

ENVIRONMENT AUDIT CERTIFICATE

This is to certify that Environment Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

Uran Education Society's College of Management & Technology
Palak Maidan, Bori, Uran Maharashtra

Date of Audit: 20/05/2023

Assessment Period: 2021-2023 Valid till: 19/05/2024




ANUP A. SAMANT
TECHNICAL DIRECTOR




ASHUTOSH V. THAKUR
MANAGING DIRECTOR

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28 MEDA/ECN/2023-24/Class-A/EA 28

Empanelled Energy Auditor-CLASS A, MEDA, Government of Maharashtra

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

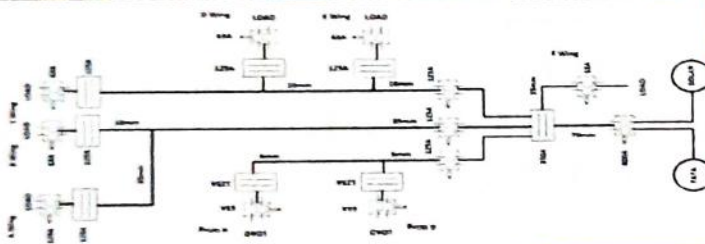


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UES's College of Management & Technology Palak Maidan, Bori, Uran Maharashtra



Report By

M/s. Saur Engineers &
Consultants Pvt. Ltd.,
Mumbai.

- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
- Licensed Electrical Contractor,

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Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning
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Detailed Report Environment Audit

Project Beneficiary 2021-2023

Uran Education Society's College of Management & Technology

Palak Maidan, Bori
Uran Maharashtra

Consultants & Auditor

SAUR Engineers & Consultants Pvt. Ltd.

REGISTRATION NO. : EA-28

D-8, Plot No. 108, Akshay, Rsc-16,
Gorai-1, Borivali (west), Mumbai-400092
MAHARASHTRA
+919867499812/+919168402909

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Acknowledgement

This is to certify that Detailed Environment Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company.

This activity is jointly executed by auditor and beneficiary to account Environmental diversities and development opportunity without sacrificing it's purpose. The main object was to assess the existing system for Environment concerns, High quality, professional and sustainable Environment management, Adopt best practices and Standard operating procedures.

Beneficiary premise is a leading educational service utility in semi-urban area. The college is run as per the norms and standards and having awareness and approach towards Environment saving. The management and staff are keen on saving greenery and energy on every opportunity available.

We sincerely acknowledge efforts of Management and staff members for smooth execution of audit process. We sincerely acknowledge the leaders and guides of the activity who helped to design and supported to the execution of the process

Mrs. Sonali Mhatre, Principal and Team Head
Dr. Minakshi Gupta, Team Member, Teaching
Ms. Manali Haldankar, Team Member, Teaching
Ms. Neha Varma, Team Member, Non-Teaching
Mr. Sairam Pradhan, Team Member, Student
Mr. Anil Mhatre, Team Member, Electrician
Mr. Ajay Kumar Yadav, Team Member, Helper
Mr. Kishor Shama, Team Member, External expert
and all other technical, teaching, non-technical staff and students of college.



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Name of Beneficiary: Uran Education Society's College of Management & Technology

Registration Number: F-173 COLABA

Address: Palak Maidan, Borj, Uran Maharashtra

Contact Person: Dr. Minakshi Gupta

Contact Number: 8108214659

Date of Audit: 20/05/2023

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ENERGY AUDITOR "CLASS-A" No. EA-28
SAUR ENGINEERS & CONSULTANTS PVT. LTD.
Plot No. 108, D-8, Coral-1, Borivali (W),
Mumbai - 400 091.

Sign & Seal

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28

**Empanelled Energy Auditor-CLASS A,
MEDA, Government of Maharashtra**

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1. Introduction

Environmental Audit is a process of systematic identification, quantification, recording, reporting and analysis of impact on components of environmental diversity properties of institute. It aims to analyse within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Environmental audit is a valuable means for an Institution related to educational area to determine how and where they are impacting on natural resources or diversity of nature. Environmental audit report includes assessment of premises which refers to impact on environment with carbon emission, wastages in terms of initiatives, implementation, best practices, working environment, capacity utilization based on all above parameters observed during Environmental audit along with conditions and benchmarks as Wastage types, recycling, Greenery, effect of impact, Carbon footprints as well as biodiversity conditions. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an environment-friendly view of life while making changes and planning for savings.

It can create health consciousness, environmental awareness, practice green values and ethics. It provides better understanding of impact on surrounding conditions to staff and students. If self-enquiry is natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the institution evaluates its own contributions towards a sustainable future. As the pollution and CO₂ is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to several greenery and ecological crisis. On this background it becomes essential to adopt the system of Green Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. The National Assessment & Accreditation Council, New Delhi (NAAC) has made it mandatory to all Higher educational institutions should submit a *Environmental audit Report*. Moreover, it is social responsibility of a Higher educational institution to ensure that they contribute towards the saving of environment and reduce level of quantity for impact on natural resources available.



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1. Objective

The Environmental audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing greenery and natural resources depletion. The institution has been putting efforts to keep clean and green atmosphere since its inception. Therefore the purpose of present Environmental audit is to identification, quantification, recording, reporting and analysis of components of surrounding environmental properties of institute framework as a part of global environment sustainability. The main objectives to carrying out the Environmental audit are:-

- To record and document Wastage type and management
- To record and document Recycling Procedures
- To record and document Impact on environment
- To record and document Carbon footprints
-

2. Methodology

The purpose of Environment Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

The report is based on the documents obtained while on site, visual inspection and data collection carried out during the assessment period. All the measurements recorded on site are indicative loads and duties. All readings are collected for analysis and improvement planning. Cost estimates are indicative only as more detailed design and acceptance of suggestions will be required to improve the accuracy of these estimates.

The units are selected from SI (international standards) with meters, Celsius degrees, Etc.

3. Audit Statement

The building is adopting the "Energy Efficient Campus" system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.



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2. Topography

1. Overview

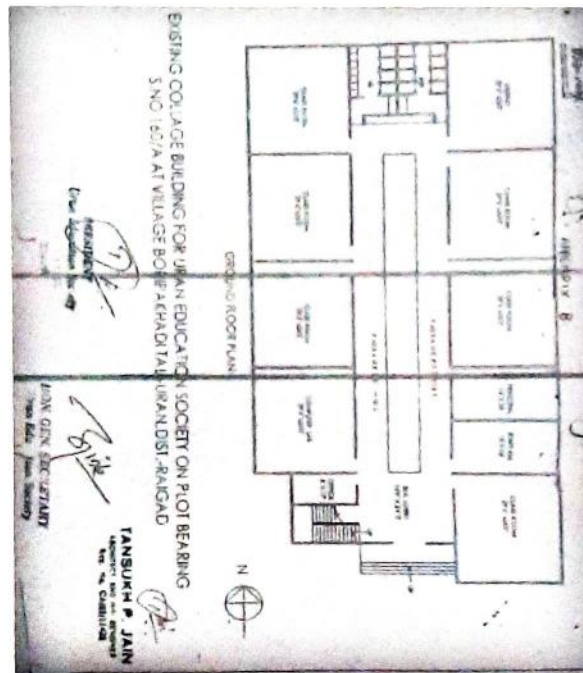
SL No	Head	Details
1	Name of Applicant Institution	Uran Education Society's College of Management & Technology
2	Address	Palak Maidan, Bori, Uran Maharashtra
3	Contact Number	8108214659
4	Registration Certificate Number	F-173 COLABA
5	Sector Type	Education
6	Senior Management Contact	Ms. Minaxi Gupta
7	Contact Number	8108214659
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	13-15
11	Year of Establishment	2008
12	Plot Area (ft ²)	Approximate 5700 ft ²
13	No of Buildings	1
14	Building Type	RCC
15	Age of Building	20 Years
16	Leakages/Cracks on wall/roof	Minor
17	No. of workers (Footfall)	15 – 16
18	No. of Customers (Footfall)	300-350
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	8
22	DG Set installed	Yes common for all premises
23	Inverter Installed	No
24	Renewable Energy System installed	No
25	(Solar/Wind/Biomass/Biofuel/Etc.)	No

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2. Location

SL No	Head	Details	Remark
1	Name of Institute	UESCMT	
2	Category	College	Educational Institute
3	Address	Palak Maidan, Bori, Uran Maharashtra	
4	State	Maharashtra	
5	Nearest Railway Station	Panvel	Outstation
		Uran (proposed)	Local
6	Nearest Bus Station	Panvel	Interstate
		Uran	Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	18.882513	
9	Latitude	72.934656	

