

**Techno India NJR Institute of Technology,**

**Udaipur**

**NAAC**

**7.1.6**

**Quality audits on environment and energy regularly  
undertaken by the Institute**

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TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY

## 1. Energy Audit.

Collection of experimental data:

All required data is collected by Department of Electrical Engineering. In building, in every room, how much fans, tube lights, bulbs, computers, instruments AC, etc will these measured. According to survey following data is collected.

Department/Office	Fan	LED Tube light	A.C.	Fridge	Computer	Printer	Scanner	Xerox Machine	Projector	LED TV
Director Office	2	6	2	0	1	1	0	0	0	0
Principle Office	4	9	2	0	0	1	0	0	0	0
Chemistry Lab	11	16	0	0	0	0	0	0	0	0
Physics Lab	3	6	0	0	1	0	0	0	0	0
Chairperson Room	1	2	1	0	0	0	0	0	0	0
Account Dept	4	2	1	0	3	1	1	3	0	0
Exam Dept	4	5	0	0	2	1	1	1	0	0
Staff Room	18	30	5	0	25	18	5	0	0	0
Library	8	16	0	0	3	1	1	1	0	0
Classrooms	102	216	0	0	7	0	0	0	8	0
Pantry	1	3	0	1	0	0	0	0	0	0
Seminar Hall	8	16	5	0	1	0	0	0	1	0
Wash room	0	18	0	0	0	0	0	0	0	0
Passage	0	60	0	0	0	0	0	0	0	0
Dept Labs	158	256	20	0	424	0	0	0	8	2
I3 Lab	11	21	4	1	11	3	1	0	1	2
Mechanical Workshop	20	30	0	0	1	0	0	0	0	0
Hostel	30	40	0	0	3	0	0	0	0	0
Canteen	15	16	0	3	0	0	0	0	0	0
Main Entrance	6	16	0	0	0	0	0	0	0	0
Gym	12	15	0	0	0	0	0	0	0	1
Visiting Room	1	2	0	0	0	0	0	0	0	1
Parking Area	6	12	0	0	1	0	0	0	0	1
<b>Total Quantity</b>	<b>425</b>	<b>813</b>	<b>40</b>	<b>5</b>	<b>483</b>	<b>26</b>	<b>9</b>	<b>5</b>	<b>18</b>	<b>7</b>
<b>Avg. Wattage rating of single appliance(W)</b>	<b>60 W</b>	<b>25 W</b>	<b>1.5 / 2.0 Ton</b>	<b>1100 W</b>	<b>180 W</b>	<b>100 W</b>	<b>100 W</b>	<b>300 W</b>	<b>220 W</b>	<b>90 W</b>
<b>Average number on at a time</b>	<b>204</b>	<b>510</b>	<b>20</b>	<b>4</b>	<b>220</b>	<b>20</b>	<b>6</b>	<b>4</b>	<b>14</b>	<b>5</b>
<b>Total Wattage on at a time (W)</b>	<b>12240</b>	<b>12750</b>	<b>34500</b>	<b>4400</b>	<b>39600</b>	<b>2000</b>	<b>600</b>	<b>1200</b>	<b>3080</b>	<b>450</b>
<b>Total maximum Power Requirement of all appliances = 110820 Watts</b>										

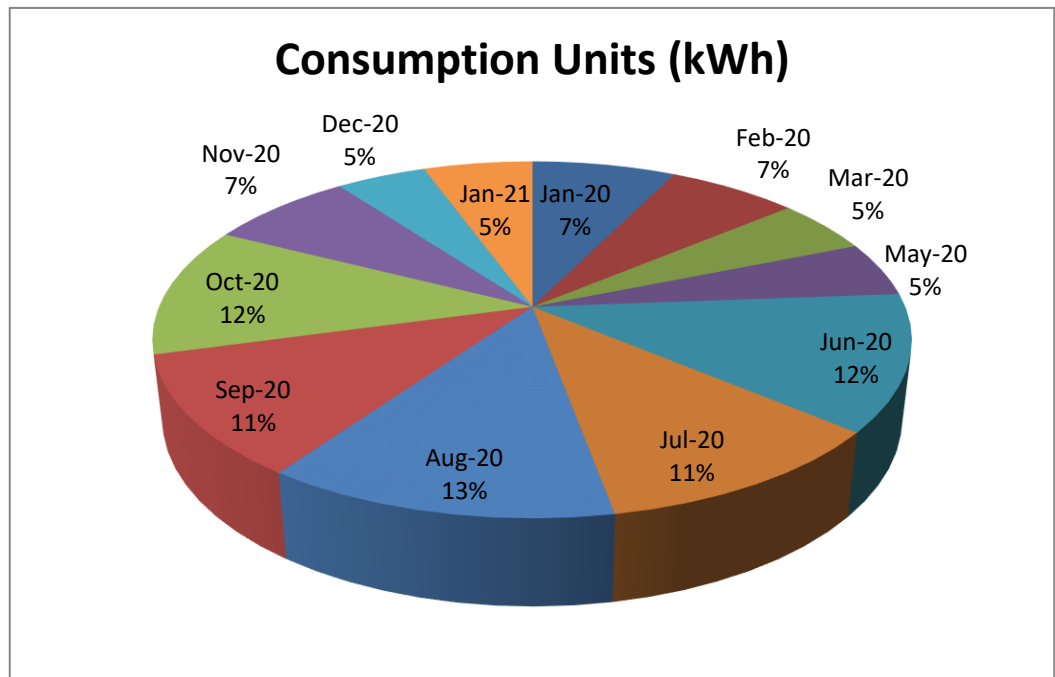
2. **Bore-well motor details:** 3- phase Induction motor of 5 HP, consumes approx. 8 units per day so monthly around 240 units.

5. **Power Consumption of Electricity Board**

Sr. No.	Month	Consumption Units (kWh)
1	Jan 2020	15216
2	Feb 2020	13724
3	Mar 2020	10301
4	May 2020	10301
5	June 2020	25620
6	July 2020	22869
7	Aug 2020	26345
8	Sep 2020	22848
9	Oct 2020	24450
10	Nov 2020	15342
11	Dec 2020	9539
12	Jan 2021	11537
Total Power Consumption in Yearly		<b>208092 kWh</b>
Average Power Consumption in Monthly		<b>17341 kWh</b>

6. Average power consumption in monthly is 17341 kWh (Units) is collected after deducting the Solar generation which approximately generation capacity in between 5000 to 6000 Units per month.

