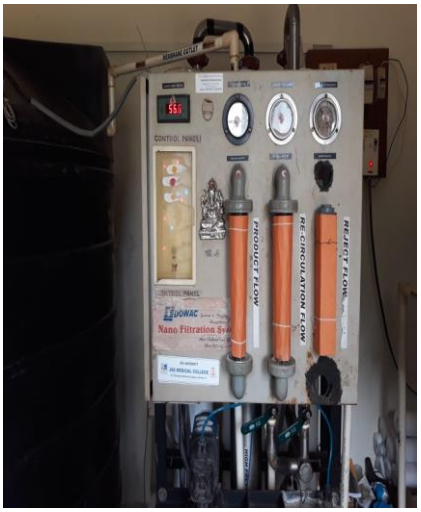
The Rainwater harvesting survey has been made

e) **Solar Roof Top project** has been completed in all respect and have started yielding power generation and presently more than 50% of the electricity requirement from electricity board.

f) **RO Waste Management:**

Sl. No.	Name of the Institutions	Capacity
1	JSS Medical Institutions Campus, Mysuru	3,000 Lph
2	JSS College of Pharmacy Campus, Mysuru	1,000 Lph
3	JSS College of Pharmacy Campus, Ooty	2,000 Lph





g) **Vermicompost:** Our Institute maintains a very good green carpet area and around 60% - 70% of the campus carries green environment. With a number of trees within the campus, accumulation of fallen leaves and other plant materials account to around 50 – 100 Kg of bio-waste which is being dumped and finally removed by external agencies. With the smart campus initiative gearing up, it is worthwhile to consider our own strategies to handle the waste generated within the campus. In this connection the vermicompost unit would come handy to handle the plant waste materials which not only will help us manage waste but also serves as a student centered project to produce bio-manure.

2. Smart Campus / Green Campus Activities - Published Report

Sl. No.	Greenery Initiative	Respective Pictures
1	Greenery / Plantation	
2	Prohibition on use of Plastic bags and bottles	
3	E – scrape	

4	Use of Incinerators	
5	Solar - *Power, Water Heater*	

3. Detail on Security Services.

a) **Security Agreement:** JSSAHER is availing security services from M/s. Classic Protection Force Pvt., Ltd., at Mysuru and M/s. Supreme Security Solutions at Ooty. Security personnel's work round the clock 24 x 7 with a combination of male and female security personnel's as per the requirement. Security work will be monitored through CCTV, and through whats app group on daily basis to ensure vigilance.

b) **CCTV Surveillance** JSSAHER is having **more than 300+** of CCTV surveillance installed **no's** *(Mysuru campus – 219 no's. + Ooty Campus - 90 no's)* to ensure the safety and security round the clock. Almost all the CCTV cameras will have around **one month back up.**

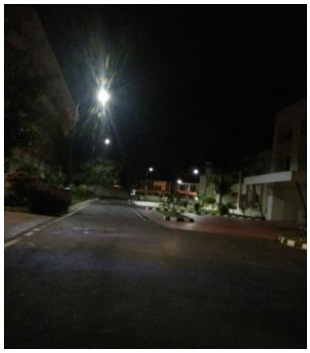
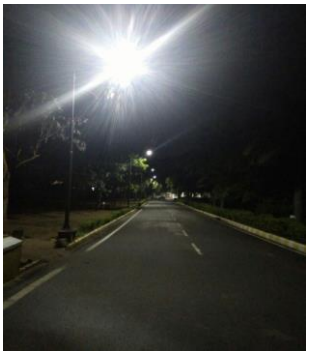
c) **High Raised Compound –** all the campuses of JSS AHER are having full protected with High Raised Compound and gated with security check point. Photos







d) **Proper / LED Lightnings:** All the institutions campus of JSSAHE&R at Mysuru and Ooty are provided with LED lightings to promote security in the campus and to increase the quality of life by artificially extending the hours in which it is light and for the safety of hostel students.


4. Details on Fuel Consumption

Sl. No.	Particulars	Amount (FY 2017 – 2020)
1	Electricity Charges a) KEB b) Generators	 3,06,08,875 26,26,044
2	LPG	51,45,000
3	Petroleum - Vehicles	9,82,265
4	Biogas	-
5	**TOTAL**	**3,87,70,506**

5. Waste Disposal Practice & Process – *Biodegradable / Non-Degradable / Hazardous/ Chemical / Biological Waste Etc.*

- Bio – Medical Waste Management Service is being availed since May 2003 (Dental & Medical) from M/s. Shree Consultants.
- Bio – medical waste management service is being availed (JSSCPM) from M/s. Gips
- Segregation and collection of dry and wet garbage is in practice.
- Color coded dustbins are provided across the campus.