**3. Layouts
Floor Map**

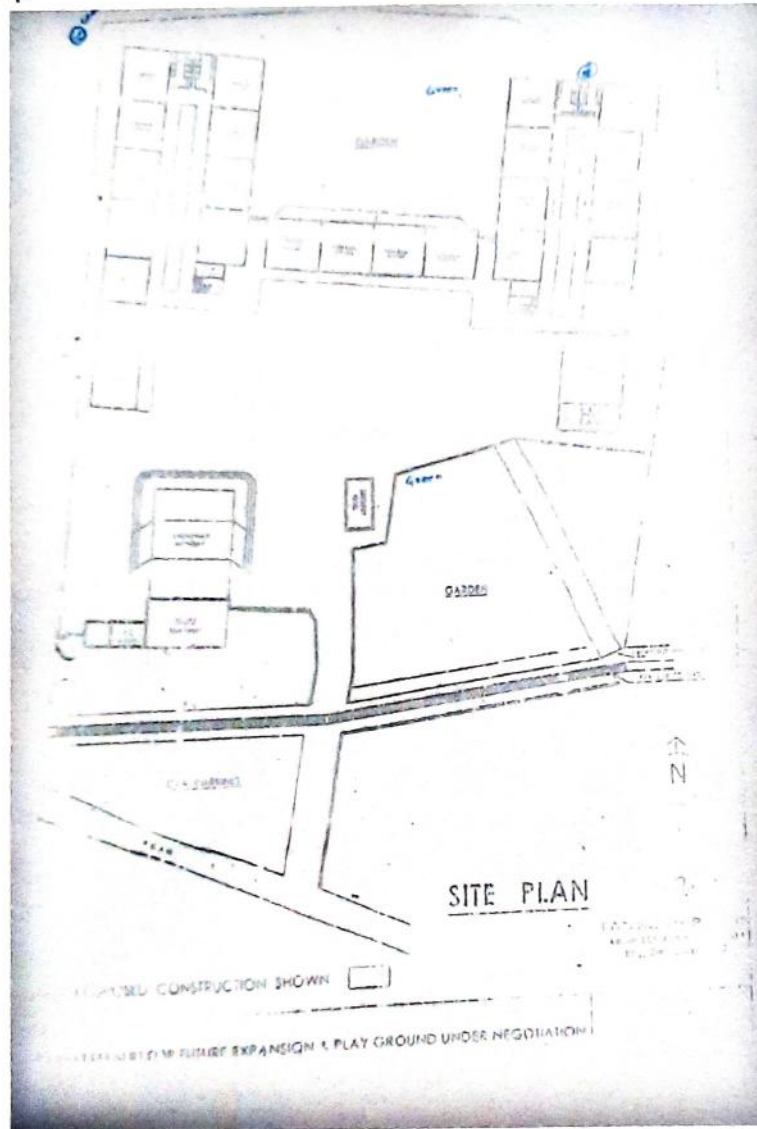




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Site Map



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Google Map



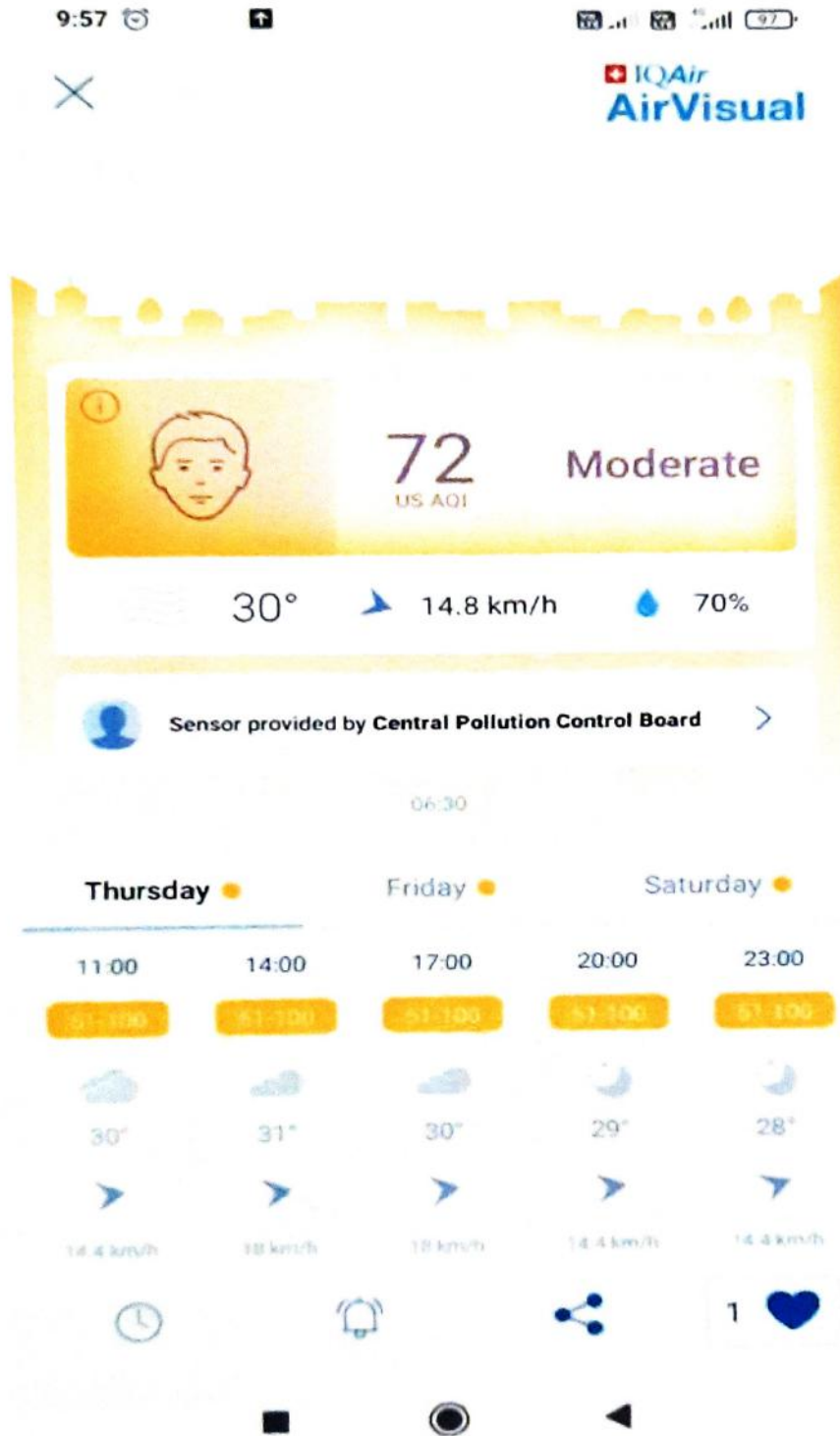
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3. Air Quality Analysis



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Pollutants

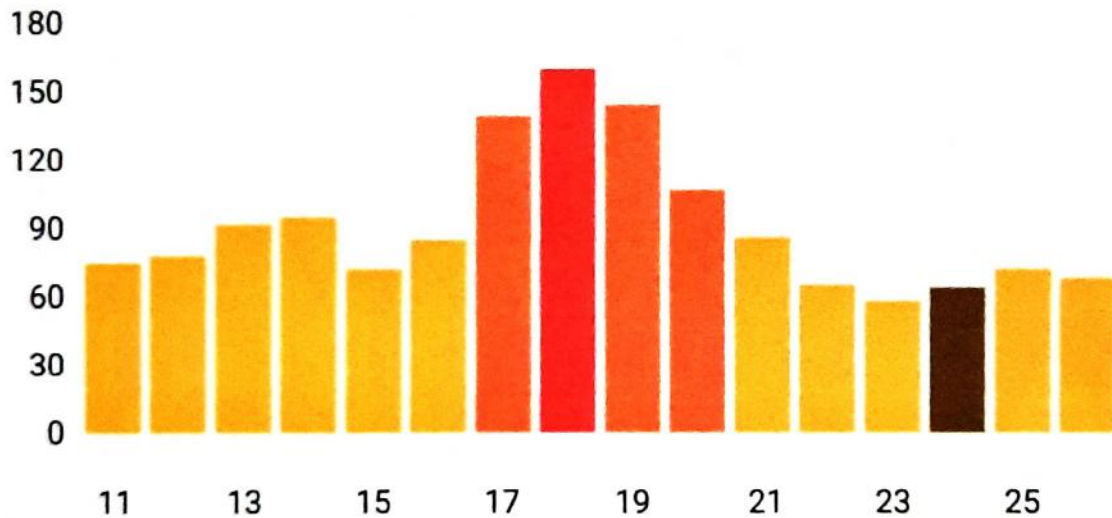
PM2.5 $\mu\text{g}/\text{m}^3$
9.6

PM10 $\mu\text{g}/\text{m}^3$
97

O3 $\mu\text{g}/\text{m}^3$
29

SO2 $\mu\text{g}/\text{m}^3$
10.4

CO $\mu\text{g}/\text{m}^3$
860



USAQI

PM2.5

PM10

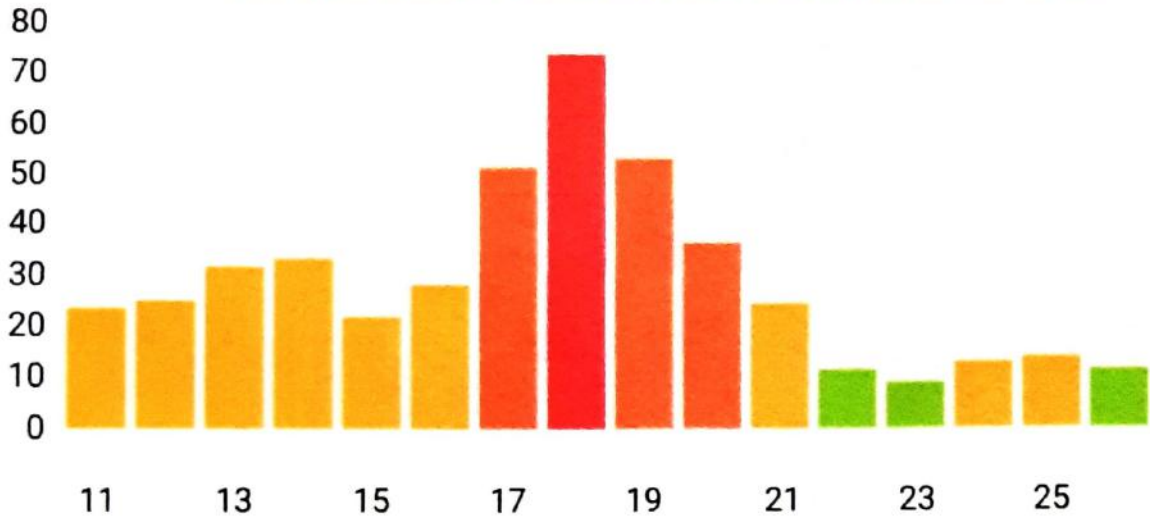
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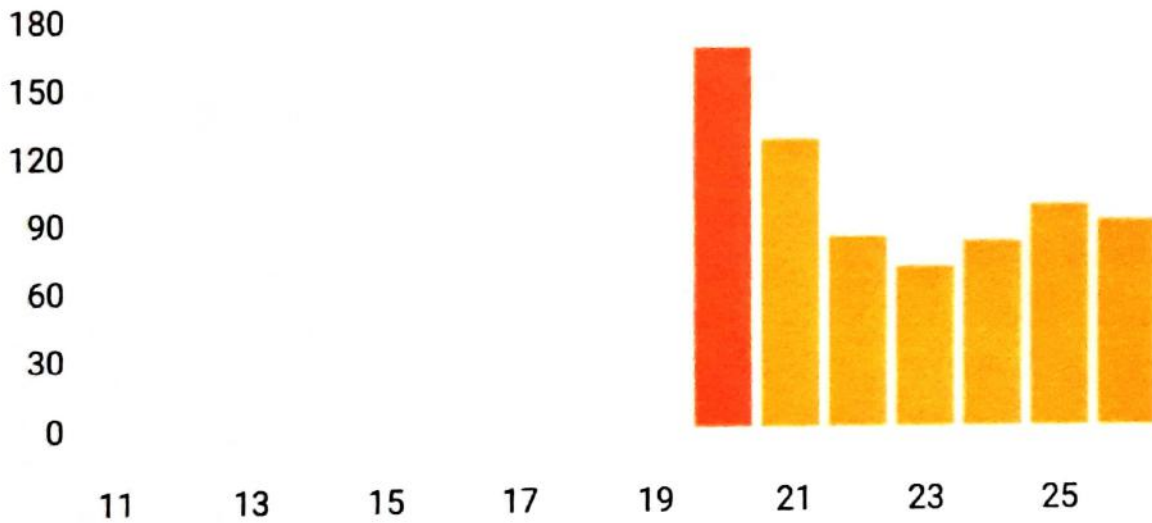