7. **Graphically Representation of Electricity Distribution:**



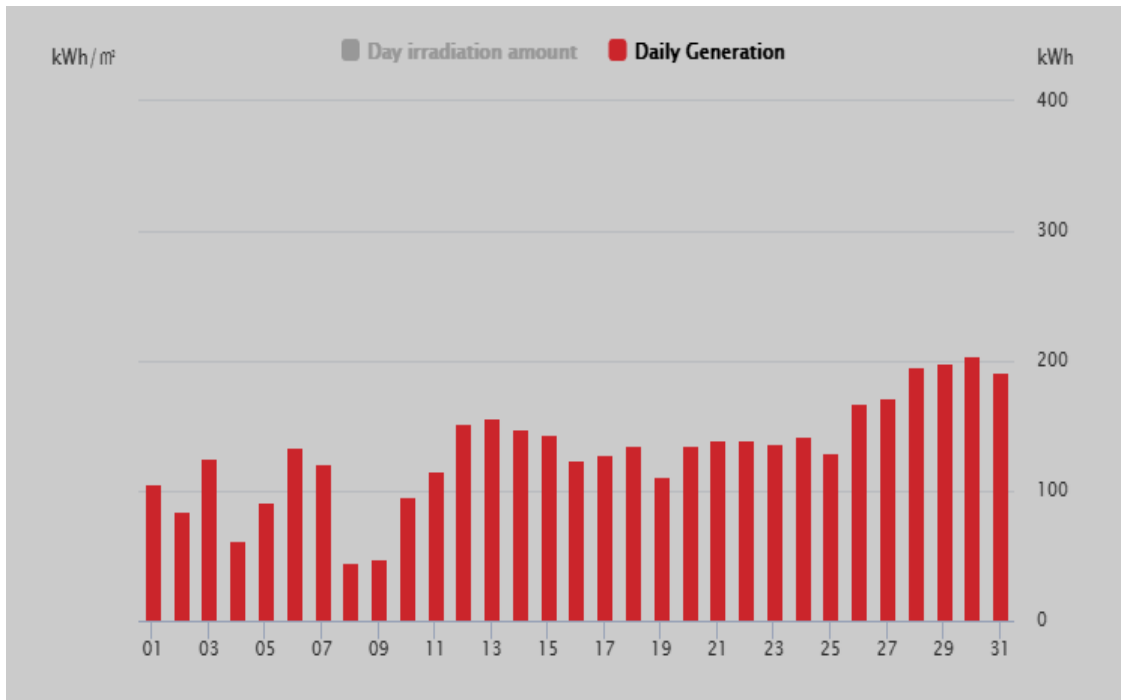
8. Electricity distribution from Jan 2020 to Jan 2021

9. **Renewable energy generation details:**

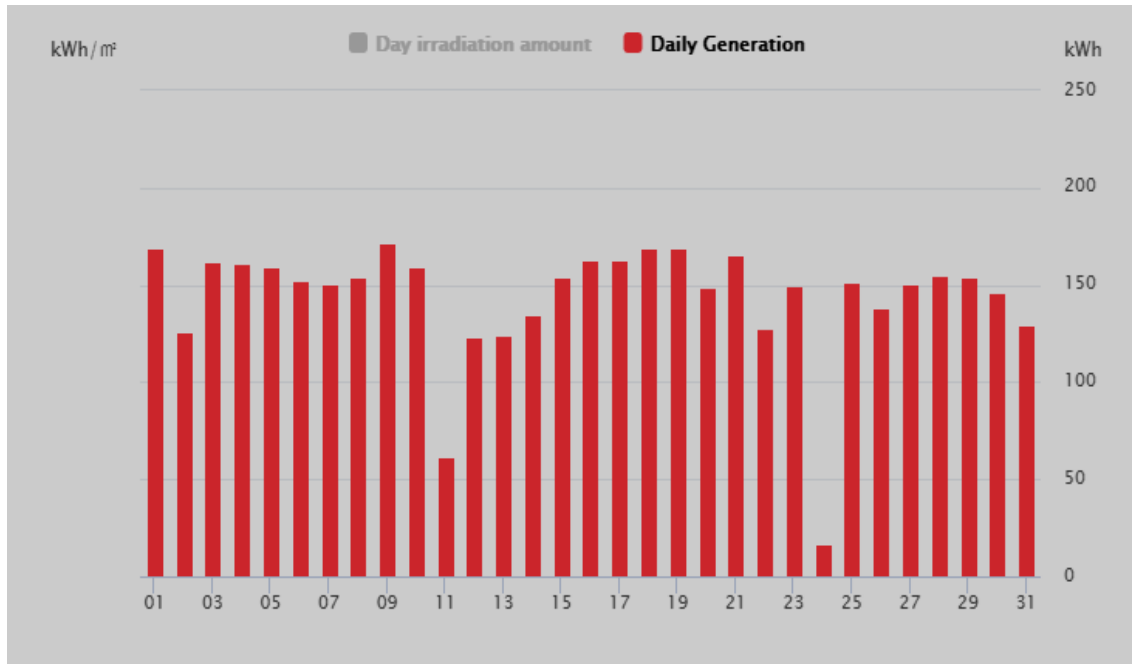
10. **50 kW capacity Solar on grid power plant. Total per day generation is around 200 Units (kWh)**



11. 50 kW on grid Solar plant



12. Jan 2021 month per day Solar generation graph



13. Dec 2020 month per day Solar generation graph

Plant Profile		
Plant ID	883005	
Name	Techno NJR	
Location	Plot-SPL-T, Bhamashah (RIICO) Industrial Area, Kaladwas Udaipur 313003 (Rajasthan) India	
Contact Number	8696932729	
Plant Type	Residential Rooftop	Angle of Tilt 26 °
System Type	All on Grid	Constructing Cost 375000 INR
Loan Proportion	0 %	Benchmark Price 8.85 INR/kWh
Time Zone	(UTC+05:30) Chennai,Kolkata,Mumb...	Capacity 50kWp
Azimuth	180 °	Annual Loan Rate 6 % 0Year
Creation Time	2020-11-08	Refund Method Fixed Payment Mortgage
	Generation Province FIT 0 INR/kWh 0Year	Generation County FIT 0 INR/kWh 0Year
	Generation City FIT 0 INR/kWh 0Year	

14. Solar Power Plant Profile

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15. Solar Water Heater

#### 16. Conclusion:

In conclusion, data generated in energy audit are useful for to understand the energy distribution and utilization of college. The college needs maximum 17341 kWh (Units) per month. On grid Solar plant generates maximum 200 units per day so monthly generation is around 5000 to 6000 kWh (Units).