6. Quantity of Waste Disposal & Agreement Copy of The Vendor –

- **All Bio Medical Wastes** generated in the campus is being disposed through the Bio Medical Disposable Certified Agencies.

- **ETP**: Environmental safety is matter of concern for all. These are the practices, policies and the procedures that we follow to ensure the safety and wellbeing of everyone around us. The safety concern from health professional point of view may include proper waste disposal, storage of toxic chemicals, prevention of water contamination with toxic chemicals and much more. Effluent treatment plant cleans this contaminated water from rivers and lakes and makes it available for safe use. The treatment method followed by ETPs includes the elimination of toxin from the water in order to generate safe and clean water which is released into the nature. In this process the influent contaminated water is treated to remove the sludge to produce effluent water which is safe enough to be released to our environment. Health sectors is also one such area that produces this water contaminated with chemicals and biological particles that needs to be treated with various methods to produce the water that can be reused for certain purposes like gardening. This is one initiative to be taken towards conservation of Mother Nature and thereby make this place safer for our near and dear ones.

- **Green & Garden Waste**: The dried / wet plants materials such as leaves, stem, trunk, roots, flowers or cut or shred etc from the garden are collected in the pits and treated. Approximately 20 tonnes per year green waste is generated from the campus. The collected materials are processed in pits and approximately 12 tonnes of manure are prepared from the green wastes which are used once in 2 – 3 months for gardening purpose spread over in different locations of the campus.

- **Food Wastes:** Food wastes from the hostels are collected in closed containers in respective collection area and are taken to piggery to feed the pigs. Food waste is disposal ensured through third party contract. Pilot trials under process to convert food waste in to organic manure and biogas

- **General Waste** – disposed through local municipal authority duly segregating as per the procedure.

- **Paper waste –**

Details of Disposal of Paper Waste ***(shredded answer sheets and other materials)***					
Cycle	**Year**	**Name of Contract**	**No. of Kg** ***(Approximately)***	**Amount received by selling of scrap**	**Amount spent on daily wages to Labour**
1st Cycle	2016	M/s. Syed Mansoor	9000	75,800	49,000
2nd Cycle	2019	M/s. SI & Son's Traders	6200	68,318	41,700
3rd cycle	2020	M/s. SI & Son's Traders	3200	31,600	25,700

7. Food Safety and Food Procuring Details and Documents *(January 2019 to June 2020)*

JSSAHER has registered all its hostel under FSSAI and has ensured that the Food Court Service Provider in all the campuses of JSSAHER is also registered under FSSAI.

Name of the Campus	FSSAI Registration No.	Period of License
JSS Medical Institutions Campus, Mysuru	11219335000510	25.09.2019 to 24.09.2022
JSS College of Pharmacy Campus, Mysuru	11219335000513	
JSS Hospital Campus, Mysuru	11219335000512	

Meanwhile, all the cooks, assistant cooks, helpers are oriented on maintenance of hygiene. The Chief Wardens, Wardens and Supervisors of the all the hostel blocks ensures that all food products that are purchased has ISI / fssai marks.

Following are the details of expenditure incurred by JSSAHER Hostels towards procurement of provisions and other necessary items for the Hostels.

Rupees in Lakhs

Sl. No.	Particulars	JSSMI Campus		JSSCPM Campus		JSSCPO Campus		TOTAL
		Girls Hostel	Boys Hostel	Girls Hostel	Boys Hostel	Girls Hostel	Boys Hostel	
1	Mysuru Milk Dairy	16.53	18.09	9.93	11.26	8.33	7.49	**71.63**
2	Vegetables & Fruits	21.54	18.55	23.65	26.51	19.28	20.12	**129.65**
3	Gas Services	7.47	7.71	8.54	8.47	8.88	9.36	**50.43**
4	S.L.V Iyengar Bakery	10.06	6.04	14.05	9.69	4.83	8.97	**53.64**
5	Jss Enterprises	30.07	36.48	31.34	34.65	38.70	38.75	**209.99**
6	Others	14.34	13.11	12.49	9.41	15.56	15.30	**80.21**
7	**TOTAL**	**100.01**	**99.98**	**100.00**	**99.99**	**95.58**	**99.99**	**595.55**