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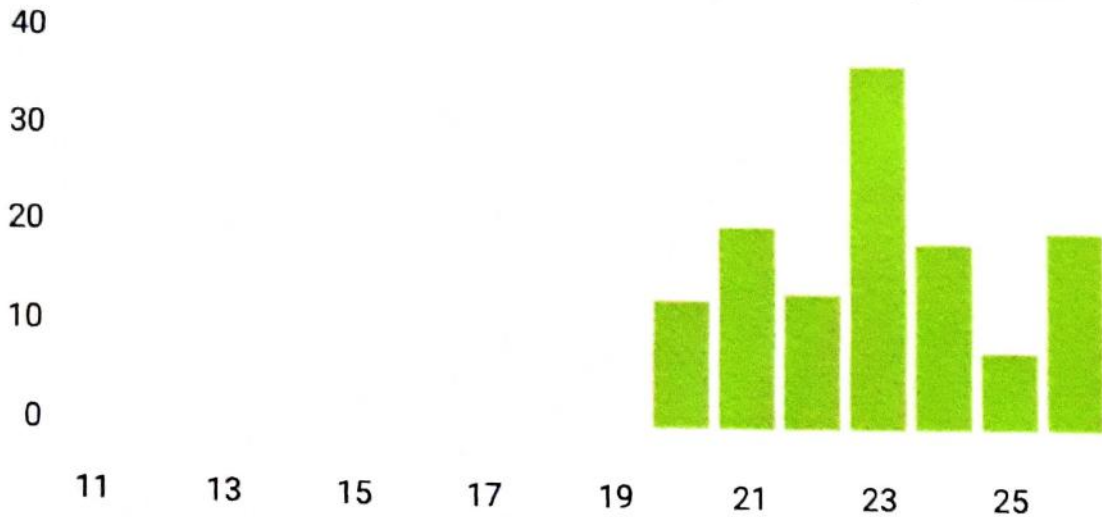
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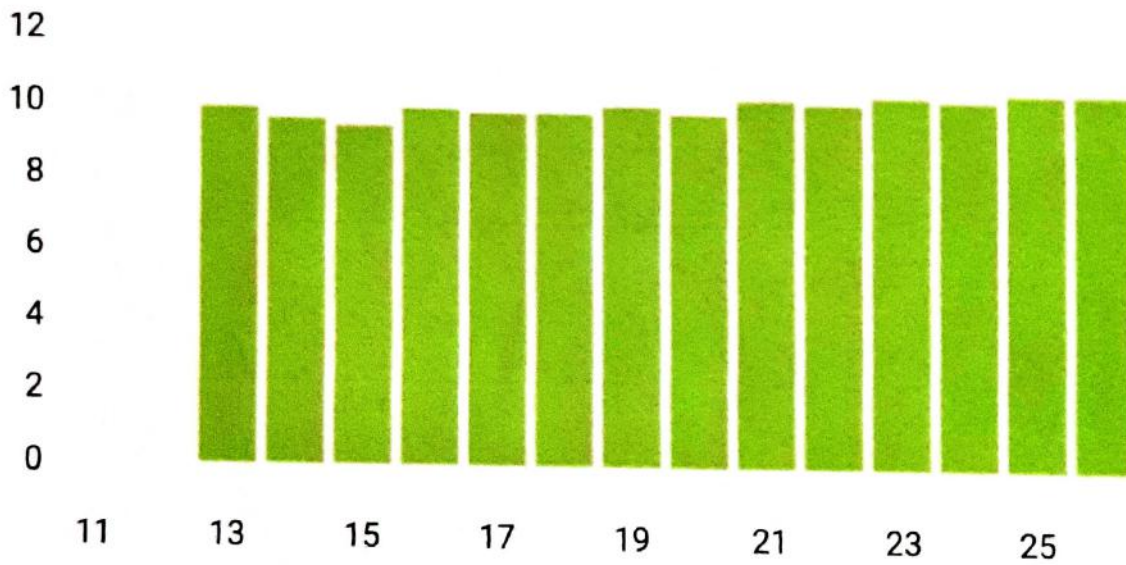


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SO2

CO



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03

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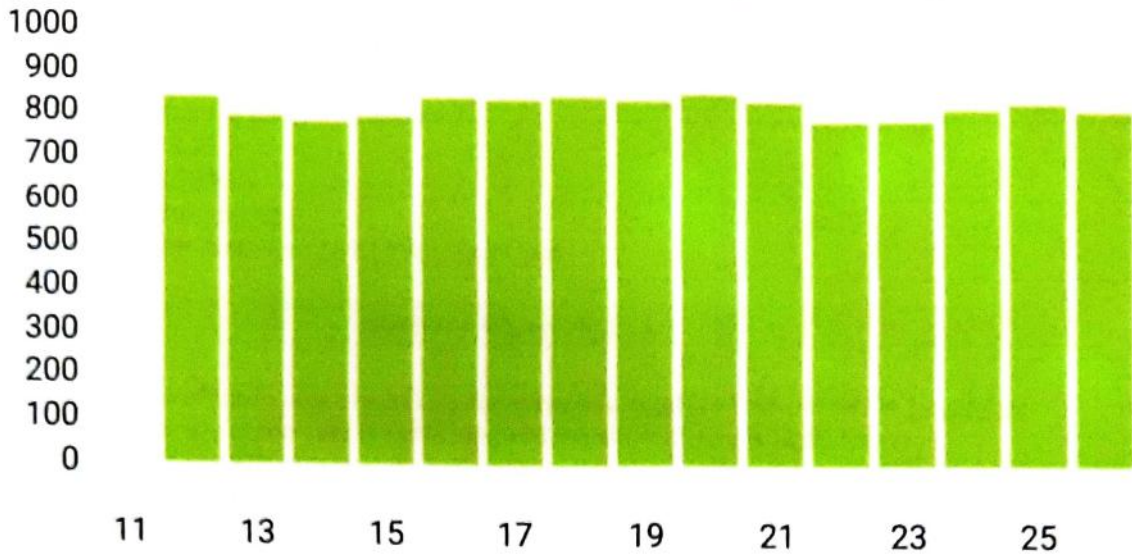
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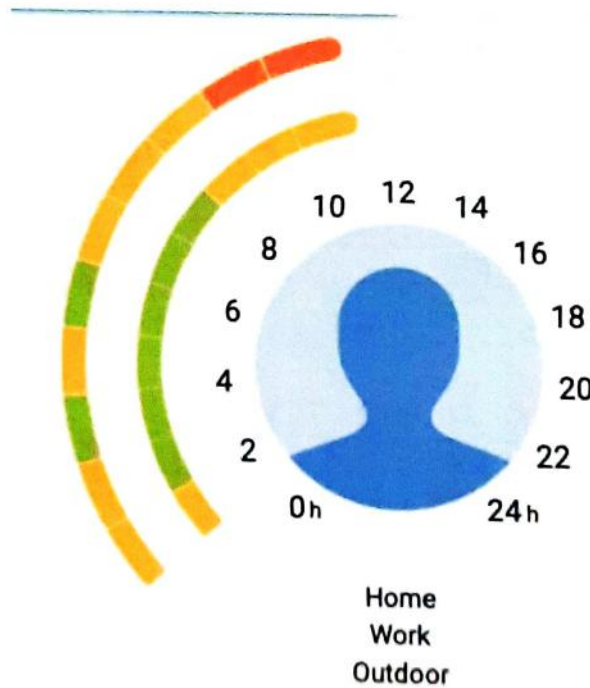


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CO



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Weather/Meteorology Data:-

Uran, Maharashtra

The following are the site co-ordinates.

Latitude: 18.88





Longitude: 72.93

Average Altitude: 43 m

Annual Solar radiation: 369.2 kWh/ Sq.m/year

Sunshine & Daylight Hours

- Hours of sunshine in range from 2:11 for every day in July to 9:48 per day in December
- The longest day of the year is 13:08 long and the shortest day is 10:51 long.
- The longest day is 2:16 longer than the shortest day.
- There is an average of 2680 hours of sunlight per year (of a possible 4383) with an average of 7:20 of sunlight per day.
- It is sunny 61.1% of daylight hours. The remaining 38.9% of daylight hours are likely cloudy or with shade, haze or low sun intensity.
- At midday the sun is on average 70.1° above the horizon at Mumbai/ Bombay.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
 Average Sunlight Hours/Day	09:00	09:24	09:05	09:18	09:17	05:24	02:11	02:36	04:54	08:00	09:12	09:48	07:20
 Average Daylight Hours & Minutes / Day	11:06	11:29	12:00	12:33	13:00	13:14	13:07	12:44	12:12	11:40	11:12	10:59	12:00
 Sunny & (Cloudy) Daylight Hours (%)	82 (18)	83 (17)	77 (23)	75 (25)	72 (28)	41 (59)	17 (83)	21 (79)	40 (60)	69 (31)	83 (17)	90 (10)	61 (39)
 Sun altitude at solar noon on the 21st day (°).	51.1	60.4	71.3	83	88.5	85.4	87.8	83.2	71.7	60.2	51	47.7	70.1







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Rainfall/ Precipitation

- It receives on balance 2168 mm (85.4 in) of rainfall per year, or 180.7 mm (7.1 in) per month.
- On average there are 107 days per year with more than 0.1 mm (0.004 in) of rainfall (precipitation) or 8.9 days with a quantity of rain, sleet, snow etc. per month.
- The driest weather is in January, February & March when an average of 0 mm (0 in) of rainfall (precipitation) occurs.
- The wettest weather is in July when an average of 682 mm (26.9 in) of rainfall (precipitation) occurs.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annua
 Average Mm	0	0	0	2	12	592	682	487	307	61	23	2	2168
 Liters/m ²	0	0	0	2	12	592	682	487	307	61	23	2	2168
 Number of Wet Days	0	0	0	1	2	20	29	27	21	5	2	0	107
 Percentage of Sunny (Cloudy) Daylight Hours	82 (18)	75 (25)	77 (23)	72 (28)	72 (28)	40 (60)	17 (83)	21 (79)	39 (61)	69 (31)	80 (20)	90 (10)	61 (39)



Average Temperatures

- The average temperature is hot at 27.5 Degree Celsius.
- Mean monthly temperatures have a variation of 5.7 Degree Celsius.
- Mean daily temperatures have a variation of 7.6 Degree Celsius.
- The hottest month (May) having mean temperature of 30.2 Degree Celsius.
- The coolest month (January) having mean temperature of 24.5 Degree Celsius.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
 + Average Max Temp °C	29.6	29.6	31.1	32.3	33.4	32	30.1	29.6	30.5	32.5	32.9	31.6	31.3
 Average Temp °C	24.5	24.8	26.9	28.7	30.2	29.2	27.7	27.3	27.7	28.7	28	26.3	27.5
 - Average Min Temp °C	19.3	20	22.6	25	27	26.3	25.3	24.9	24.9	24.8	23	20.9	23.7