#### 17. Recommendation:

- 1) Use separate sub energy meter/connection for different locations like hostel, canteen, Mechanical workshop and offices.
- 2) Replace all non-LED Tube lights with LED lights and bulbs, to save more power.
- 3) Replace CRT monitor using LED or LCD monitor.

#### 18. Result and Discussion:

As far concerning the energy audit, electricity audit is main concern regarding educational institution. We have collected data by considering the tube light, fan, computer, printer, A.C. and instruments. The total maximum require power is **110820 W**. The average energy consumption by all devices is 1741 kWh per month and On grid solar renewable source generate around 5000 to 6000 Units/Month.

# 1 Introduction

## 1.1 Green Audit:

Green audit is the method of assessing the environmental impact of an organization, process, project, product etc. Green Audit can be defined as a basic management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organizations, management systems and equipment are performing. The aim of the audit is to facilitate management control on environmental practices and to enable the organization to assess compliance with its policies including meeting regulatory requirement.



Figure 1: Geographical pictures of Techno India NJR Campus

## 1.2 Methodology

The study covered the following area to summarize the present status of environment management in the campus:

### *i. Pre-audit planning*

- ❖ Preliminary literature review of concepts and methodologies related to green audit.
- ❖ Discussion with the management staff on various systems installed in the campus.
- ❖ Awareness creation and interaction with the staff and student on the concept of green audit.
- ❖ Walk through the entire campus to understand the nature of water use, energy use, air quality system, sound quality and waste management systems in the campus.

### *ii. Data collection*

- ❖ Development of questionnaire format to identify all water/air/sound/energy using fixtures/equipment and examine water or energy use patterns for individual buildings in the campus.
- ❖ Collection of secondary data from compilation of electricity bills, collecting records of pumps, generators, water quality analysis reports, civil and electrical drawings etc.
- ❖ Semi-structured interview with maintenance manager, technicians, plumber and housekeeping staff on current situation and the past trends in water consumption, electricity consumption, waste management, waste generation etc.

### *iii. Data Processing and analysis*

The existing trends and patterns in water usage, energy usage and waste generation and management is analyzed in this step from the data collected from the previous step.

### *iv. Audit Recommendations and reporting*

Based on the understanding from the green audit, recommendations are given to improve the existing environmental performance of the campus and are documented in a report format.

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SN	Parameters	Results	Specification for Drinking Water as per IS:10500:2012		Test Method reference of IS:3025
			Requirement (Acceptable Limit) (max.)	Permissible Limit in the Absence of Alternate Source (max.)	
1	pH at 25°C	7.6	6.5 to 8.5	No relaxation	Part-11
2	TDS (mg/l)	486.0	500	2000	Part-16
3	Chlorides as Cl (mg/l)	64.0	250	1000	Part-32



4	Salinity by Calculation (gms/kg)	0.1455	--	--	APHA AWWA W?CF (16th Edition)
5	Conductivity (MicroMhos/cm)	872.0	--	--	Part-14
6	Most Probable no. of Coli form/100 ml of water	Zero	Shall not be detectable in any 100m1 sample		IS 1622:1981
7	Sodium as Na (mg/l)	40.0	--	--	Part-45
8	Potassium as K (mg/l)	1.4	--	--	

## 2 Water Quality Assessment & Management:

Water quality analysis was conducted by Rahul Engineers Laboratory on following parameters:

Table 1: Test Results of RO Water

Table 2: Test Results of Bore Well Water

SN	Parameters	Results	Specification for Drinking Water as per IS:10500:2012		Test Method reference of IS:3025
			Requirement (Acceptable Limit) (max.)	Permissible Limit in the Absence of Alternate Source (max.)	
1	pH at 25°C	7.3	6.5 to 8.5	No relaxation	Part-11
2	TDS (mg/l)	424.0	500	2000	Part-16
3	Chlorides as Cl (mg/l)	66.0	250	1000	Part-32
4	Salinity by Calculation (gms/kg)	0.1491	--	--	APHA AWWA W?CF (16th Edition)
5	Conductivity (MicroMhos/cm)	923.0	--	--	Part-14
6	Most Probable no. of Coli form/100 ml of water	Zero	Shall not be detectable in any 100m1 sample		IS 1622:1981
7	Sodium as Na (mg/l)	40.0	--	--	Part-45
8	Potassium as K (mg/l)	1.6	--	--	

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Ground Floor											
Wing-A			Wing-B			Wing-C			Wing-D		
Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps
Pantry	A-103	5	Common Toilet	B-108	12	Chemistry Lab	C-106	17	Toilet-Gents	D-109	8
Toilet-Gents	A-110	6	Drinking water		2	Toilet-Gents	C-107	6	Toilet-Ladies	D-109	8
Toilet-Ladies	A-110	6				Toilet-Ladies	C-107	6			

Floor Total						17+14+29+16= 76					
<b>First Floor</b>											
Wing-A			Wing-B			Wing-C			Wing-D		
Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps
Guest Room-1	A-209	4	Toilet-Gents	B-208	8	Toilet-Ladies	C-208	12	Toilet-Gents	D-210	8
Guest Room-2	A-210	4	Drinking water		2						
Guest Room-3	A-202	3									
Floor Total						11+10+12+8=41					
<b>Second Floor</b>											
Wing-A			Wing-B			Wing-C			Wing-D		
Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps
Girls Hostel	A-305	17+3	Drinking water		2						
Floor Total						22					
Mechanical Workshop			Incubation Lab								
Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps	Section	Room No	No. of Taps
Workshop	WS01	2	IC Lab	IC-103	4	i-3 Lab	IC-201	4			
Floor Total						2+4+4=10					
Section	No. of Taps										
Canteen	8										
Cafeteria	5										
Lawn-1	6										
Lawn-2	6										
Main Gate	3										
Boys Hostel	46										
	10 (Showers)										

## 2.2 Water Storage Profile:

Table 3: Number of water storage tanks in the campus

		No of Tanks	Capacity of the Tanks	Total Capacity (Litre)	Remark	
Main Building	Block-A	2	1000 Litre	2000		
	Block-B	5	1000 Litre	5000		
	Block-C	2	1000 Litre	2000		
	RO Water		2	3000 Litre	6000	Raw Water
			1	3000 Litre	3000	RO Water Storage
		2	1000 Litre	2000	Raw Water	

<b>Main Gate</b>	1	1000 Litre	1000	RO Water Storage
<b>Boys Hostel</b>	2	2000 Litre	4000	Raw Water
	1	1000 Litre	1000	RO Water Storage
<b>IC Lab</b>	1	1000 Litre	1000	RO Water Storage
<b>Service Station</b>	1	1000 Litre	1000	
<b>Total</b>			<b>28,000</b>	