Relative Humidity

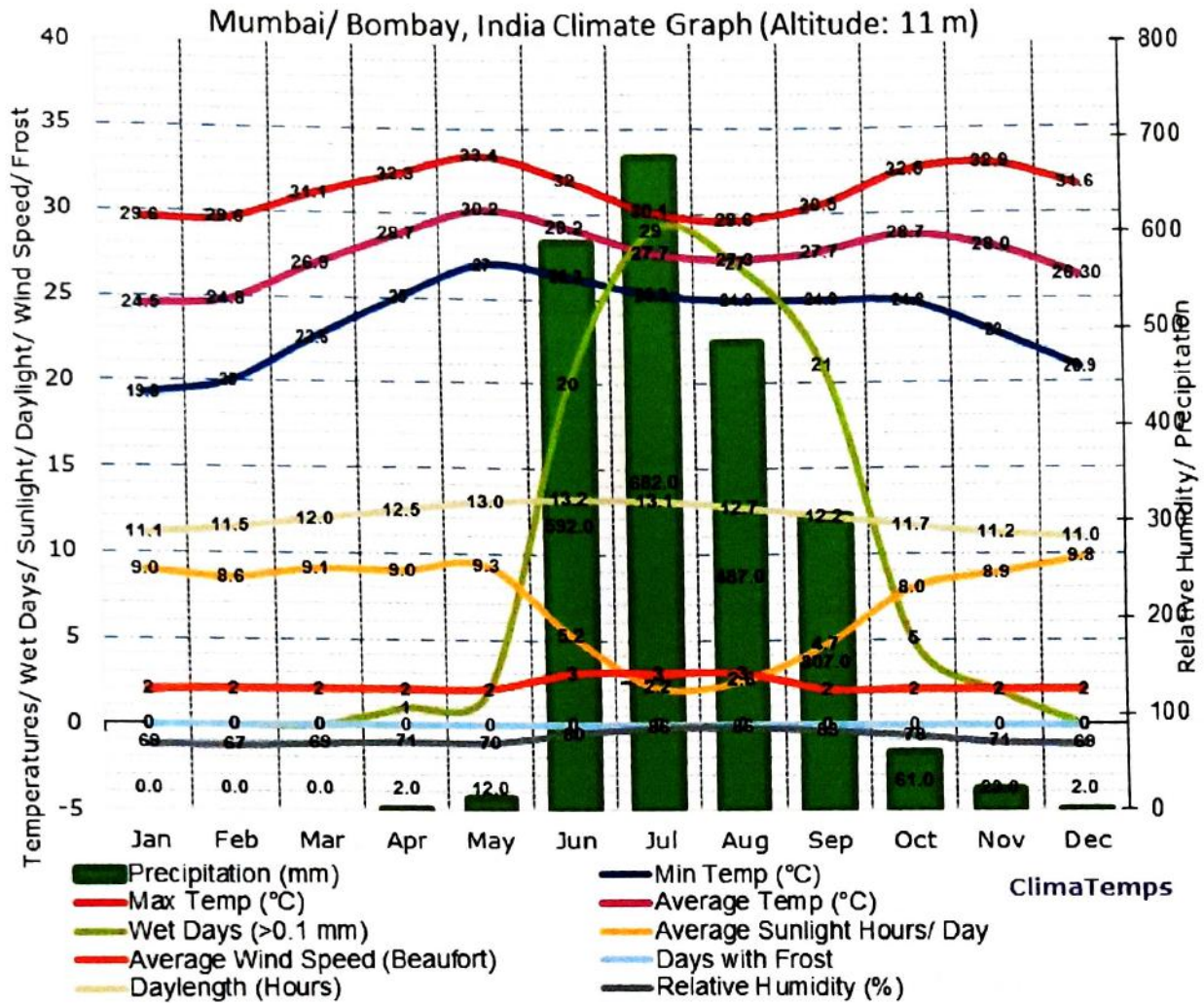
- The average annual relative humidity is 74.9% and average monthly relative humidity ranges from 67% in February to 86% in July.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
 Relative Humidity (%)	69	67	69	71	70	80	86	86	83	78	71	69	74.9
 Average Dew Point Temp °C	18.4	18.3	20.7	22.9	24.1	25.4	25.1	24.7	24.5	24.5	22.2	20.2	22.6



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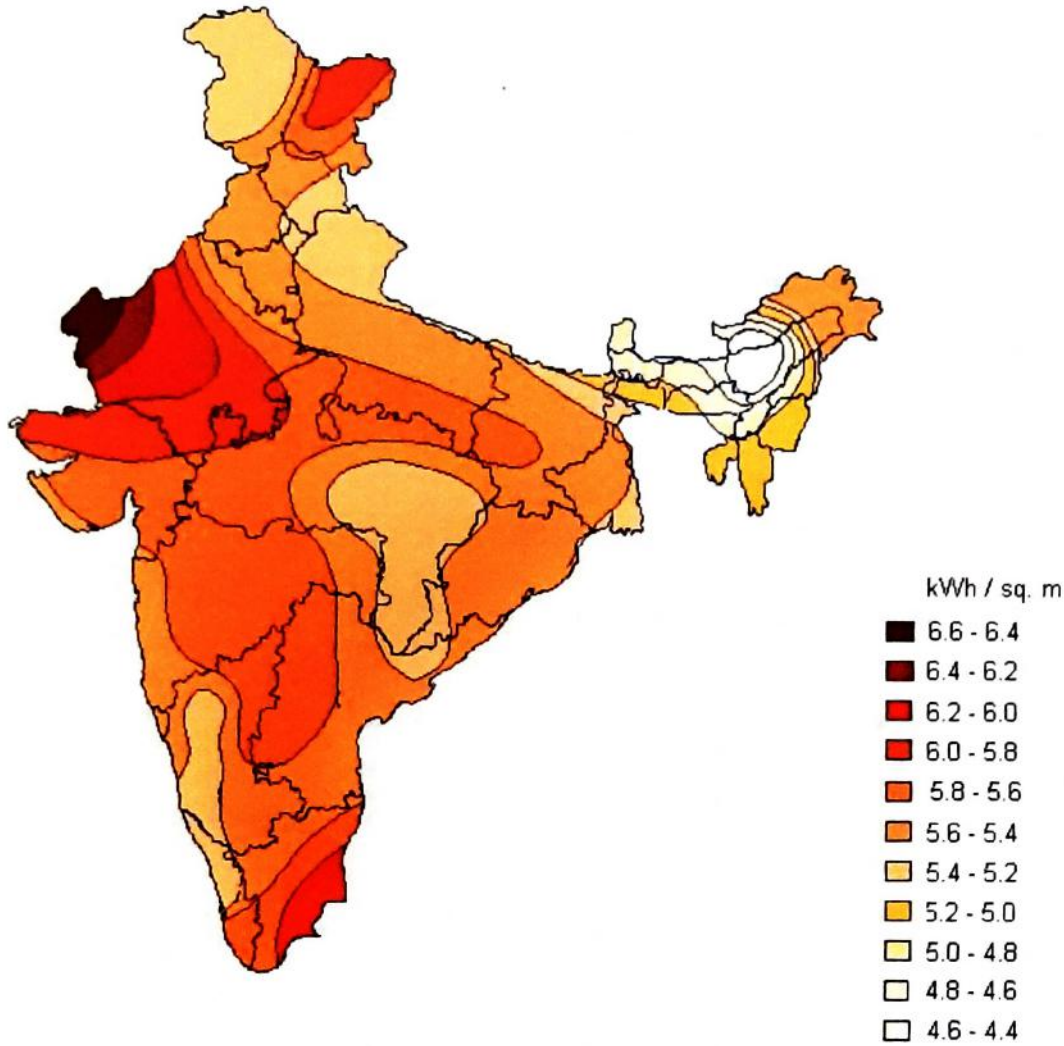
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Radiation Data



Month	Irradiation(KWh)
Jan	5.32
Feb	6.25
Mar	7.05
Apr	7.38
May	7.33
Jun	5.64
Jul	5
Aug	5.12
Sep	5.65
Oct	5.72
Nov	5.38
Dec	5

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Sun Position Report

Values obtained as:

Sun Position

Latitude:	19 5' N	Time zone:	UTC +5.5
Longitude:	72 51' E		No DST
Magnetic declination:	0 37' W		

Magnetic North was used for this calculation.
Do not correct compasses for Magnetic declination, this has been accounted for in the calculations.

Daily Summary	C Dawn	Az'	Sunrise	Day Length	Sunset	Az'	C Dusk
Thu 21/12/2020	06:42	114.6°	07:06	10:60	18:05	245.6°	18:29
Fri 22/12/2020	06:43	114.6°	07:06	10:60	18:05	245.6°	18:29
Sat 23/12/2020	06:43	114.6°	07:07	10:59	18:06	245.6°	18:30
Sun 24/12/2020	06:44	114.6°	07:07	10:60	18:06	245.6°	18:30
Mon 25/12/2020	06:44	114.6°	07:08	10:60	18:07	245.6°	18:31
Tue 26/12/2020	06:45	114.6°	07:08	10:60	18:08	245.6°	18:31
Wed 27/12/2020	06:45	114.6°	07:09	10:60	18:08	245.6°	18:32