### 2.3 Bore Well Storage Profile:

*Table 4: Bore well water storage tank details*

SN	Dimension (foot)	Volume (cubic foot)	Total Capacity (Litre)
1	70x16x8	8,960	2,53,718.9

### 3. Air Quality Assessment & Management:

The ambient air quality test was conducted by Ozone Test House Laboratory, Udaipur. The method of sampling adopted according to IS: 5182 (Part2, Part6, Part23) with 1390 minutes of sampling time. The test results are as follows:

*Table 5: Number of water storage tanks in the campus*

SN	Parameter	Test Method	Unit	Result	CPCB (Norms)
1	PM 10	IS:5182 (Part 23)2006 Reaff 2012	$\mu\text{g}/\text{M}^3$	73.65	100
2	PM 2.5	IS:5182 (Part 24)	$\mu\text{g}/\text{M}^3$	50.73	60
3	SO <sub>2</sub>	IS:5182 (Part 2)-2001 Reaff 2006	$\mu\text{g}/\text{M}^3$	11.20	80
4	NO <sub>2</sub>	IS:5182 (Part 6)-2006	$\mu\text{g}/\text{M}^3$	16.52	80
5	CO	By CO meter	$\mu\text{g}/\text{M}^3$	0.46	04



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#### 4. Electricity Consumption & Management:

Table 6: Electricity consumption for recent 12 months

Sr. No.	Month	Consumption Units (kWh)
1	Jan 2020	15216
2	Feb 2020	13724
3	Mar 2020	10301
4	May 2020	10301
5	June 2020	25620

6	July 2020	22869
7	Aug 2020	26345
8	Sep 2020	22848
9	Oct 2020	24450
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12	Jan 2021	11537
<b>Total Power Consumption in Yearly</b>		<b>208092 kWh</b>
<b>Average Power Consumption in Monthly</b>		<b>17341 kWh</b>

Average power consumption in monthly is 17341 kWh (Units) is collected after deducting the Solar generation which approximately generation capacity in between 5000 to 6000 Units per month.

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#### 4.1 Graphically Representation of Electricity Distribution:



Figure 2: Electricity distribution

### 5 Sound Pollution Monitoring:

The ambient noise quality test was conducted by Ozone Test House Laboratory, Udaipur. The method of sampling adopted according to IS: 9989- 1981 Reaff. 2014. The test results are as follows:

*Table 7: Noise Monitoring Results*

SN	Parameter	Unit	Result	
			Minimum	Maximum
1	Main entrance of the campus	dB (A)	55.2	62.5
2	Library	dB (A)	44.3	49.8
3	Classroom	dB (A)	44.6	48.2

**6 Waste Management:** This indicator addresses waste production and disposal of different wastes like paper, food, plastic, glass, dust etc. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair and reuse. Solid waste generation and management is a burning issue.

**6.1 Solid Waste Management:** The Campus has adopted the principles of the ‘best practicable environmental option’ to deliver its waste management services. The Campus applies a ‘waste hierarchical approach’ to reduce, reuse, recycle, and recover waste products in preference to waste disposal to landfill. Figure 3 shows a schematic diagram of solid waste management of the Campus.

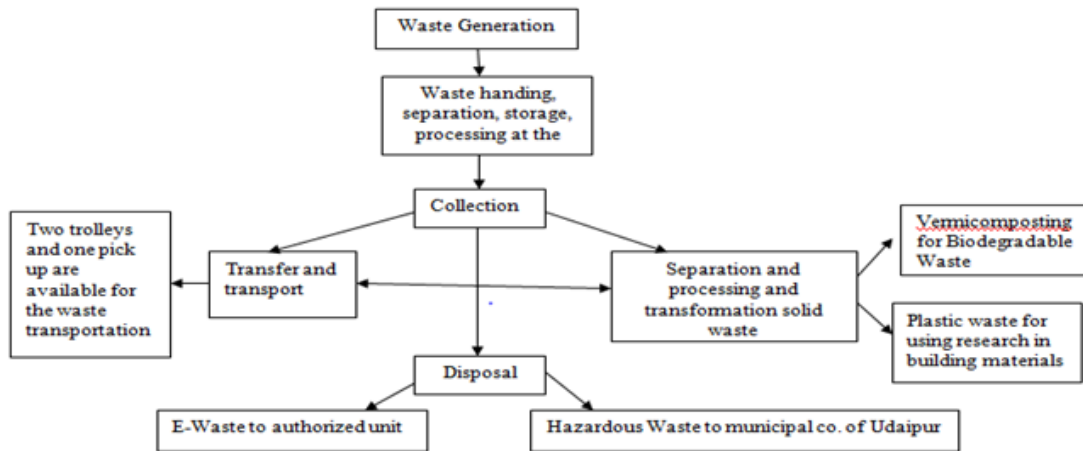


Figure 3: Interrelationships between the functional elements in Solid Waste Management in Campus  
**6.2 Waste Segregation:** Source segregation via separate bins as per the waste. Following color code is used for different types of wastage.

- Green Bins: For biodegradable waste
- Blue Bins: For plastics waste
- Red Bins: Hazardous and Sanitary waste
- Black Bins: For E-Waste

Dimensions and 3d views of the collection and processing center on the college campus are shown in Figures 4 and 5.

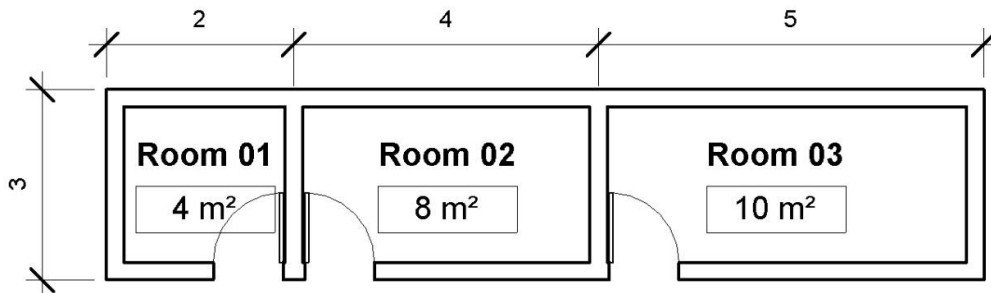


Figure 4: Area and Dimensions of Processing Center (Outer Dimensions in meter)





Figure 5: Processing Center for Waste at the Campus

**6.3 Resources for Waste management:** There are two sets of four colored bins of 120 liter capacity for each location on Campus. One collection center and one processing center are also located on Campus. The location of black colored dustbin is inside the Campus in a particular room. Three sets (60 Liter) of blue and green bins are kept in each wing of each floor. Red bins of 60-liter capacity are kept in each washroom of the Campus.