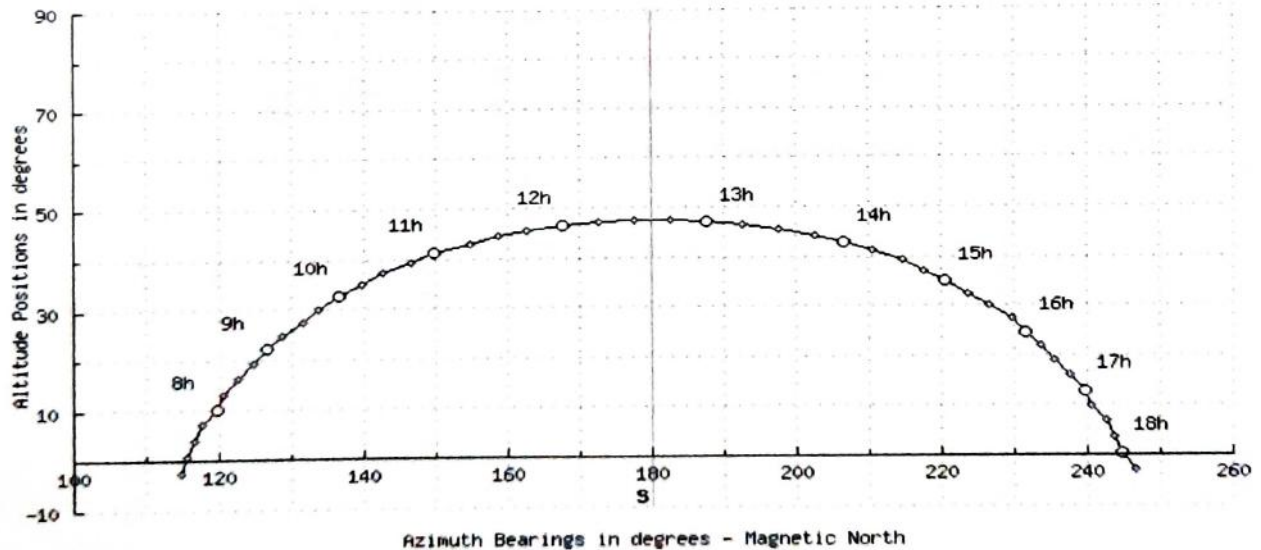
Thursday, 21st December 2020

Az'	Alt'	*Shadow	Az'	Alt'	*Shadow	Az'	Alt'	*Shadow	Az'	Alt'	*Shadow
07:00	115°	-2°	10:00	137°	33°	13:00	188°	47°	16:00	232°	25°
	116°	1°		140°	35°		193°	46°		234°	22°
	117°	4°		143°	37°		198°	46°		236°	19°
	118°	7°		147°	40°		203°	44°		238°	16°
08:00	120°	10°	11:00	150°	41°	14:00	207°	43°	17:00	240°	13°
	121°	13°		155°	43°		211°	41°		241°	10°
	123°	16°		159°	44°		215°	39°		243°	7°
	125°	19°		163°	46°		218°	37°		244°	4°
09:00	127°	22°	12:00	168°	47°	15:00	221°	35°	18:00	245°	0°
	129°	25°		173°	47°		224°	33°		247°	-3°
	132°	28°		178°	47°		227°	30°			
	134°	30°		183°	47°		230°	27°			

Calculation intervals: Every 15 minutes :: Shadow length = (*Shadow x Object height)

Sunrise: 07:06 - Az' 114.6°

Sunset: 18:05 - Az' 245.6°



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Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20

Get Location

Calculate



Longitude / Latitude :	72.934654 / 18.882544
Location:	Karanja Road, Boripakhadi, Navi Mumbai, Maharashtra. Pin-400702 (India)
DayLength (Min / Max):	10.86 / 13.14 hours
Avg Temp. (Min / Max):	23.0 °C / 31.0 °C
Tilt Angle for Solar PV:	16°
Annual Global Insolation:	1884 (kWh/m ² /year)
Power Production of PV:	376.8 kWh/m ² /year considering <input type="text" value="20"/> % efficiency and energy loss.
	<input type="text" value="10"/> m ² of PV will generate 3768.0 units per year.
	or
	10.3 units per day.



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Get Location

Calculate



Long Term Monthly Temperature (°C)													
Months	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	23	19	20	22	24	26	26	25	25	25	24	22	20
Max	31	29	29	31	32	33	32	30	29	30	31	32	31

Long Term Monthly Solar Insolation (2009-2021)(kWh/m ²)													
Months	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	1542	113	137	152	182	169	98	83	129	113	122	123	121
Max	2215	139	154	188	199	216	208	239	226	199	167	144	136
Avg	1884	134	145	180	192	204	148	145	169	153	150	134	130

Monthly Solar Insolation (2009 -2023)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	1094	138	146	175	182	205	159	89					
2022	1771	136	147	175	193	187	126	108	161	135	138	137	128

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 Longitude: 72.934656 Accuracy: 20

Get Location **Calculate**



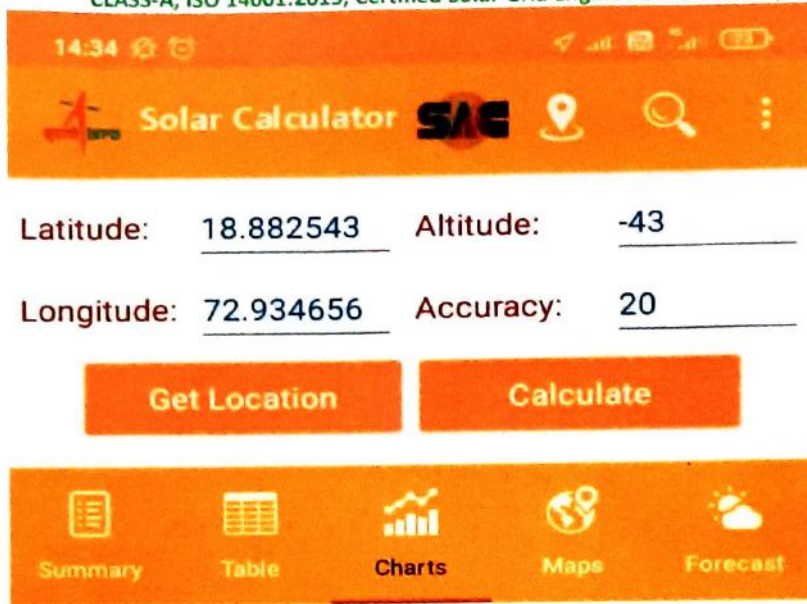
Monthly Solar Insolation (2009 -2023)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	1094	138	146	175	182	205	159	89					
2022	1771	136	147	175	193	187	126	108	161	135	138	137	128
2021	1730	133	140	184	188	169	126	124	129	127	162	123	125
2020	1827	131	144	176	182	202	144	153	143	153	149	125	125
2019	1735	113	140	152	182	206	163	121	166	113	122	136	121
2018	1888	135	137	172	194	201	140	127	193	172	152	138	127
2017	1947	135	146	183	194	208	158	167	175	167	153	135	126
2016	1899	136	151	184	191	208	151	130	182	151	147	136	132
2015	1873	136	144	180	197	210	129	160	142	155	154	133	133
2014	1831	132	141	186	195	197	173	113	138	146	147	132	131
2013	1764	137	147	185	194	213	98	83	149	130	151	143	134

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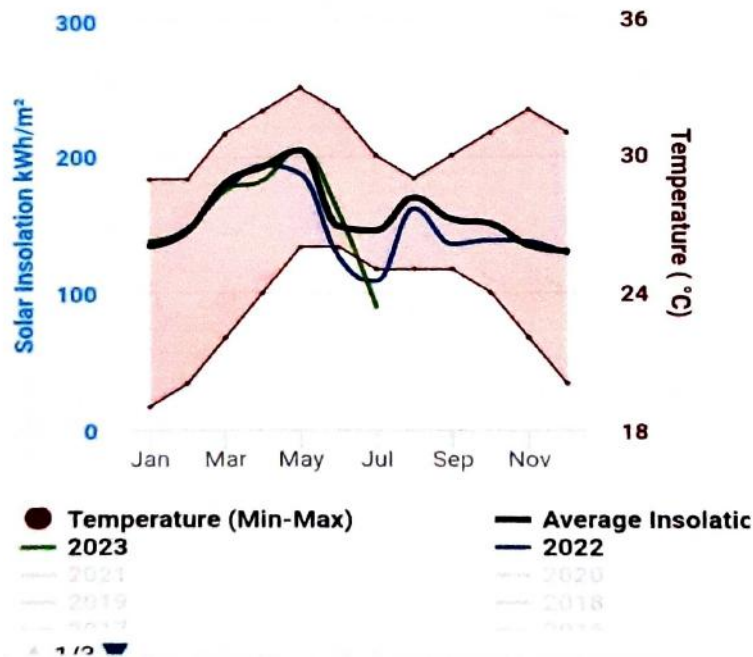


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Insolation and Temperature



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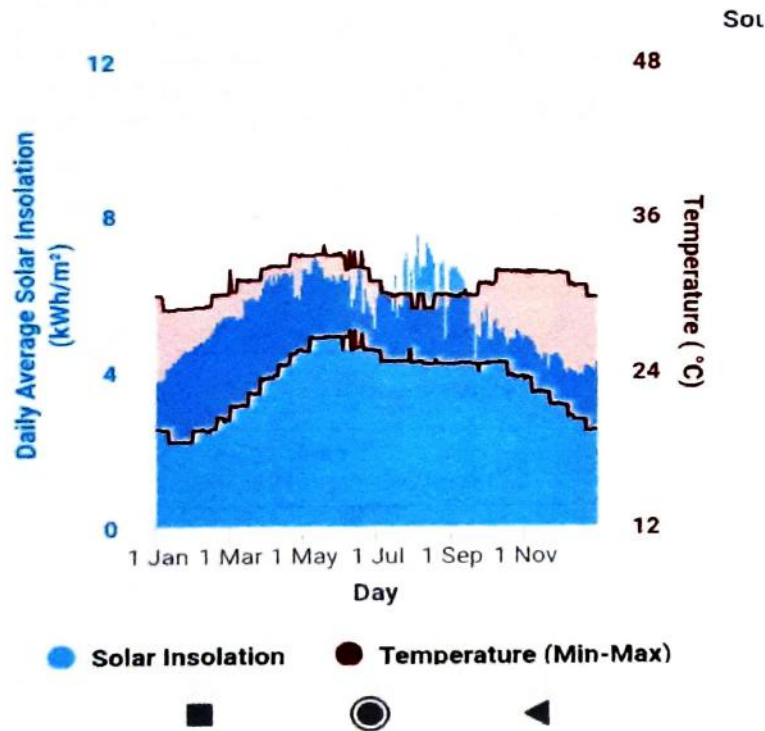


Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20



Daily Average Solar Insolation (2014-17) & Temperature



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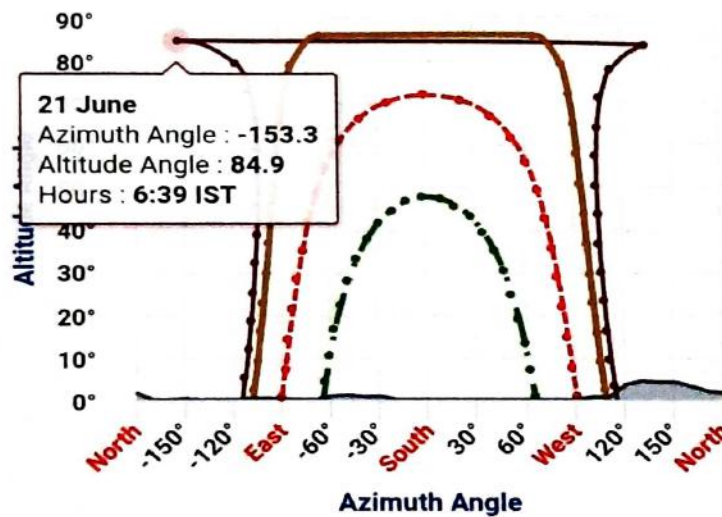


Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20



Sun Path



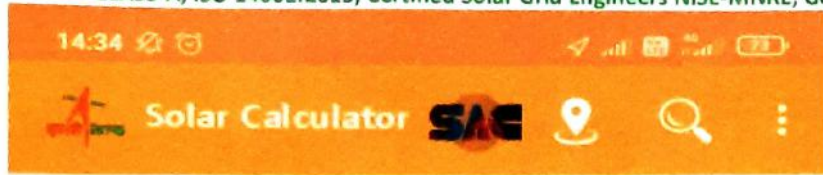
- 21 June
- 21 March/September
- 21 December
- Current Date (04 Aug)
- Terrain Horizon

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Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20

Get Location

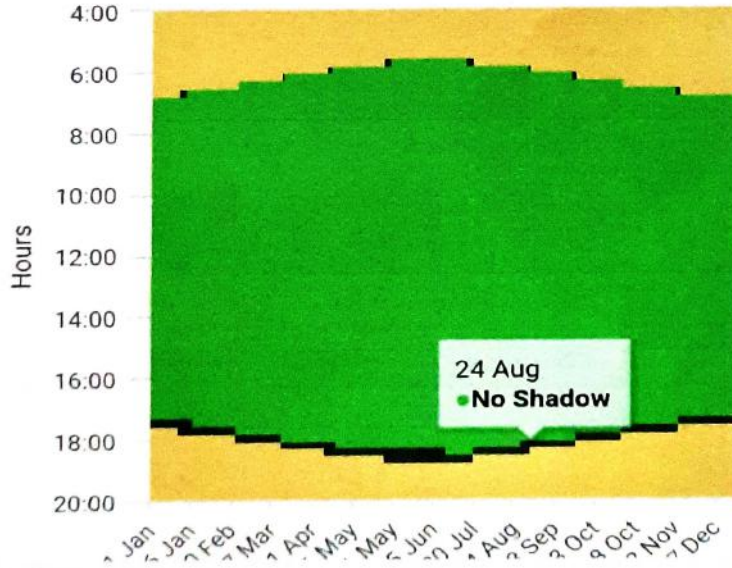
Calculate



— Day Length (Hours)

Solar Heat Map For Shadow Analysis

Shadow variation by day and hour for latitude 18.882543 longitude 72.934656

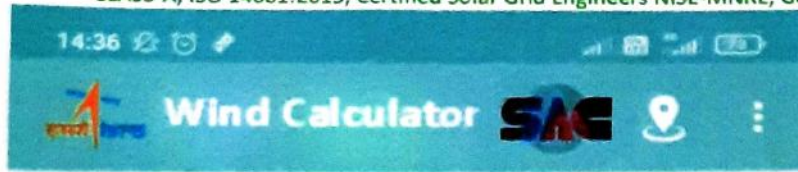


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Latitude: 18.8825431

Get Location

Longitude: 72.9346562

Calculate



Latitude : 18.8825431

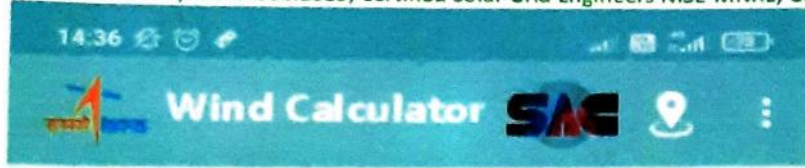
Longitude : 72.9346562

Month	Wind Speed (m/s)	Wind Direction(°)
January	2.0	227 ↙
February	1.7	217 ↙
March	1.6	217 ↙
April	1.3	256 ←
May	1.2	291 ←
June	2.4	12 ↑
July	3.3	46 ↗
August	2.6	56 ↗
September	1.8	289 ←
October	1.6	249 ←
November	1.9	242 ←
December	2.0	240 ←



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Latitude: 18.8825431

Get Location

Longitude: 72.9346562

Calculate

Month	Value	Direction
June	2.4	12 ↑
July	3.3	46 ↗
August	2.6	56 ↗
September	1.8	289 ←
October	1.6	249 ←
November	1.9	242 ←
December	2.0	240 ←

NOTE:

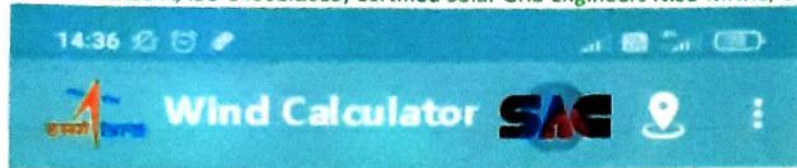
* The wind data over oceans has been generated using QUIKSCAT (1999-2010) and OSCAT (2010-2014) scatterometer products at 10 m height above the sea surface.

*The wind data over land are Surface winds forecast at 5 km spatial resolution from WRF model.



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Latitude: 18.8825431

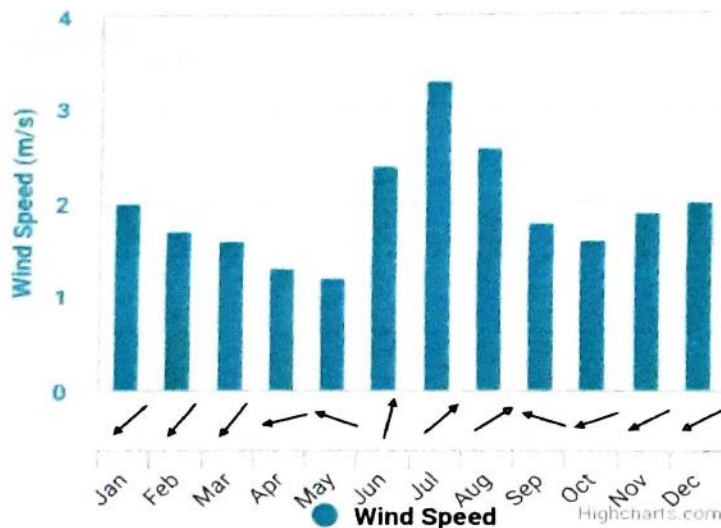
Get Location

Longitude: 72.9346562

Calculate



Wind Chart



4. Water Quality Analysis

Water Resource

1. Municipal Water
2. Bore well



3. Open Well



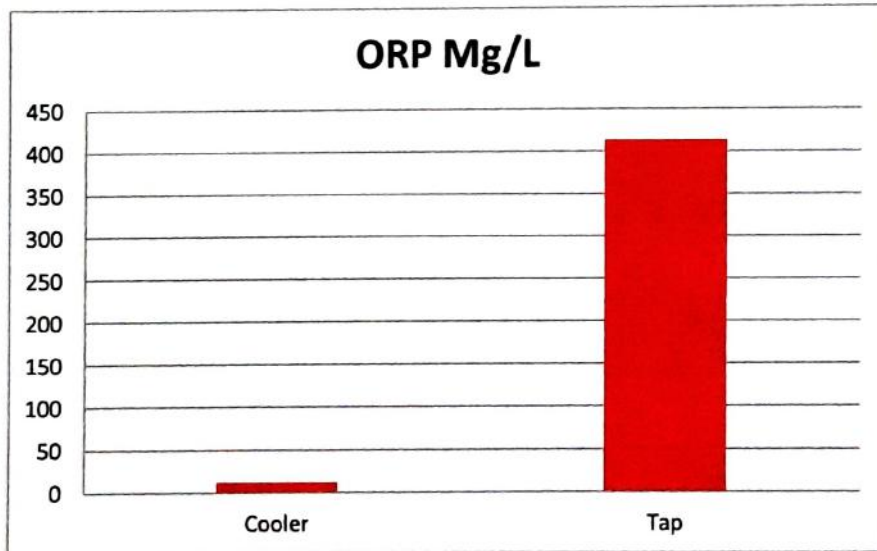
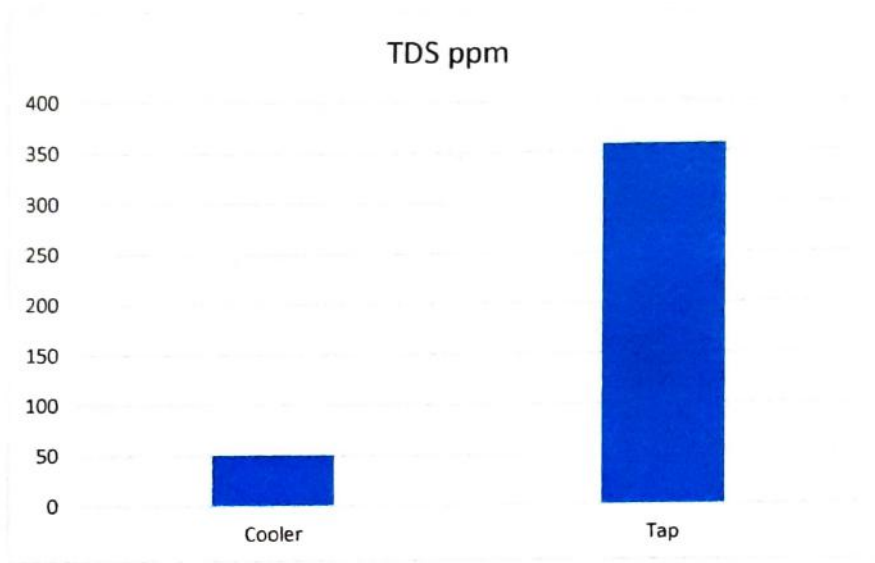


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Water Quality

SL No	Use	TDS	ORP	Alkalinity
No	Activity	ppm	Mg/L	pH
1	Drinking	51	12	11.8
2	Tap	358	413	9.2