**6.4 Liquid Waste Management:** Wastewater management options and technologies can be functionally divided into two segments. Firstly, septic tanks are used for sewage waste water. Secondly, wastewater from bathrooms is treated through coagulants for the separation of soap and other suspended particles, and this treated water is used for gardening.

**6.5 Biomedical and Radioactive Waste Management:** There is no biomedical and radioactive waste generated in the campus.

**6.6 Hazardous Chemicals Waste Management:** There are separate red colored bins and room (shown in figure 5) for sanitary and hazardous waste. These types of wastes are disposed on Municipality landfill site outside city.





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### 3. Environment Audit

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2. GREENING
3. ENERGY CONSERVATION
4. WATER CONSERVATION
5. CLEAN AIR
6. ANIMAL WELFARE
7. ENVIROMENTAL LEGISLATIVE

## ACKNOWLEDGEMENT

Techno India Environmental Audit Team thanks the management of Techno India NJR Institute of Technology, Udaipur for assigning this important work of Environmental Audit. We appreciate the co-operation to our team for completion of study.

Our special thanks are due to:

- Director Mr. R.S. Vyas and Chair Person Mrs. Meera Ranawat and Principal Dr. Pankaj Kumar Porwal for providing all data for this audit work.
- Teaching and Supporting staff of college.

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## INTRODUCTION: OVERVIEW OF INSTITUTE

Techno India NJR Institute of Technology is located on a beautiful campus of 10 acres in Udaipur. The college has also adopted the Green Campus System for environmental conservation and sustainability. Following sustainable techniques have been adopted by this Institute:

1. Vermicomposting for biodegradable waste
2. Plastic recycling through a start-up project of the Institute
3. Use of treated wastewater from bathrooms in gardening
4. Wastewater from toilets is being disposed of utilizing septic tanks
5. Separate sections in Campus for e-waste and hazardous waste collection for authorized vendors are available for waste recycling.
6. Rainwater harvesting system
7. Solar panel for energy conservation

The whole Campus is divided into the following blocks.

S.No.	Block Name	Ground Coverage (Sq. M.)
1	Academic Block	3377.01
2	Work Shop	606.3
3	Hostel Building	597.9064
4	I 3 lab	275.394
5	Road	2668.166
6	Area of Covered by Tiles	1613.306
	<b>Total Area</b>	<b>9138.824 Sq. M</b>

This Institute has to ensure that all the campus wastes are disposed of responsibly by using proper waste segregation mechanism at the source and, if possible, converting it into a value-added environmentally friendly product. As per the guidelines provided by the Indian Ministry of Urban Development ((MoUD) in the form policies of SWM rules 2016, all gated societies and campuses have been advised to develop the treatment and segregation of waste within their premise.

The Campus has adopted the principles of the 'best practicable environmental option' to deliver its waste management services. The Campus applies a 'waste hierarchical approach' to reduce, reuse, recycle, and recover waste products in preference to waste disposal to landfill.

## OBJECTIVES

The board aims of the eco-auditing system would be

- Environmental education through systematic environmental approach
- Improving environmental standards
- Benchmarking for environmental protection initiative
- Reduction in resource use
- Financial saving through a reduction in resource use
- Curriculum enrichment through practical experience
- Development of ownership, personal and social responsibility for the university campus and its environment
- Developing an environmental ethic and value system in young people

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## AUDIT PARTICIPANTS

On behalf of Institute:

<b>Name</b>	<b>Education</b>
Dr. Sangeeta Choudhary	M.E in Environmental Engineering and PhD. In Civil Engineering
Mr. Lokesh Malviya	PhD. Pursuing in Supply Chain, M.E in Supply Chain Management
Mr. Rajkumar Soni	M.Tech in Energy and Power System
Mr. Jitendra Choubisa	M.Tech Pursuing in Structural Engineering, B.Tech in Civil Engg.

# ENVIRONMENTAL AUDIT QUESTIONARE

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The areas of eco/environmental/green auditing to be followed/practiced by participating institutions:

1. Waste Minimization and Recycling
2. Greening
3. Energy Conservation
4. Water Conservation
5. Clean Air
6. Animal Welfare
7. Environmental Legislative

**Does your Environmental Audit conducted earlier?**

No, this is for the first time that institute has taken a systematic way of monitoring the environmental aspects of the campus for better management.

<b>What is the total permanent population of the institute?</b>			
	<b>Male</b>	<b>Female</b>	<b>Total</b>
Students	423	167	590
Teachers	39	10	49
Non-teaching Staff	4	1	5
Supporting Staff	4	2	6
Sub total	470	180	650
Approximate Number of Visitors (Per Day)	20		
What is total number of working days of your campus in a year?	270		

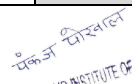
<b>Where is the campus located?</b>	
	The campus is located at Bhamashah (RIICO) Industrial Area, Kaladwas, Udaipur

<b>Which of the following are available in your institute?</b>			
<b>a</b>	Garden area	Available	
<b>b</b>	Play ground	Available	
<b>c</b>	Kitchen	Available	
<b>d</b>	Toilets	Available	
<b>e</b>	Garbage Or Waste Store Yard	Available	
<b>f</b>	Laboratory	Available	
<b>g</b>	Canteen	Available	
<b>h</b>	Hostel Facility (numbers)	Available	
<b>i</b>	Guest House	Available	

<b>Which of the following are found near your institute?</b>	
Municipal dump yard	Not in the area of institute
Garbage heap	No
Public convenience	Yes
Sewer line	Yes
Stagnant water	No
Open drainage	Yes
Industry – (Mention the type)	Yes, Campus is in Industrial Area, So various types of Industries are there, the nearest one is Soapstone manufacturing industry.
Bus / Railway station	About 11 Km from campus
Public halls	About 9-11 Km from campus



1. WASTE MINIMIZATION AND RECYCLING					
1	Does your institute generate any waste? If so, what are they?	Yes. Solid, paper, plastic toiletry waste etc.			
2	What is the approximate amount of waste generated per day? (in Kilograms/month) (approx.)	Bio Degradable	Non-Biodegradable	Hazardous	Others
		~15 kg	~ 1kg	1 kg	<1 kg
3	How is the waste generated in the institute managed? By 1 Composting 2 Recycling 3 Reusing 4 Others (specify)	Institute has planned a Vermi-Compost at Backyard of college. Where Solid waste of the institute will be dumped. For Reusing – Civil Engineering Alumni are working on a project named <b>Wricks</b> , in which they are using plastic to make sustainable bricks.			
4	Do you use recycled paper in institute?	Yes			
5	Do you use reused paper in institute?	Yes			
6	How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.	Yes, students from Civil engineering department conducted a various research works in the city. One of them was at the city's main vegetable market and they studied the waste generation and proposed a detailed case report in order to reduce the solid waste generation.			
7	Can you achieve zero garbage in your institute? If yes, how?	Yes we can, With proper handling of materials and its processing we can achieve zero garbage.			

  
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<b>2</b>	<b>GREENING THE CAMPUS</b>		
<b>8</b>	Is there a garden in your institute?		Yes, About 2.6 Acre
<b>9</b>	Do students spend time in the garden?		Yes
<b>10</b>	Total number of Plants in Campus	<b>Plant type</b>	<b>Approx. Number</b>
		Trees	390
		Shrubs	160
		Grass Cover	2 Acre
<b>11</b>	Suggest plants for your campus. (Trees, vegetables, herbs, etc.)		Ashoka, Mulberry, Bauhinia purpurea (Kachnar), Tamarind, Neem.
<b>12</b>	Is the College campus have any Horticulture Department		Yes
	Number of Staff working in Horticulture Department		2
<b>13</b>	Number of Tree Plantation Drives organized by College per annum. (If Any)		02 Drives till date
<b>14</b>	Number of Trees Planted in Last FY.		50 200-250 Ornamental Plants
	Survival Rate		90 %
<b>15</b>	Plant Distribution Program for Students and Community		<ol style="list-style-type: none"> <li>1. Green Kaladwas programme was organized in 2015-16 with the aim of planting trees across all over the industrial area.</li> <li>2. In 2016, Tree plantation programme by students and faculties was carried out in Campus garden with a quantity of 500.</li> <li>3. NCC Cadets organized a tree plantation drive in 2019-20.</li> </ol>
<b>16</b>	Plant Ownership Program		Yes

3	ENERGY		
17	List few ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.		By using LED bulb and solar street lights we are saving on electricity consumption. Also Solar panel on roof tops are installed with capacity of 50 Kilowatts.
18	Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some		Yes renewable source of energy by using solar panels over street lights and solar panels with capacity of 50 Kilowatts on rooftop are installed in campus.  Also the institute is planning for more 50 Kilowatts of solar installation.
19	How many CFL/LED bulbs has your institute installed?		LED Tube lights = 813
20	Are any alternative energy sources employed / installed in your institute? (photovoltaic cells for solar energy, windmill, energy efficient stoves, etc.,) Specify.		Yes, Photovoltaic cells for solar energy in street lights.
21	Do you run “switch off” drills at institute?		No
22	Are your computers and other equipment’s put on power-saving mode?		Yes
23	Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?		No
	Table showed the power consumption details of last year		
		<b>Month</b>	<b>Electricity Consumption (KVAH)</b>
		Jan-21	7973
		Dec-20	6609
		Nov-20	10526
		Oct-20	16826
		Sep-20	15926
		Aug-20	18451
		Jul-20	15926
		Jun-20	17795
		Mar-20	7403
		Feb-20	9848
		Jan-20	10884

4 WATER CONSERVATION			
24	List uses of water in your institute		The basic uses are: Drinking, Kitchen & Toilets, Gardening, Vehicle cleaning etc. We have installed a RO plant of capacity 50 LPH
25	How does your institute store water? Are there any water saving techniques followed in your institute?		An underground water tank of capacity 3 Lakh Liters is used to Pump water to various places.
26	If there is water wastage, specify why and How can the wastage be prevented / stopped?		No
27	Locate the point of entry of water and point of exit of waste water in your institute.		Entry Point – Borewell Exit Point – 1. R.O Water – Garden 2. R.O Water – Toilet 3. Bathroom – Garden 4. Rest Water – Water harvesting Pit
28	Write down few ways that could reduce the amount of water used in your institute		1. By avoiding unnecessary or wastage of water. 2. Water conservation awareness programs need to be scheduled.
29	Record water use from the institute water meter for six months (record at the same time of each day). At the end of the period, compile a table to show how many litres of water have been used.		Calculation of water usage is shown below
30	Does your institute harvest rain water?		Yes, Institute have planned a water harvesting system.
31	Is there any water recycling System.		Yes, R.O Water is fed to garden and is also attached to toilet supplies.
		<b>Month</b>	<b>Water Consumption (KL)</b>
		1 Jan, 2020	94
		2 Feb, 2020	135
		3 Mar, 2020	225
		4 Apr, 2020	240
		5 May, 2020	230
		6 June, 2020	220

<b>5</b>	<b>CLEAN AIR</b>					
<b>32</b>	Are the Rooms in Campus are Well Ventilated?	<b>Yes</b>				
<b>33</b>	Window Floor ratio of the Rooms	<b>Good</b>				
<b>34</b>	Provide details of school-owned motorized vehicles?	Buses	Cars	Vans	Other	Total
	No. of vehicles	10	07	01	--	17
	No. of vehicles more than five years old	10	05	00	--	15
	No. of Air conditioned vehicles	--	04	--	--	04
	PUC done	10	07	01	--	18
<b>35</b>	Specify the type of fuel used by your school's vehicles:	Total				
	Diesel	12				
	Petrol	05				
	CNG	--				
	LPG	--				
	Electric	--				
<b>36</b>	Air Quality Monitoring Program (If Any)	Institute is planning for its own air quality monitoring system. Air quality monitoring is being done by approved laboratory.				
<b>37</b>	Students suffer from respiratory ailments? (If Any)	None				
<b>38</b>	Details of Genet	Yes, a total of 3 Generators of 15 KV, 62.5 KV (spare) and 125 KV are installed throughout the campus.				