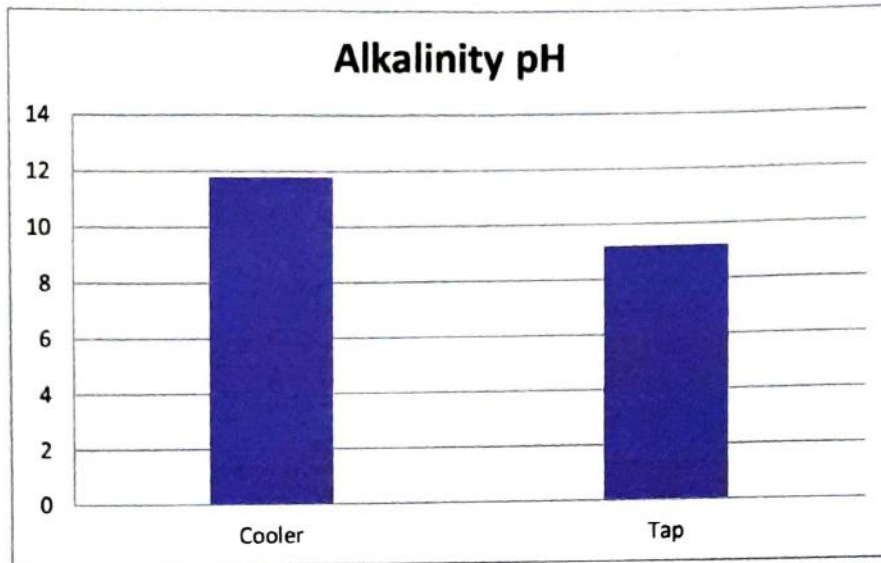


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5. Atmosphere Analysis

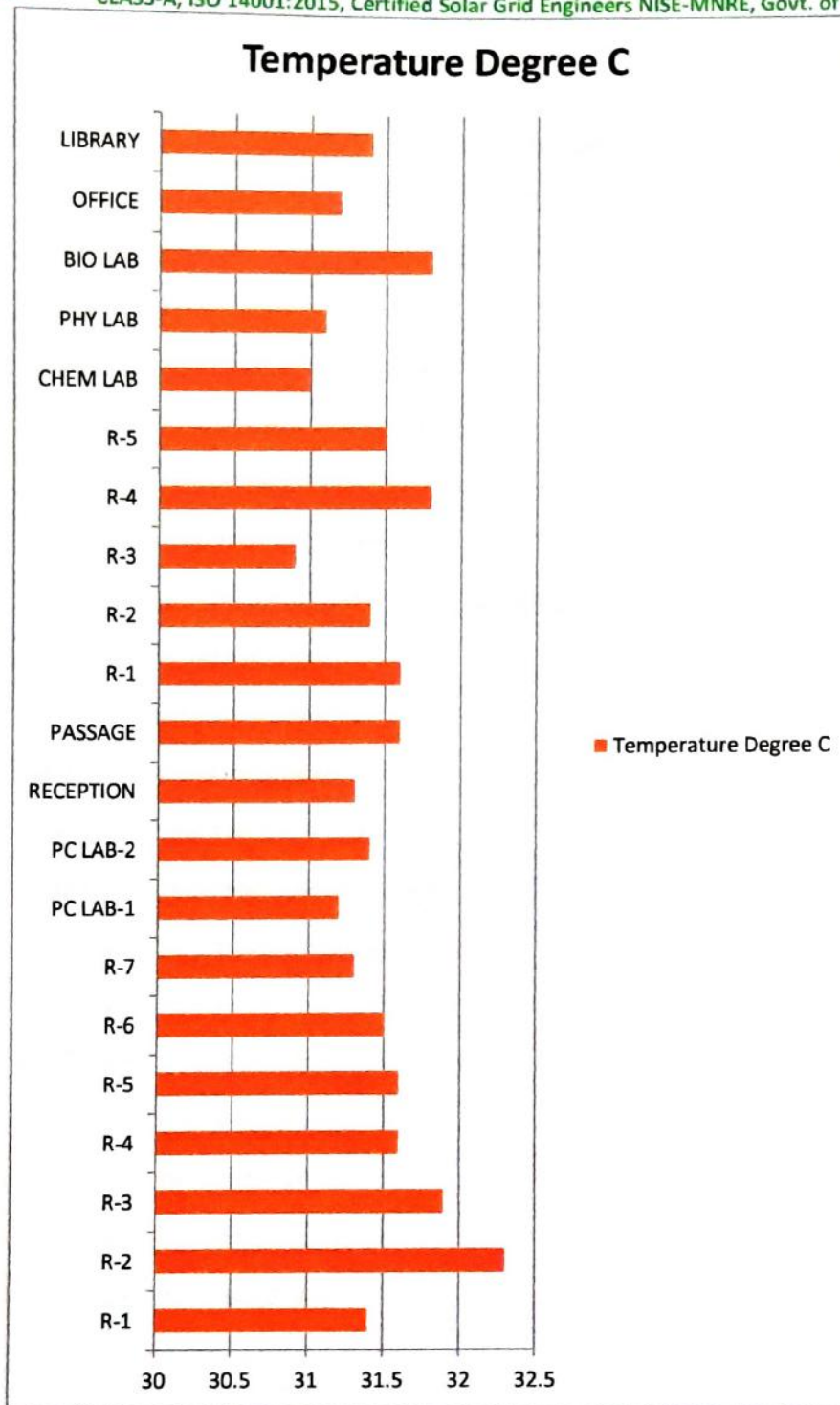
Floor	Room	Temperature	Humidity	Noise
		Degree C	%	dB
Ground	R-1	31.4	65.6	49
Ground	R-2	32.3	66.1	48
Ground	R-3	31.9	65.8	48
Ground	R-4	31.6	66.2	48
Ground	R-5	31.6	65.4	48
Ground	R-6	31.5	65.4	48
Ground	R-7	31.3	69.2	49
Ground	PC LAB-1	31.2	68.4	49
Ground	PC LAB-2	31.4	66.2	48
Ground	RECEPTION	31.3	66.5	50
Ground	PASSAGE	31.6	65.4	46
FIRST	R-1	31.6	65.3	46
FIRST	R-2	31.4	70.2	48
FIRST	R-3	30.9	67.2	45
FIRST	R-4	31.8	67.5	45
FIRST	R-5	31.5	67.5	45
FIRST	CHEM LAB	31	67.5	45
FIRST	PHY LAB	31.1	67.5	45
FIRST	BIO LAB	31.8	70.5	45
FIRST	OFFICE	31.2	71.2	48
SECOND	LIBRARY	31.4	70.9	48

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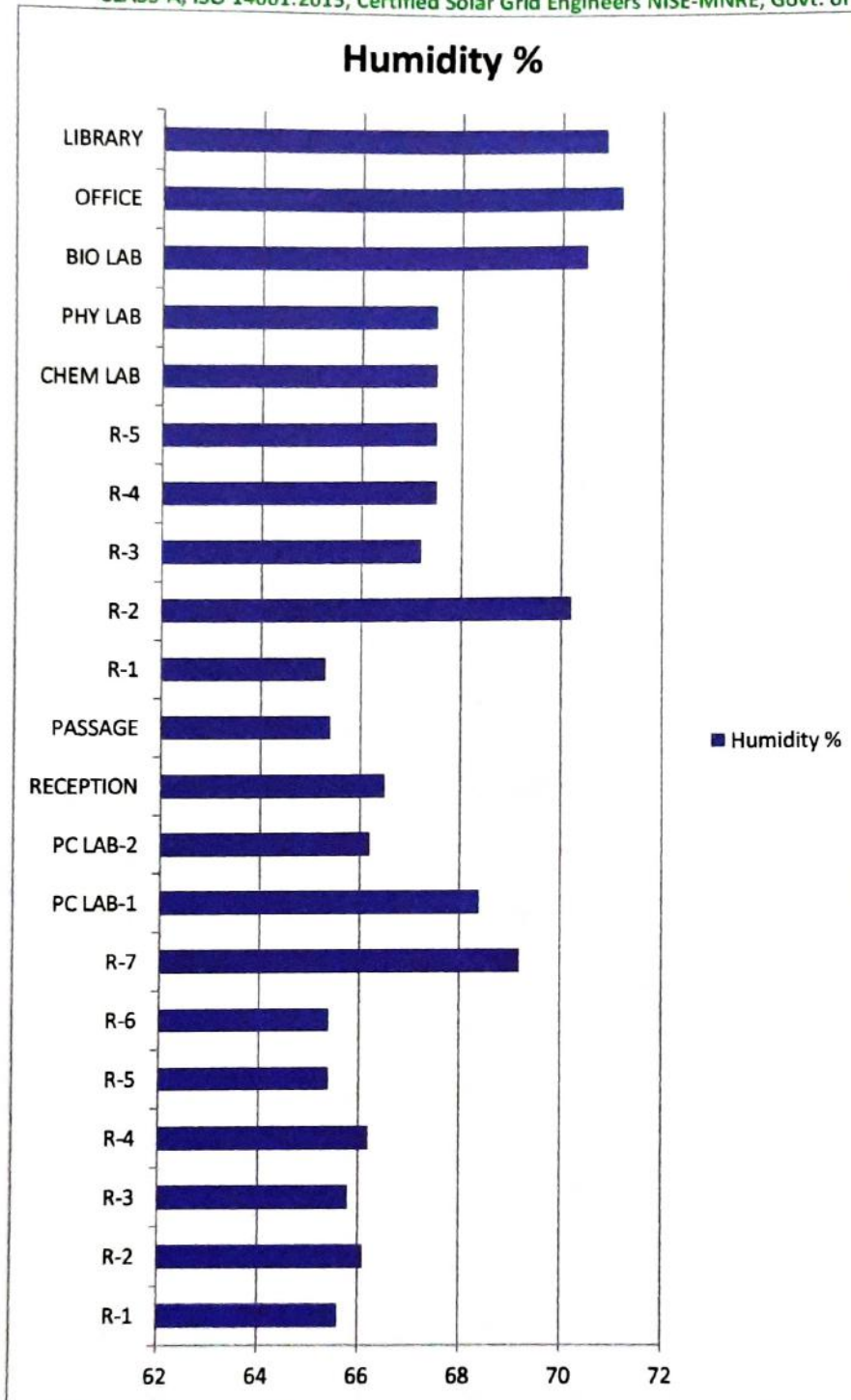


Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
 Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
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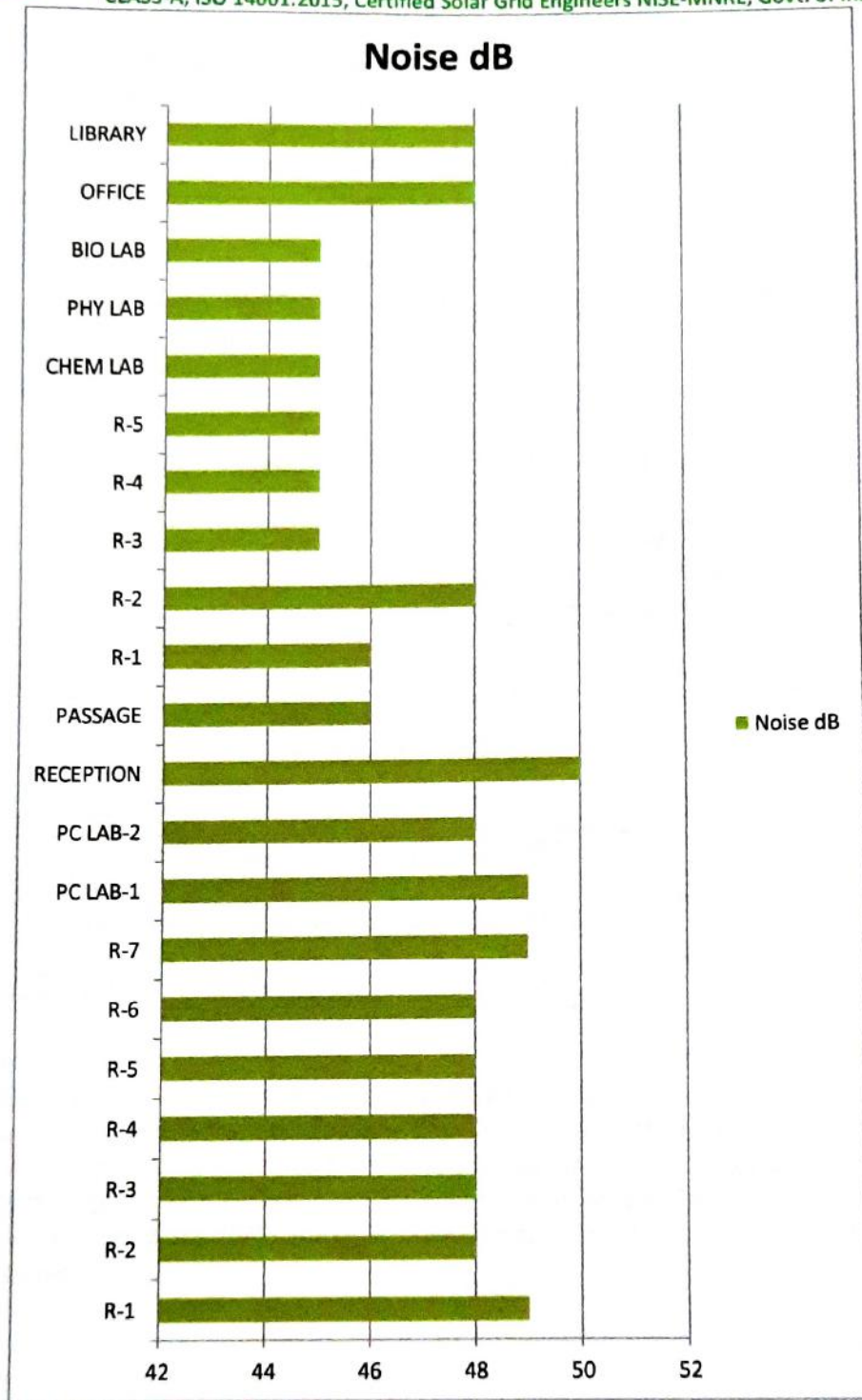
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6. Wastage Management Analysis

1. Do the premises generate wastage?

Yes-Very Low

2. What type of wastage and quantity is generated? What are actions taken on it?

SL No	Wastage Type	Quantity	Action
1	Biomass	1-2Kg per day (as observed)	Put near tree roots
		500-600Kg approx. tree, grass and other cuttings	Dumped in new place
2	Paper	2691Kg approx.	Cleaned by housekeeping and sent to Recycling through external agency
3	Water	100-200Ltrs approx. per year due to leakage	Not considered
4	E-Waste	608 kg	Cleaned by housekeeping and sent to Recycling through external agency
5	Bio-Hazardous	Not Applicable	NA
6	Fuel	Electricity Wastage by running fans and lights for uncounted time after room cleaning	NIL
7	Production	NIL	NIL
8	Process	Process analysis can be done under detailed energy Audit	NIL
9	Food	Occasionally wastage in very low quantity	Cleaned by canteen staff and sent to municipal wastage
10	Man-Hours	NIL	NIL

Notes:

- Paper wastage is picked up after 5 to 6 years (as per availability and size of quantum) by external agency for recycling. Certificate is attached for last pick up.
- E-waste is picked up after 5 to 6 years (as per availability and size of quantum) by external agency for recycling. Certificate is attached for last pick up.
- Solar rooftop plant (SPV-GCRT) is under installation process. Work order is attached.



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3. Recycling Procedures

1. Does Premises users aware about Recycle or Re-use of resources used?
YES Paper and E-waste
2. Does institute run wastage and recycling awareness campaign for users?
YES
3. Does institute have SOP for wastage and recycling procedures?
Under preparation
4. Does Premises Recycle or Re-use resources used?
NO

4. Wastage Recovery & Conservation:

1. Any Energy conservation method applied?
YES 50% of Total lights are replaced with LEDs
2. Any SOP on operation and maintenance is defined?
NO
3. Any Energy conservation devices installed?
YES LED Lights
4. Any alternative Energy source is installed?
NO SPV GCRT (solar) project is under development
5. Does the SWITCH OFF Drills conducted regularly?
NO
6. Are electronic and smart devices run on power saving mode? (computers, Etc)
NO
7. Does electronic & other equipment run standby mode? How many hours?
NO
8. Does institute perform Water quality monitoring?
NO
9. Have you installed rain water harvesting system?
NO
10. Any SOP on operation and maintenance of plumbing system is defined?
NO
11. Any SOP on Water utilization is defined?
NO
12. Does institute record water usage?
NO
13. Are rooms well ventilated?
NO
14. Does institute perform Air quality monitoring?
NO
15. Any vehicles used? Type of Fuel? Quantity of fuel consumed?
NO



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7. Carbon Emission and Footprint Analysis

Table-1: Overall

Environmental Impact Analysis Report		
Annual Consumption	34316	KWh
Annual Green- Impact		
Co2 Generated	22512	Kg
Coal Burned	20462.4	Kg
Diesel Burned	10844.4	Ltr
Natural Gas Burned	413756	Cub Ft
Trees Cut	1024.8	Nos
Water Consumed	73813.6	Ltr
Life Time Green- Impact		
Co2 Generated	409892	Kg
Coal Burned	1176658	Kg
Diesel Burned	197475.6	Ltr
Natural Gas Burned	7534497.6	Cub Ft
Trees Cut	18662	Nos
Water Consumed	1344145.6	Ltr

Table-2: Area per Ft²

Environmental Impact Analysis Report		
Annual Consumption	34316	KWh
Annual Green- Impact		
Co2 Generated	3.75	Kg
Coal Burned	3.41	Kg
Diesel Burned	1.81	Ltr
Natural Gas Burned	68.96	Cub Ft
Trees Cut	0.17	Nos
Water Consumed	12.30	Ltr
Life Time Green- Impact		
Co2 Generated	68.32	Kg
Coal Burned	196.11	Kg
Diesel Burned	32.91	Ltr
Natural Gas Burned	1255.75	Cub Ft
Trees Cut	3.11	Nos
Water Consumed	224.02	Ltr

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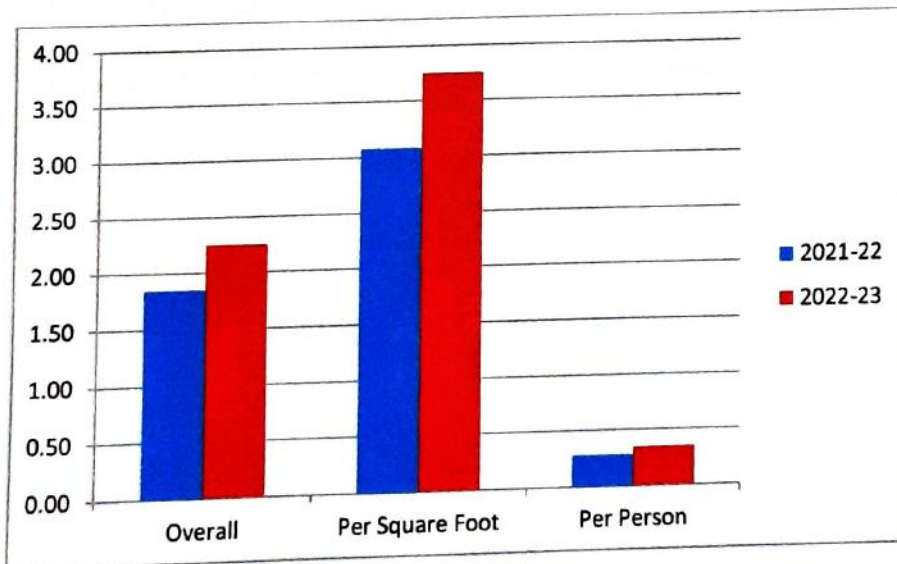
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Table-3: Per Person

Environmental Impact Analysis Report		
Annual Consumption	34316	KWh
Annual Green- Impact		
Co2 Generated	0.35	Kg
Coal Burned	0.31	Kg
Diesel Burned	0.17	Ltr
Natural Gas Burned	6.37	Cub Ft
Trees Cut	0.02	Nos
Water Consumed	1.14	Ltr
Life Time Green- Impact		
Co2 Generated	6.31	Kg
Coal Burned	18.10	Kg
Diesel Burned	3.04	Ltr
Natural Gas Burned	115.92	Cub Ft
Trees Cut	0.29	Nos
Water Consumed	20.68	Ltr

Table-4: Carbon Footprints

Year	Overall	Per Square Foot	Per Person
2021-22	18492	3.08	0.28
2022-23	22512	3.75	0.35



Notes:

1. It is found that Co₂ Footprints are increased; implementation of Energy conservation methods to be taken immediately.

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8. Suggestions

Suggestions Waste management:

1. Install a vermin-compost plant for Biomass and food wastage (point no.1 and 9).
2. Install a Bin in reception area to collect paper wastage (point no.2).
3. Fix all taps, replace old pipelines, use Teflon tapes on ties, and use sealants for joints to avoid leakage (point no.3).
4. Install a Bin in reception area to collect E- wastage like damaged or dead luminaries, mobiles, computer or spare-parts, Etc. hand over it to proper scrap vendor once bin is full (point no.4).
5. Update SOP of cleaning with statement "Switch OFF Fans after 5 Minutes once room is cleaned". (point no.6 and 8)
6. Fix a Notice on Back-side of Exit Door of Room-"SWITCH OFF all electrical equipments and Taps". (point no.8 and 6)

Suggestions Recycling:

1. Prepare and observed a Generalized SOP having attributes specialize on each type of wastage and it's re-usage and/or recycling.

Suggestions Wastage Recovery & Conservation::

1. Generate awareness among user about environment conservation.
2. Prepare and observe SOPs for the same.
3. Put "SWITCH OFF" boards on back side of Doors.
4. Use energy efficient Lighting.
5. Use Energy efficient fans.
6. Keep AC temperature to 26° C.
7. Clean Luminaries, Fans, ACs regularly to increase efficiency.
8. Prepare and observe SOPs for maintenance of equipments.
9. Avoid Draft printing, use email/Whatsapp maximum