6 ANIMAL WELFARE		
39	List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects etc)	Cows, Squirrels, birds.
40	How many dogs in your area have undergone Animal Birth Control - Anti Rabies (ABC-AR)?	NA
41	Does your institute have a Biodiversity programme or a KARUNA CLUB?	NA

7 ENVIRONMENTAL LEGISLATIVE COMPLIANCE		
42	Are you aware of any environmental Laws pertaining to different aspects of environmental management?	Yes
43	Does your institute have any rules to protect the environment? List possible rules you could include.	Yes we are working on using more of conventional sources of energy in our institute and also tree plantation drives are being organized on regular basis.
44	Does Environmental Ambient Air Quality Monitoring conducted by the Institute?	Yes
45	Does Water and Wastewater Quality monitoring conducted by the Institute?	Yes
46	Does stack monitoring of DG sets conducted by the Institute?	No
47	Is any warning notice, letter issued by state government bodies?	No
48	Does any Hazardous waste generated by the Institute?	Yes.
49	Does any Bio medical waste generated by the Institute? If yes explain its category and disposal method	No

ॐ  
 पंजाब विश्वविद्यालय  
 TECHNICAL HIGHER INSTITUTE OF TECHNOLOGY

# ANNEXURE – PHOTOGRAPHS OF ENVIRONMENT CONSOIOUSNESS



पंकज चौखवाल  
TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003, India  
Lat N 24° 31' 4.836"  
Long E 73° 45' 6.4584"  
05/02/21 11:23 AM



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003, India  
Lat N 24° 31' 4.3896"  
Long E 73° 45' 4.6836"



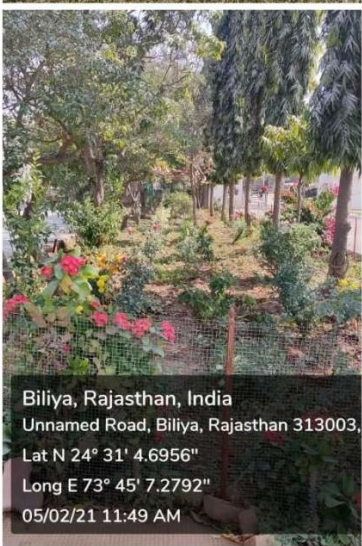
Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003  
Lat N 24° 31' 3.7848"  
Long E 73° 45' 6.0948"  
05/02/21 10:54 AM



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003,  
Lat N 24° 31' 4.998"  
Long E 73° 45' 6.6672"  
05/02/21 11:24 AM



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003  
Lat N 24° 31' 1.6716"  
Long E 73° 45' 7.272"  
05/02/21 10:58 AM



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003,  
Lat N 24° 31' 4.6956"  
Long E 73° 45' 7.2792"  
05/02/21 11:49 AM



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003, India  
Lat N 24° 31' 5.412"  
Long E 73° 45' 6.9444"  
05/02/21 11:34 AM



Biliya, Rajasthan, India  
Unnamed Road, Biliya, Rajasthan 313003, India  
Lat N 24° 31' 5.2752"  
Long E 73° 45' 4.9536"  
05/02/21 11:23 AM

टेकनो इंडिया  
TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY



To,

Dr. Sangeeta Choudhary,  
Associate Professor,  
Department of Civil Engineering,  
Techno India NJR Institute of Technology,



ICLEI's mission is to build and serve a worldwide movement of local governments to achieve tangible improvements in global sustainability with special focus on environmental conditions through cumulative local actions.

## Certificate of Appreciation

This certificate of appreciation is issued to Techno India NJR Institute of Technology Udaipur for successfully completing the social welfare project "Pilot Study and Implementation of Solid Waste Management System in Savina Vegetable Market at Smart City Udaipur in Rajasthan" by students and faculties of Civil Engineering Department at Techno India NJR Institute of Technology, Udaipur. This project was executed with support and cooperation from Nagar Nigam Udaipur, Management of Savina Vegetable Market, ICLEI- South Asia and Secure Meter Udaipur.

ICLEI- South Asia  
C-3, Lower Ground Floor  
Green Park Extension  
New Delhi – 110016, India

Phone: +91-11- 4974 7200  
Fax: +91-11- 4974 7201  
E-mail : iclei-  
southasia@iclei.org

World Secretariat  
Kaiser-Friedrich-Str. 7  
53113 Bonn  
Germany

Tel: +49-228 / 97 62 99-00  
Fax: +49-228 / 97 62 99-01  
Email: iclei@iclei.org

Legally represented by  
ICLEI (Management) Inc.

With regards,

Bhupendra Salodia  
Senior Project Office - Udaipur  
ICLEI South Asia- Local Government for Sustainability

World Wide Web  
[www.iclei.org](http://www.iclei.org)  
<http://southasia.iclei.org/>

On behalf of  
Deputy Secretary General, ICLEI &  
Executive Director, ICLEI South Asia- Local Government for  
Sustainability

ICLEI was founded in the year 1990  
as the International Council for  
Local Environmental Initiatives.



# KALADWAS CHAMBER OF COMMERCE & INDUSTRIES

SPL-1, I.I.D. Centre, RIICO KALADWAS, Udaipur - 313003 (Raj.)  
E-mail : kcci.udaipur@gmail.com, Web : www.kcciudaipur.com

**Treasurer :**  
Hemant Jain

**President**  
Rajendra Surana  
9351456327

**Secretary**  
Girish Sharma  
9829364777

Ref.No.:

Date: 30-6-2020

**Vice President :**  
Om Lalvani

Kaladwas Chamber of Commerce and industries is the lead industry Chamber of RIICO industrial Area, Kaladwas with more than 300 industries as members.

**Joint Secretary :**  
Jitendra Singh Rathore

This is to confirm that Techno India NJR Institute of Technology had partnered with Kaladwas Chamber of Commerce and Industries in providing free food to needy people including 100 lunch packets and 100 Dinner packets everyday to needy people during Covid -19 pandemic months of April and May for 45 days.

**Co-Treasurer :**  
Abhishek Jain

Whereas KCCI provided dry ration, Techno India NJR team cooked food at their campus free of cost and distributed 200 food packets at their gate.

**Executive :**  
Abbas Ali Hita  
Arvind Mehta  
Govind Bhardwaj  
Jagannath Lohar  
Keshu Lal Dangi  
Lokesh Vashita  
Manish Chandaliya  
Mukesh Jain  
Prabhu Lal Dangi  
Prem Menariya  
Rakesh Kabra  
Vikas Motwani

Techno NJR also installed a Sanitising chamber at their gate for people coming to collect food packets. They also provided one sanitising tunnel for KCCI free of cost.

*Rajendra Surana*  
( Rajendra Surana )  
President



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Prabhu Lal Dangi  
Prem Menariya  
Rakesh Kabra  
Vikas Motwani

**President**  
Rajendra Surana  
9351456327

**Secretary**  
Girish Sharma  
9829364777

Ref.No.:

Date: 17-2018

Kaladwas Chamber of Commerce and industries is the lead industry Chamber of RIICO industrial Area, Kaladwas with more than 300 industries as members.

This is to confirm that Techno India NJR Institute of Technology has installed R.O Plant with the capacity of 500 litres per hour at the gate of college for free supply of clean R.O water free of cost for workers in RIICO Industrial Area and nearby villages.

Hundreds of workers/villagers have benefitted with their philanthropic activity by getting clean drinking water.

We thank Techno India NJR for their concern for the society.

*Rajendra Surana*

(Rajendra Surana)  
President.

TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY

EUREKA FORBES LTD.  
DELIVERY PLANT: Plot NO.SP 636(A2), Road  
Number : - 6 JAIPUR 302013  
TELEPHONE :

Inv. No : 6270190009 Date : 12.04.2016  
Order. No : 8050055025 Date : 08.04.2016  
DC. No : 27415249 Date : 12.04.2016  
PO. No:PO-04.04.2016 : 04-04.2016

**CUSTOMER'S NAME & ADDRESS**

**DESPATCH TO :**

Customer ID : 8020818 TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY NJR KNOWLEDGE CAMPUS, PLOT-SPL-T BHAMASHAH (RIICO) INDUSTRIAL AREA KALADWAS UDAIPUR 313003 Tel : 02942650214 Cell : TECHNO IND Email : technonjr@gmail.com	TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY NJR KNOWLEDGE CAMPUS, PLOT-SPL-T BHAMASHAH (RIICO) INDUSTRIAL AREA KALADWAS UDAIPUR 313003
---	--

Sl. No.	ITEM CODE	DESCRIPTION OF GOODS	QTY.	RATE PER UNIT Rs.	AMOUNT Rs.
1	OWPDWP500LPHRO LPH	RO EQUIPMENT USING TFC MEMBRANES 500	1 NOS	188,646.00	188,646.00
Gross Amount					188,646.00
IN A/R VAT Payable					27,353.67
Invoice Amount					215,999.67
RUPEES : TWO LAKH FIFTY NINE THOUSAND NINE HUNDRED NINETY NINE AND SIXTY SEVEN PAISE ONLY.					

**CBNOL-RECEIVED**  
Ch. No. 50,000-2217  
Amt. 514/16-25/5/16  
Date 13/4/16

**OUTWARD**  
EUREKA FORBES LIMITED  
To YUSEN LOGISTICS INDIA PVT. LTD.  
Dutwan No. 0146  
Dutwan No. 13-04-076  
No. of packages 02  
Vehicle No. RTM4E 4801  
Vehicle in time 11.52 AM Time 2.20  
Security Signature

Refer warranty card for warranty conditions  
Payment Terms : 100% AGAINST DELIVERY/INSL  
Sales Person : 9087446 - Lokesh Choudhary Kumar

TIN/LST No.:08531601731 01/04/2006 CST No.:08531601731 01/04/2006  
CIN No. :027109WB1931PLC007010  
PAN : AAACE5767F

02 W/Bases

R.O. Plant installed for Workers & villagers.

For Eureka Forbes Limited

Authorized Signatory

SALES OFFICE: Shop No. 203 204 2nd Floor, The Geman II, 2nd  
Block, JAIPUR 302021  
TELEPHONE: 0141-2211070

E.&O.E

Eureka Forbes Limited reserves the right to discontinue or modify the availability of spares only up to 7 years from the date of invoice. See Overleaf for Declaration, Terms & Conditions.

TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY



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Rakesh Kabra  
Vikas Motwani

**President**  
Rajendra Surana  
9351456327

**Secretary**  
Girish Sharma  
9829364777

Ref.No.:

Date: 14.2.19

Kaladwas Chamber of Commerce and industries ( KCCI ) is the lead industry Chamber of RIICO industrial Area, Kaladwas with more than 300 industries as members.

This is to confirm that Techno India NJR Institute of Technology had donated 300 Tree Guards costing Rs. 141,000/- for Green Kaladwas Drive organised in the month of July 2016. .

We thank the Institute for their generous support in community and social support activities of Kaladwas area and nearby villages.

*Rajendra Surana*  
(Rajendra Surana)  
President

पंच.सं. निदेशावलि  
TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY

Co.: 08504003807

Mobile : 09829503112



# A.K. Engineering Works

Tin Shade Structure, Green Net House, Tree Guard, School Furniture  
 Section Window, Rolling Shutter, Grills, Steel Door, Steel Equipment & Fabricators  
 Rastradoot Press Street, Near A-One School, Ayad. Udaipur (Raj.)

Messers TECHNO NIK  
College, Udaipur

**VAT INVOICE**

Bill No. 252

Date: 04/07/16

Sr. No.	PARTICULARS	Qty./Weight	Rate	Amount
1	<p><u>labour work.</u></p> <p>Tree guard. 5x18"</p> <p>M.S. Seat welding &amp; R.H.</p> <p>M.S. Angle cutting &amp; welding.</p> <p>M.S. Jolt cutting &amp; welding.</p> <p>Complete labour work.</p>	300 Nos	470/- Per No. work.	141000/-
<p><b>BILL PASSED</b></p> <p>Ch. No. <u>62224116</u> 2455.</p> <p>Ant. <u>750000/-</u> 66000</p> <p>Date <u>18/7/16</u> 248716</p> <p><u>OK</u> <u>DSX</u></p> <p><u>Tree guard</u></p>				
<p>Rs. in words <u>one lac forty one thousand only</u></p>		<p><b>TOTAL</b></p>		141000/-
		<p><b>Vat @ .....%</b></p>		<u>labour work.</u>
		<p><b>Transportation</b></p>		
		<p><b>G.Total</b></p>		141000/-

All Subject to Udaipur Jurisdiction Only  
 Goods Once Sold will not be taken back.  
 E. & O. E.

For : A.K. Engineering Works

Customer's Signature

[Signature]  
 Authorised Signatory

### 3. Beyond the Campus Environment promotion Activity



## KALADWAS CHAMBER OF COMMERCE & INDUSTRIES

SPL-1, I.I.D. Centre, RIICO KALADWAS, Udaipur - 313003 (Raj.)  
E-mail : kcci.udaipur@gmail.com, Web : www.kcciudaipur.com

**Treasurer :**  
Hemant Jain

**President**  
Rajendra Surana  
9351456327

**Secretary**  
Girish Sharma  
9829364777

Ref.No.:

Date: 1-7-2018

**Vice President :**  
Om Lalvani

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**Joint Secretary :**  
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Prabhu Lal Dangi  
Prem Menariya  
Rakesh Kabra  
Vikas Motwani

We thank Techno India NJR for their concern for the society.

*Rajendra Surana*  
(Rajendra Surana)  
President.

TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY