

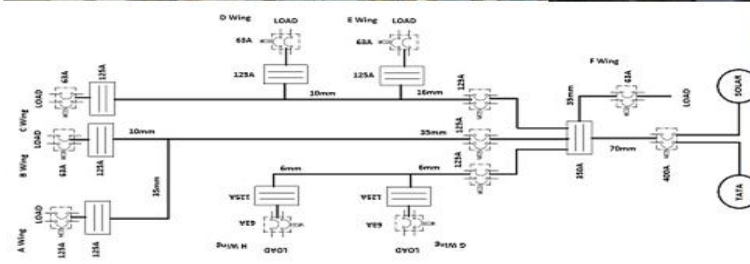
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Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects

VIVA Institute of Technology,
At Shirgaon, Post Virar east, Palghar 401305.



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,

Solar rooftop and power plants | Solar and Electric Consultation | New Electric Connections
Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.
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Detailed Report
Energy-Green-Environment Audit

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Project Beneficiary
2021-2022

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VIVA Institute of Technology

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At Shirgaon, Post Virar east
Palghar 401305.

=====

Consultants & Auditor

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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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Certificate

This is to certify that Detailed Energy, Green and Environment Audits has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor (CLASS-A) MEDA, Government of Maharashtra and suggestions for improvements have been given. This activity is jointly executed by auditor and beneficiary to account electrical safety, energy use and conservation opportunity without sacrificing purpose of the same. We sincerely acknowledge efforts of management and other staff members of beneficiary for smooth execution of audit process. The Audit activity has been executed for beneficiary with following Details:-

Name of Beneficiary: VIVA Institute of Technology
Address: At Shirgaon, Post Virar east, Palghar 401305
Contact Person: Dr. Arun Kumar
Contact Number: 8108311920
Date of Audit: 26/05/2022
Valid Till: 01/05/2025

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.



ENERGY AUDITOR "CLASS-A" No. EA-28
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Plot No. 108, D-8, Gorai-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

1.1. Energy Audit

Energy Audit is a Basic essential activity to be done for saving in electrical billing and also allied with any energy saving projects like renewable energy project and solar projects. Energy Audit is an assessment of usage, consumption and pattern of energy used in the premises based on all above parameters along with conditions and benchmarks as resource and Building Envelope Analysis, working, operational and Maintenance Procedure Analysis, Utility Data Analysis, Load Data Analysis, Analysis of Energy Consumption, Load Evaluation, consumption pattern and billing history, back-up systems and also the administrative requirements, assessment of safety concerns, assessment of operating and occupancy schedules for Equipment, Power Quality and Environmental Parameters Analysis, Efficiency and Wastage Analysis and assessment of potential risk factors.

Energy Audit is a process of systematic identification, quantification, recording, reporting and analysis of energy usage properties of institute. It aims to analyze within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Energy audit is a valuable means for an Institution related to educational area to determine how and where they are connected with Energy conservation drive of nation. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an eco-friendly view of life while making changes and planning for savings. It provides better understanding of impact of energy consumption on working conditions to staff and visitors. As the Energy availability 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 Energy availability and quality crisis. On this background it becomes essential to adopt the system of Energy efficient and safe 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. Moreover, it is social responsibility of a High energy consuming institution to ensure that they contribute towards the saving of Energy and thus making it available who are destitute in term of energy availability.



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1.2. Green Audit

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of natural diversity properties of institute. It aims to analyse within and surrounding the place concerned, in purview of relationship with natural diversity around. Green audit is a valuable means for an Institution related to educational area to determine how and what natural resources or diversity of nature they are surrounded with or they are living with. Green Audit report includes assessment of premises which refers to nature friendly environment with lesser carbon emission in terms of initiatives, implementation, best practices, working environment, capacity utilization based on all above parameters observed during green audit along with conditions and benchmarks as Air Quality, Water Quality, Noise Data, Weather Data, Tree Diversity, Faunal Diversity as well as biodiversity conditions. Understanding these conditions the institution can make plans for day to day working, future expansions as well as a nature-friendly view of life while making changes and planning for savings.

It can create consciousness and awareness about natural diversities around and helps to standardize practices for working with observation of nature friendly work style. It provides better understanding of green diversity available surrounding conditions to staff and students. As the vanishing diversity of nature is becoming an increasingly important issue for the nation as well as the world, 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 Green Audit Report. Moreover, it is social responsibility of a Higher educational institution to ensure that they contribute towards the saving of Green areas and maintaining good levels of qualities for natural resources available such as Air, water, atmosphere, flora, faunal, Etc.



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1.3. Environment Audit

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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1.4. Objective

The Energy 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 Energy availability and quality. The institution has been putting efforts to keep reducing and standardizing energy usage since its inception. Therefore the purpose of present Energy audit is to identification, quantification, recording, reporting and analysis of components of Energy utilization and electrical safety properties of institute framework of energy conservation in compliance with the applicable regulations, policies and standards. The main objectives to carrying out the energy audit are:-

- To have overview of premises
- To record and document Utility data
- To record and document Load profile data
- To record and document basic Electrical Safety observations data
- To record and document Energy Conservations (if any)

The green 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 green audit is to identification, quantification, recording, reporting and analysis of components of natural diversity properties of institute framework of Green atmosphere sustainability. The main objectives to carrying out the green audit are:-

- To record and document Air quality data
- To record and document Water quality data
- To record and document Weather/Meteorology data
- To record and document Noise Level data
- To record and document Tree Diversity data
- To record and document Faunal diversity data

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



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1.5. Methodology

The purpose of Energy 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.

1.6. 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

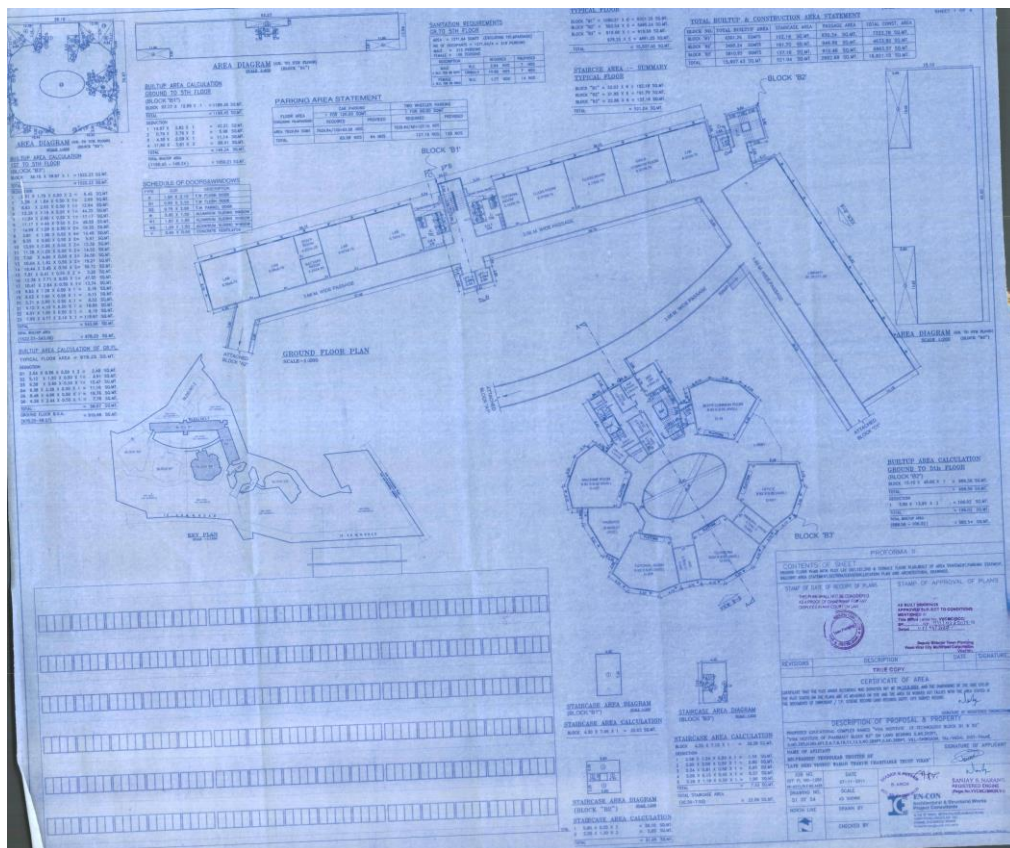
2.1. Overview

SL No	Head	Details
1	Name of Applicant Institution	VIVA Institute of Technology
2	Address	At Shirgaon, Post Virar east-401305
3	Contact Number	8108311920
4	Registration Certificate Number	E-172-Palghar
5	Sector Type	College
6	Senior Management Contact	Shri. Sanjay Pingulkar
7	Contact Number	8830164534
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	135
11	Year of Establishment	2009
12	Plot Area (ft ²)	As per given Map (Approximate 400000 ft ²)
13	No of Buildings	4
14	Building Type	RCC
15	Age of Building	14 Years
16	Leakages/Cracks on wall/roof	Minor
17	No. of workers (Footfall)	140 – 150
18	No. of Customers (Footfall)	1200-1500
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	8
22	DG Set installed	Yes
23	Inverter Installed	Yes
24	Renewable Energy System installed	No
25	(Solar/Wind/Biomass/Biofuel/Etc.)	No

2.2. Location

SL No	Head	Details	Remark
1	Name of Institute	VIVA Institute of Technology	Virar
2	Category	College	Educational Institute
3	Address	At Shirgaon, Post Virar east-401305 Dist. Palghar	
4	State	Maharashtra	
5	Nearest Railway Station	Virar	Western Railway
			Central Railway
6	Nearest Bus Station	Virar	Interstate/Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	19.342761	
9	Latitude	72.808325	

**2.3. Layouts
Sitemap**





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2.4. About Premises

Virar near the historic place 'Vasai' (Bassein) has been an important landmark from times in the distant past. Surrounded by the Sahyadri Mountains to the east, enriched by the alluvial soil of the Vaitarni this beautiful green belt is bordered by the boisterous Arabian Sea to the West. This area speaks volumes about human endeavour, toiling to reap the benefits from the green agricultural expanse – the hilly dense forests coupled with the wealth from the seas. Our college is ensconced in this secure rustic world which is fast changing into a modern industrial environment and life style.

VIVA Institute of Technology, Shirgaon, Virar east, has been established by Vishnu Wamsn Thakur Charitable Trust in the year 2009. Courses run by the institute are Civil, Computer, Electrical, Electronics and Telecommunication, Mechanical, Computer Science and Engg (Artificial Intelligence and Machine Learning), MCA and ME in Mechanical engineering (Manufacturing systems Engg). Infrastructure, equipments, machines, computers, instruments etc are as per norms of AICTE, New Delhi and DTE, government of Maharashtra. All the laboratories, class rooms are well equipped with essential requirements. A centralised library is equipped with all relevant books, national and international journals, periodicals. There are three seminar halls with air conditioners. Our students are the achievers at national and international levels.

3. Floral Diversity

VIVA Institute of Technology, which was established in the year 2009, has eco-friendly environment since then. It has long legacy of healthy environmental practices periodic plantation, their preservation and maintenance. Its land use is about 30 % of total area is occupied by open land and plantation that generate better campus environment. Every year various departments organize the plantation programme with the help of faculty and students. College has well maintained botanical garden enriched with Medicinal Plants. The campus maintains the biodiversity of plants. In total, based on data given there are 298 plants in the college campus including tree, shrubs and herbs representing different family. List of plants in college campus as follows

SL No	Local Name	Name	Family	Quantity
1	बहावा	Cassia Fistula	Fabaceae	2
2	मोगरा	Jasminum Sambac	Oleaceae	2
3	जास्वंद	Hibicus Rosa-Sinensis	Malvaceae	5
4	सदाफुली	Catharanthus Roseus	Apocynaceae	7
5	बकुळ	Mimusops Eleni	Sapotaceae	6
6	गुलाब	Rosa	Rosaceae	1
7	वाळवंटी गुलाब	Adenium Obesum	Apocynaceae	1
8	क्रोटन	Crotons	Euphorbiaceae	1
9	आंबा	Manifera Indica	Anacardiaceae	5
10	फणस	Artocarpus Interifolia	Moraceae	4
11	आवळा	Phyllanthus Emblica	Phyllanthaceae	2
12	पपई	Carica Papaya	Caricaceae	15
13	नारळ	Cocos Nucifera	Arecaceae	14
14	केळी	Musa Indica	Musaceae	4
15	तुळस	Ocimum Tenuiflorum	Lamiaceae	3
16	गवती चहा	Cymbopogon	Poaceae	4
17	दालचिनी/ तेज पत्ता	Cinnamomum Verum	Lauraceae	2
18	कोरफड	Aloe	Asphodelaceae	2
19	निवडुंग	Cactus	Cactaceae	1
20	अकेशिया	Acacia	Fabaceae	11
21	शिरीष	Albizia Lebbeck	Legumeceae	8

4. Faunal Diversity

The college campus supports an immense diversity of plants and animals including native species as well as some rare species. A total 51 animal species were observed in the college campus including invertebrates and vertebrates (different groups like Beetle, Moth, Bug, Bird, Ant, Spider, Wasp, Millipede, Slug, Louse, Earthworm, Snail, Butterfly, Dragonfly, Grasshopper etc.). The floral diversity in the campus serves as a roosting place for the different species of the bird, it also acts as a habitat for a variety of insects, and variety of flowering plants in the botanical garden supports a wide variety of butterflies and birds. The window shades of college building serve as a resting place for the birds like rock pigeon. The college environment has rich and abundant faunal diversity enlisted as below.

SL No	Scientific Name	Common Name	Family	Category
1	Aspidimorpha sanctaerucis	Golden tortoise	Chrysomelidae	BEETLE
2	Carpophilus freemani	Freeman sap beetle	Nitidulidae	BEETLE
3	Acritus	Clown beetle	Histeridae	BEETLE
4	Zygogramma bicolorata	Mexican beetle	Chrysomelidae	BEETLE
5	Tropisternus lateralis	Scavenger beetle	Hydrophilidae	BEETLE
6	Copelatus haemorrhoidalis	Diving beetle	Dytiscidae	BEETLE
7	Spodoptera exigua	Beet armyworm	Noctuidae	MOTH
8	Achyra rantalis	Garden webworm	Crambidae	MOTH
9	Hypena scabra	Green cloverworm	Erebidae	MOTH
10	Orvasca subnotata	Tussock moth caterpillar	Erebidae	MOTH
11	Artipus floridanus	Little leaf notcher	Curculionidae	BUG
12	Dysdercus cingulatus	Red cotton bug	Pyrrhocoridae	BUG
13	Coridius janus	Red pumpkin bug	Dinidoridae	BUG
14	Chinavia hilaris	Green shink bug	Pentatomidae	BUG
15	Columba livia	Rock pigeon	Columidae	BIRD
16	Streptopelia senegalensis	Laughing Dove	Columidae	BIRD
17	Pycnonotus cafer	Red vented bulbul	Pycnonotidae	BIRD
18	Passer domesticus	House sparrow	Passeridae	BIRD
19	Acridotheres tristis	Common myna	Sturnidae	BIRD
20	Halcyon smymensis	Kingfisher	Alcedinidae	BIRD
21	Eudynamys scolopaceus	Asian Koel	Cuculidae	BIRD
22	Cuculus canorus	Common cuckoo	Cuculidae	BIRD
23	Corvus splendens	Crow	Corvidae	BIRD
24	Phaethontidae psittaciformes	Parrot	Sturnidae	BIRD
25	Camponotus consobrinus	Banded sugar ant	Formicidae	ANTS



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26	<i>Solenopsis geminata</i>	fire ant	Formicidae	ANTS
27	<i>Camponotus</i>	Black carpenter ant	Formicidae	ANTS
28	<i>Eratigena atrica</i>	Giant house spider	Theridiidae	SPIDER
29	<i>Hasarius adansoni</i>	Jumping Spider	Salticidae	SPIDER
30	<i>Plexippus paykulli</i>	Jumping Spider	Salticidae	SPIDER
31	<i>Apis mellifera</i>	Honey Bee	Formicidae	WASP
32	<i>Mischocyttarus Mexicanus</i>	Paper WASP	Formicidae	WASP
33	<i>Anoplodesmus tanjoricus</i>	Yellow Spotted Millipede	Polydesmidae	Millipede
34	<i>Laevicaulis alte</i>	tropical land slug	Veronicelloidae	SLUG
35	<i>Oniscus</i>	Common woodhouse	Oniscidae	LOUSE
36	<i>Aporrectodea caliginosa</i>	Earthworm	Lumbricidae	EARTHWORM
37	<i>Acheta domesticus</i>	House cricket	Gryllidae	INSECT
38	<i>Planorbarius corneus</i>	Great ramshorn	Planorbidae	SNAIL
39	<i>Sympetrum flaveolum</i>	Yellow winged darter	Libellulidae	DRAGONFLY
40	<i>Diplacodes trivialis</i>	Blue percher	Libellulidae	DRAGONFLY
41	<i>Crocothemis servilia</i>	Scarlet skimmer	Libellulidae	DRAGONFLY
42	<i>Graphium agamemnon</i>	Green spotted triangle	Pailoinidae	BUTTERFLY
43	<i>Papilio demoleus</i>	Lime butterfly	Pailoinidae	BUTTERFLY
44	<i>Hieroglyphus banian</i>	Rice grasshoppers	Acrididae	GRASSHOPPER
45	<i>Acrida conica</i>	Giant green slantface	Acrididae	GRASSHOPPER
46	<i>Duttaphrynus melanostictus</i>	Asian Common toad	Bufo	AMPHIBIAN
47	<i>Calotes versicolor</i>	Indian garden lizard	Agamidae	REPTILE
48	<i>Ratus ratus</i>	Rat	Muridae	MAMMAL
49	<i>Funambulus palmarum</i>	Indian palm squirrel	Sciuridae	MAMMAL
50	<i>Felis Catus</i>	Cat	Felidae	MAMMAL
51	Indian Pariah	Dog	Canidae	MAMMAL

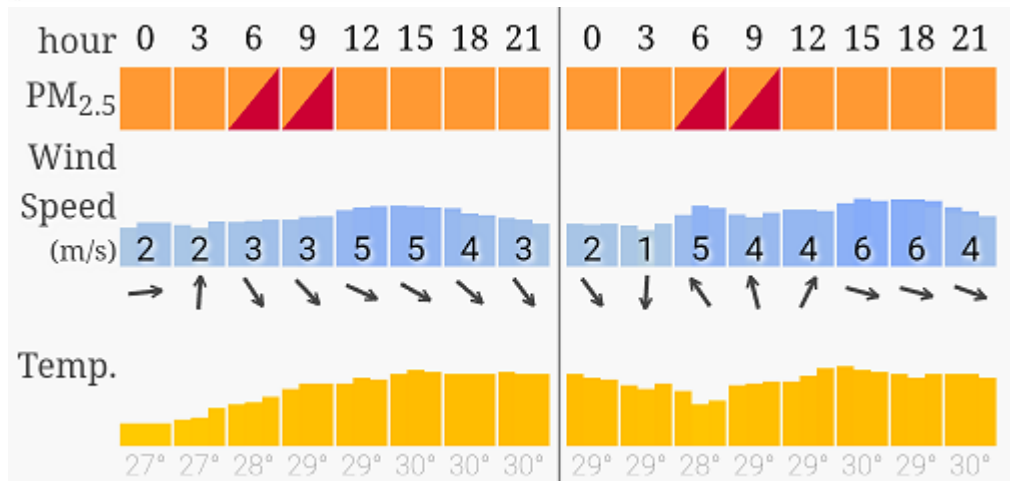
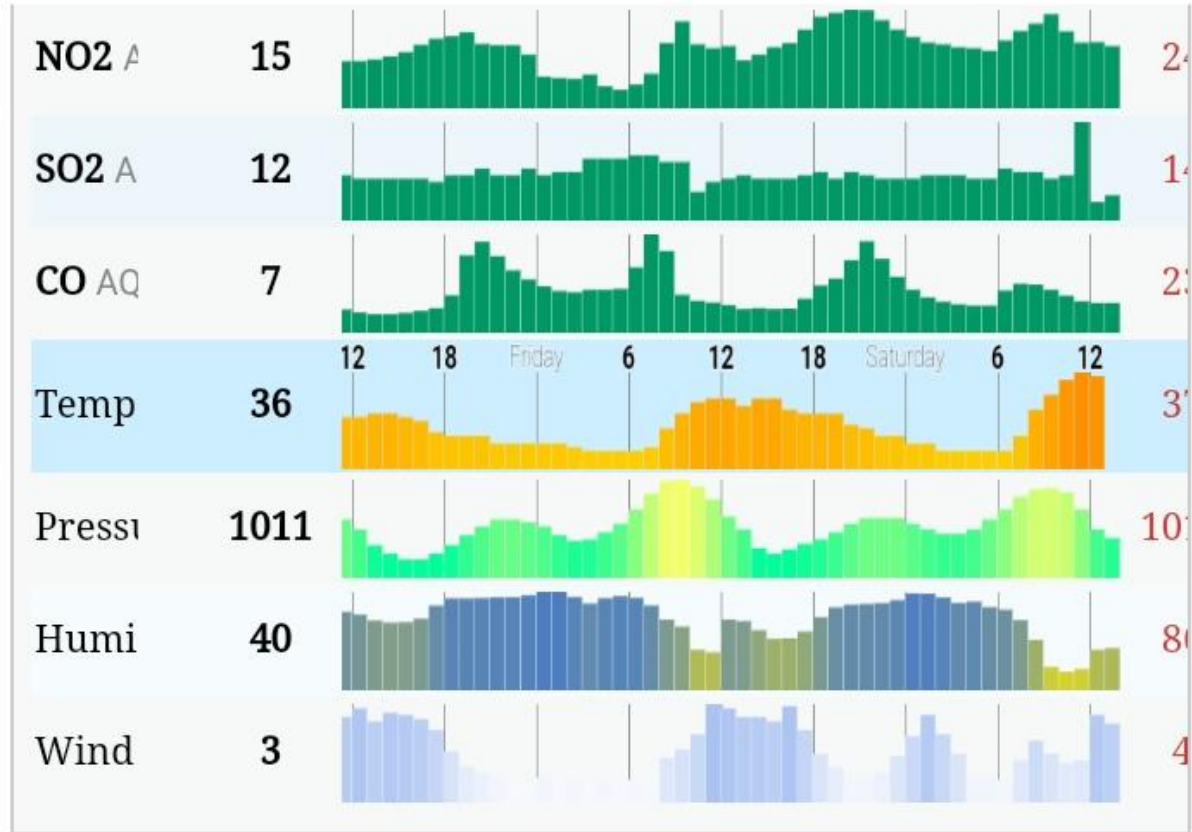
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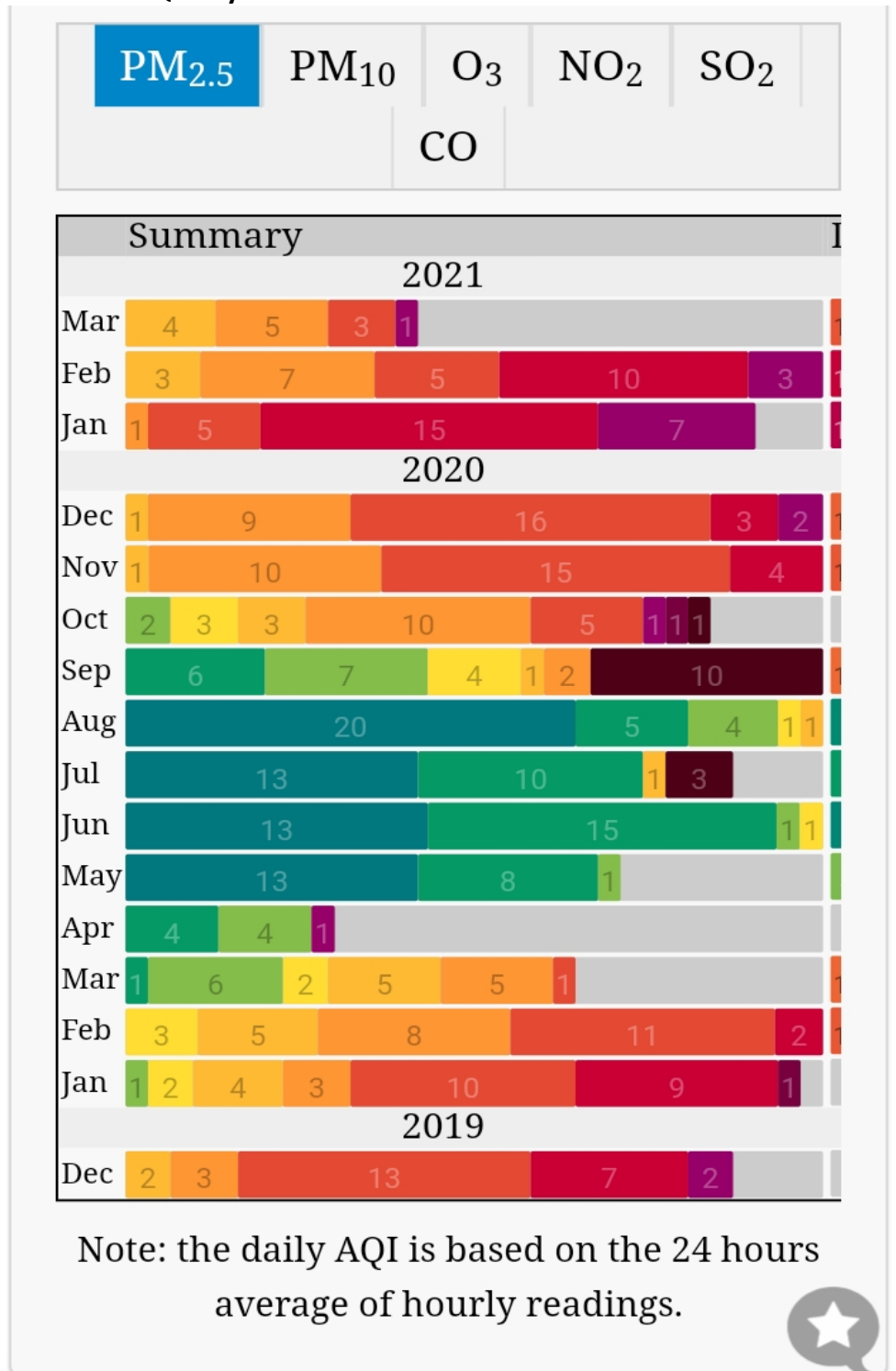
5. Air Quality

5.1. Air Quality Index



This table indicates quality of Air available for city where site is located, Area where the site is located and at actual site.

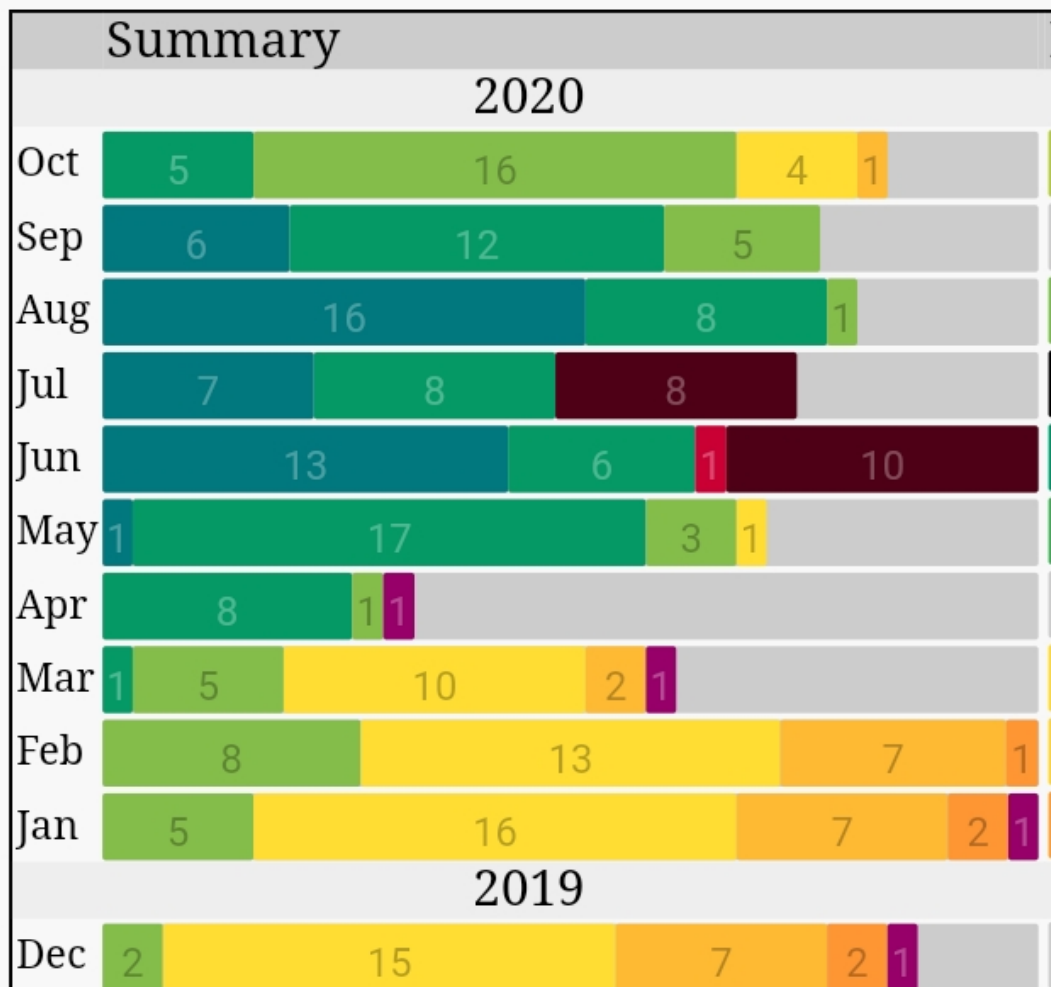
5.2. Table-2: Air Quality Annual PM 2.5



This table shows annual air quality level at PM2.5mcr. Different levels shown in different colors where numbers on colors show number of days with the same situation.

5.3. Table-3: Air Quality Annual PM 10

PM _{2.5}	PM₁₀	O ₃	NO ₂	SO ₂
		CO		

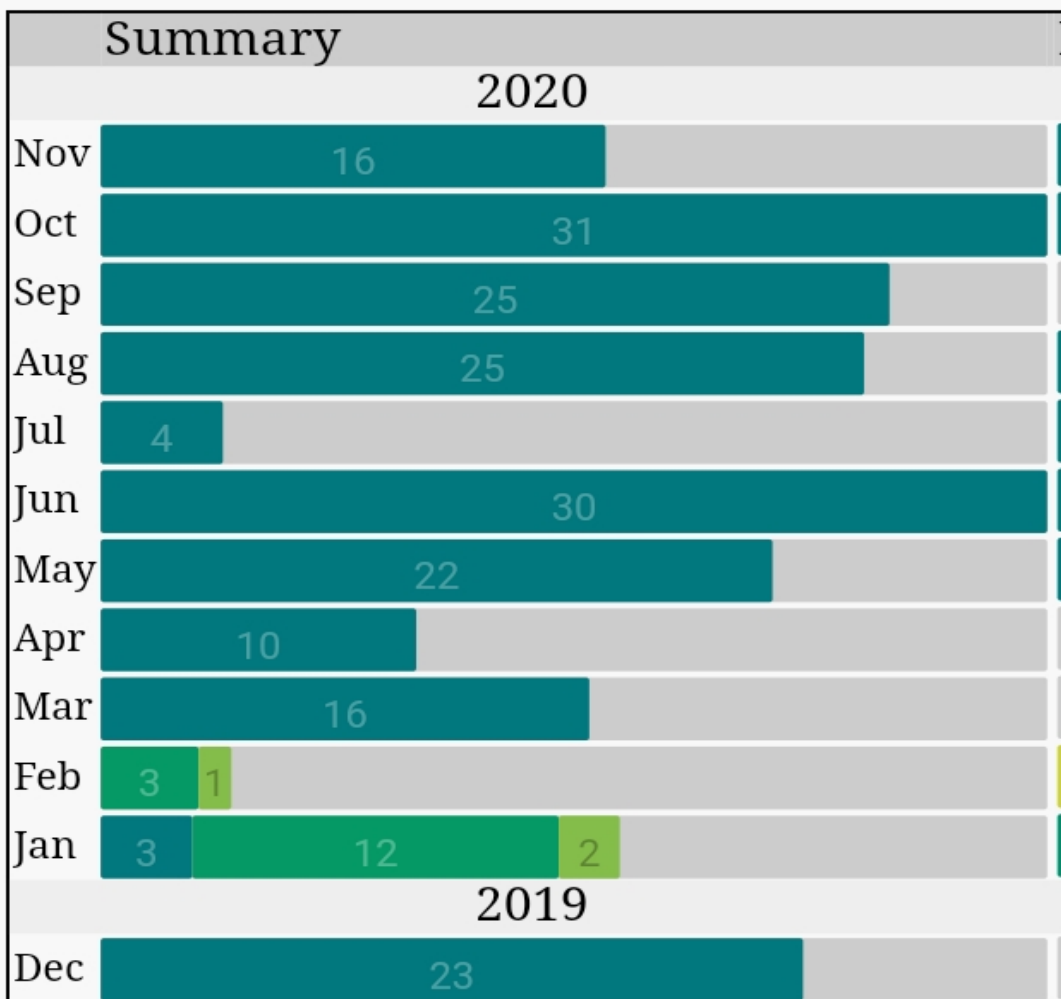


Note: the daily AQI is based on the 24 hours average of hourly readings.

This table shows annual air quality level at PM10mcr. Different levels shown in different colors where numbers on colors show number of days with the same situation.

5.4 Table-4: Air Quality Annual O₃

PM _{2.5}	PM ₁₀	O₃	NO ₂	SO ₂
		CO		



Note: the Ozone data is based on the 24 hours average of hourly readings. This is not correct - Daily Ozone concentration should be

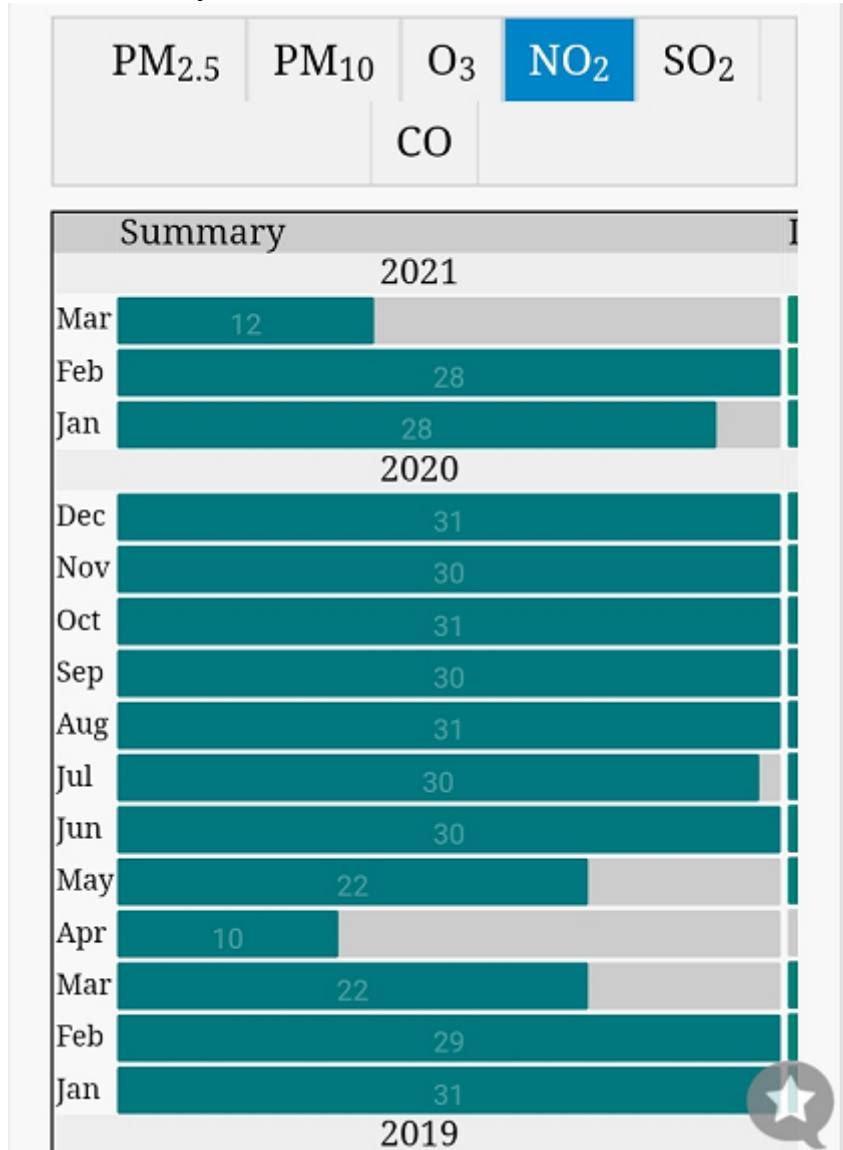
This table shows annual air quality level at O₃ (Ozone). Different levels shown in different colors where numbers on colors show number of days with the same situation.



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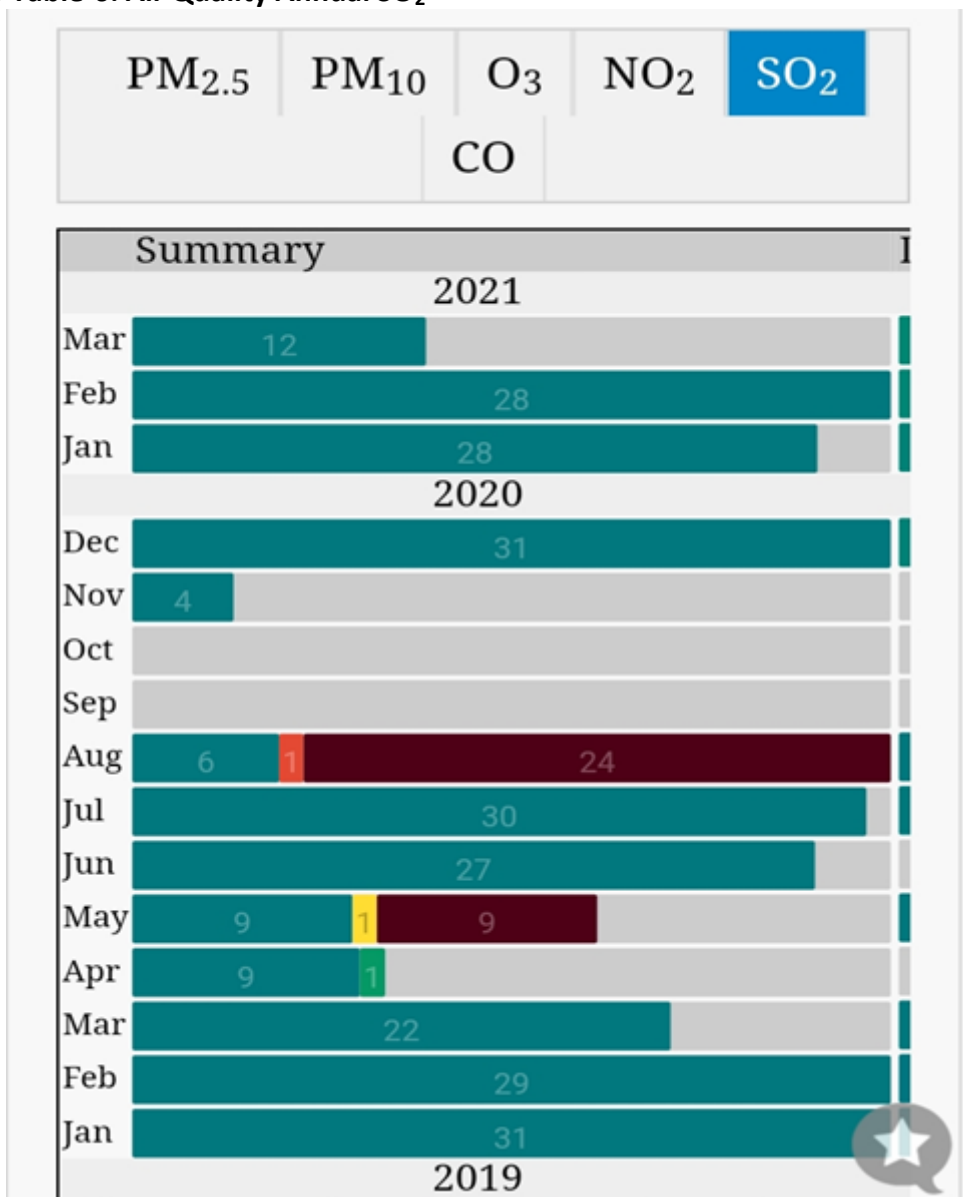
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5.5 Table-5: Air Quality Annual NO₂



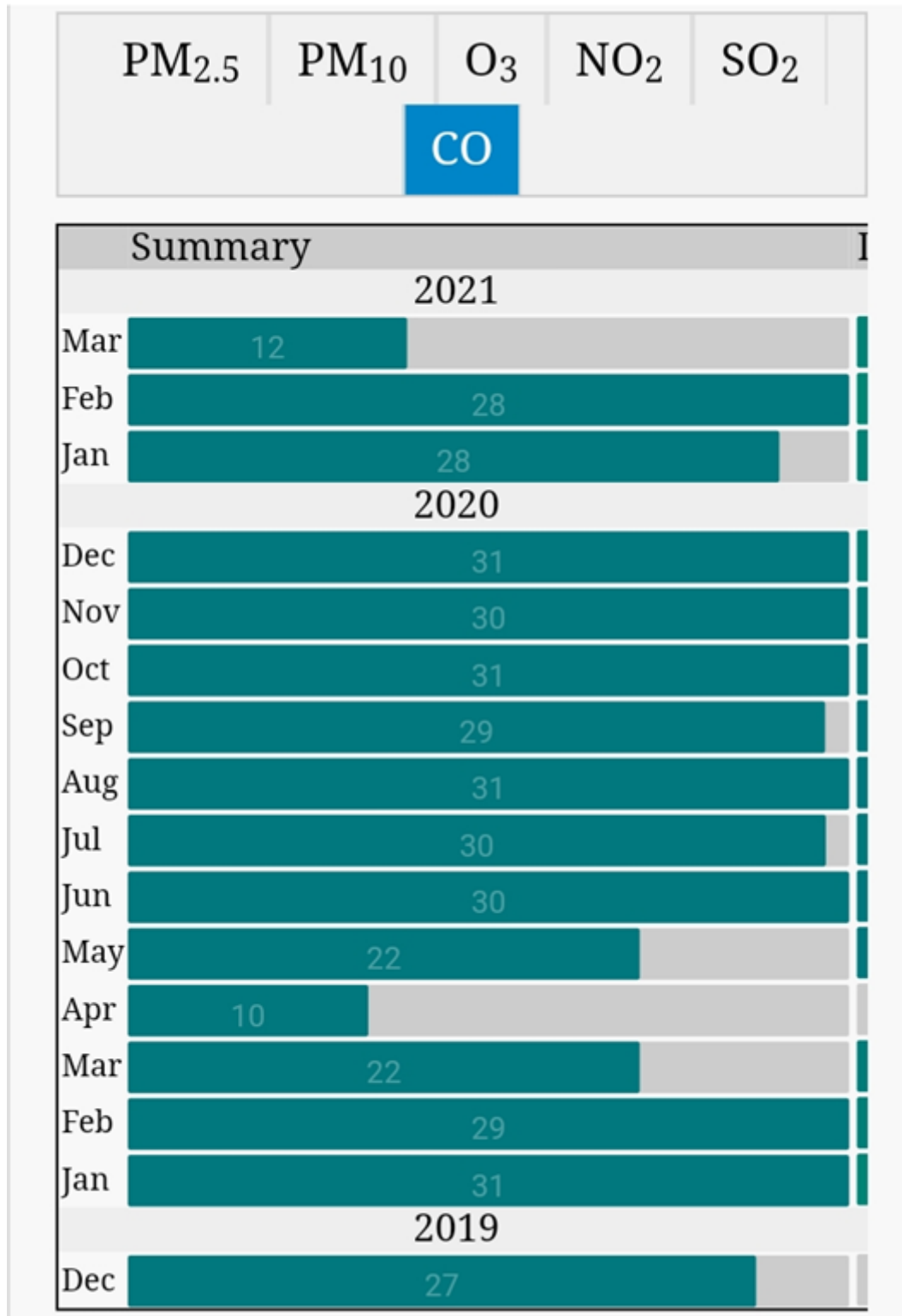
This table shows annual air quality level at NO₂ Nitrogen Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.

5.6 Table-6: Air Quality Annual SO₂



This table shows annual air quality level at SO₂ Sulphur Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.

5.7 Table-7: Air Quality Annual CO₂



This table shows annual air quality level at CO₂ Carbon Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.

Solar rooftop and power plants | Solar and Electric Consultation | New Electric Connections
Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
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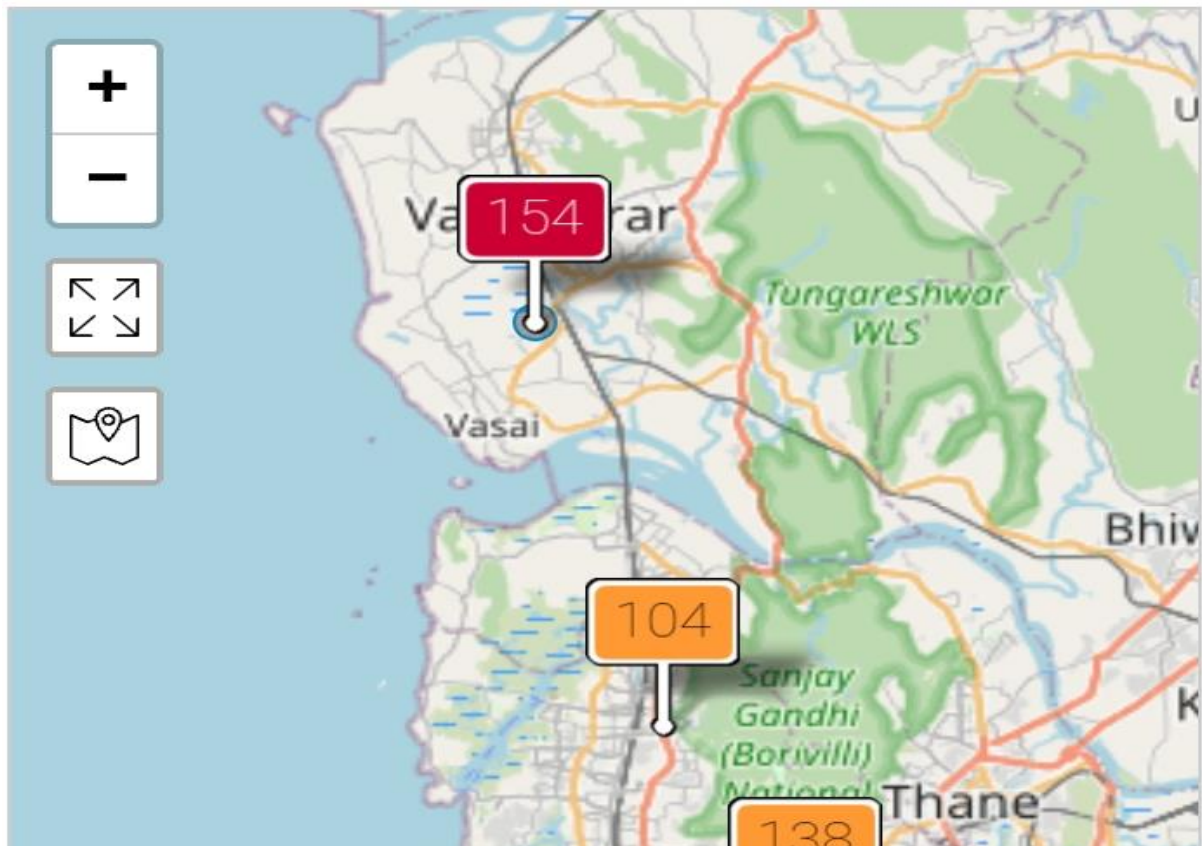
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Colour Codes of different levels of pollution are as follows

AQI Air Pollution Level

Health Implications
Cautionary Statement (for PM2.5)

<p>0 - 50 Good</p> <p>Air quality is considered satisfactory, and air pollution poses little or no risk</p> <p>None</p>	<p>101-150 Unhealthy for Sensitive Groups</p> <p>Members of sensitive groups may experience health effects. The general public is not likely to be affected.</p> <p>Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.</p>	<p>201-300 Very Unhealthy</p> <p>Health warnings of emergency conditions. The entire population is more likely to be affected.</p> <p>Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.</p>
<p>51 -100 Moderate</p> <p>Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.</p> <p>Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.</p>	<p>151-200 Unhealthy</p> <p>Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects</p> <p>Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion</p>	<p>300+ Hazardous</p> <p>Health alert: everyone may experience more serious health effects</p> <p>Everyone should avoid all outdoor exertion</p>



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11:32 [Clock] [M] [M]

[Signal] VoLTE 4G [Battery 88]



Environments

Exposure

Today's PM2.5 exposure



2 May | Last update: 08:30

Home	12* µg/m³
Outdoor	20* µg/m³

Recommended health guideline: 5 µg/m³

- My Air
- Map
- Statistics
- News & Ranking
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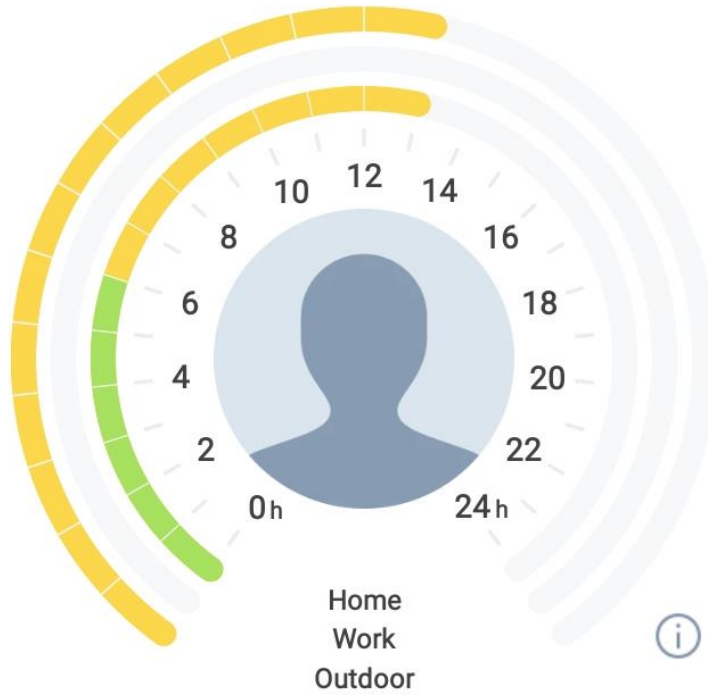
11:32

VoLTE 4G 88%

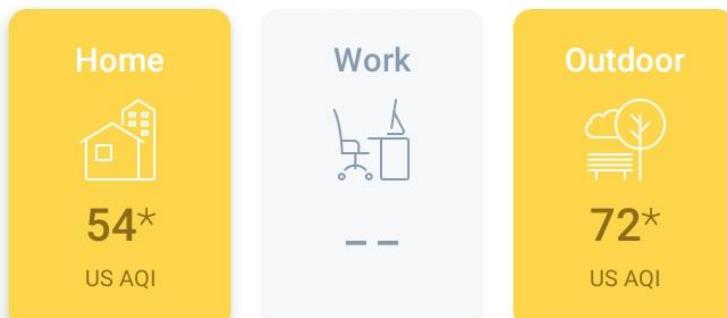


Environments

Exposure



2 May 2023



Solar roof
Load Management and extension | Change of name on bills | meters (new, siming, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
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nnnections



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11:31 [Clock] [M] [M]

[Signal] VoLTE 4G [Battery 88]

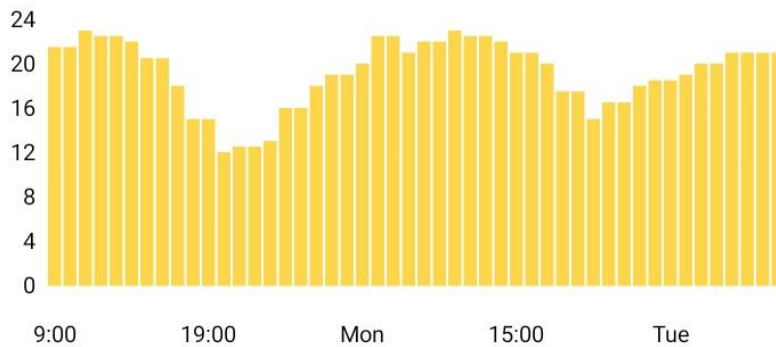
X Virar



History

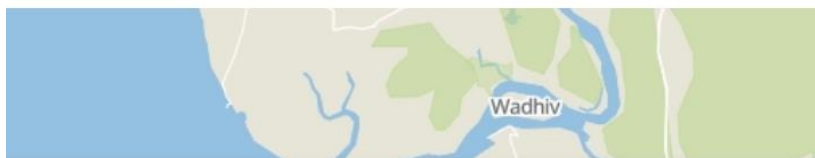
Hourly

Daily



USAQI

PM2.5



15.29K



Solar roof

connections

Load Management and extension | Change of name on bills | meters (new, siming, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits& Assessment

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11:31 [Clock] [M] [M]

[Signal] VoLTE 4G [Battery 88]

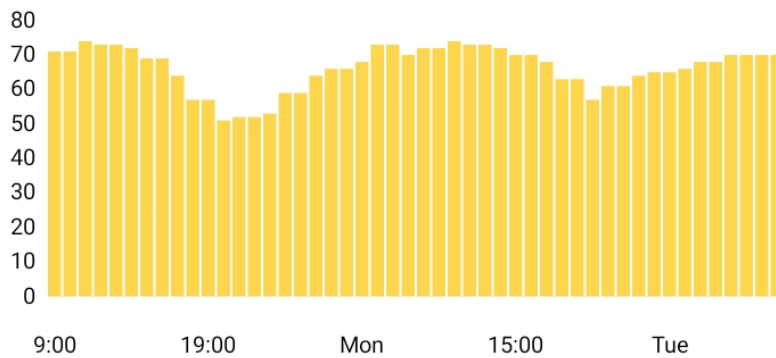
X Virar



History

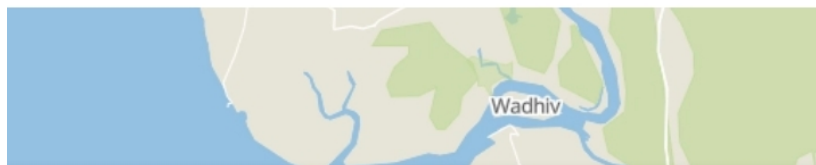
Hourly

Daily



USAQI

PM2.5



15.29K



Solar roof

connections

Load Management and extension | Change of name on bills | meters (new, siming, additional)
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11:31

88%

Places

Devices

11:00	12:00	13:00	14:00	15:00
51-100	51-100	51-100	51-100	51-100
30°	30°	30°	30°	30°
10.8 km/h	14.4 km/h	18 km/h	18 km/h	21.6 km/h

Tuesday	51-100		30° 27°		21.6 km/h
Wednesday	51-100		31° 26°		25.2 km/h
Thursday	51-100		31° 26°		21.6 km/h
Friday	51-100		31° 27°		25.2 km/h
Saturday	51-100		31° 27°		21.6 km/h
Sunday	51-100		31° 27°		21.6 km/h
Monday	51-100		31° 26°		18 km/h



My Air	Map	Statistics	News & Ranking	Shop

Solar roof **connections**
Load Management and extension | Change of name on bills | meters (new, siming, additional)
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saurengineers@gmail.com [9168402909](tel:9168402909)/[9867499812](tel:9867499812)/[9821116443](tel:9821116443).....28

6 Meteorology

1. Weather/Meteorology Data:-

Virar, Palghar 401201

The following are the site co-ordinates.

Latitude: 19. 342761





Longitude: 72.808325 E

Average Altitude: 57 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.

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Annual</u>
 Average Sunlight Hours/Day	09:00	09:04	09:05	09:08	09:07	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




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

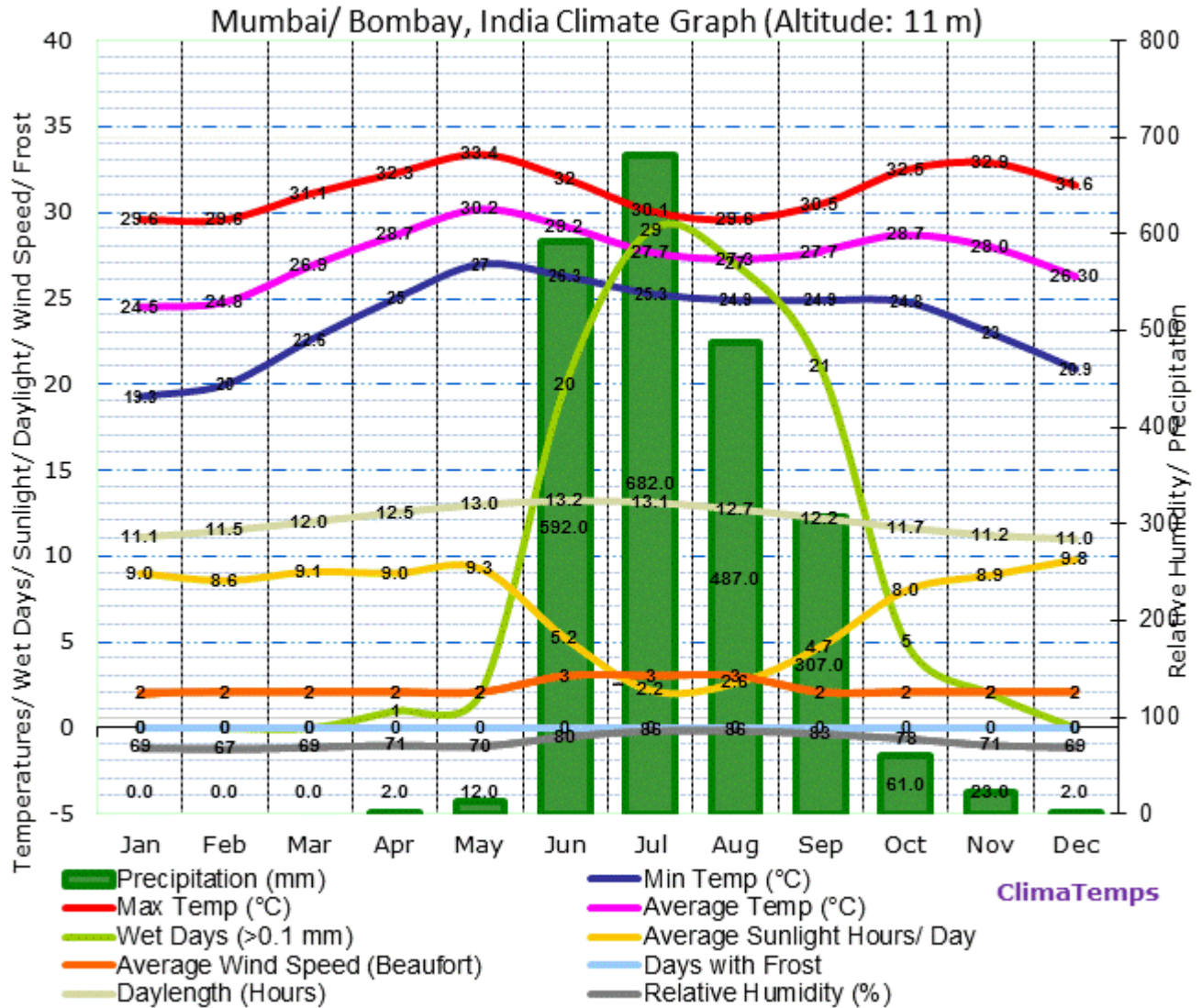
- The average annual relative humidity is 74.9% and average monthly relative humidity ranges from 67% in February to 86% in July.

	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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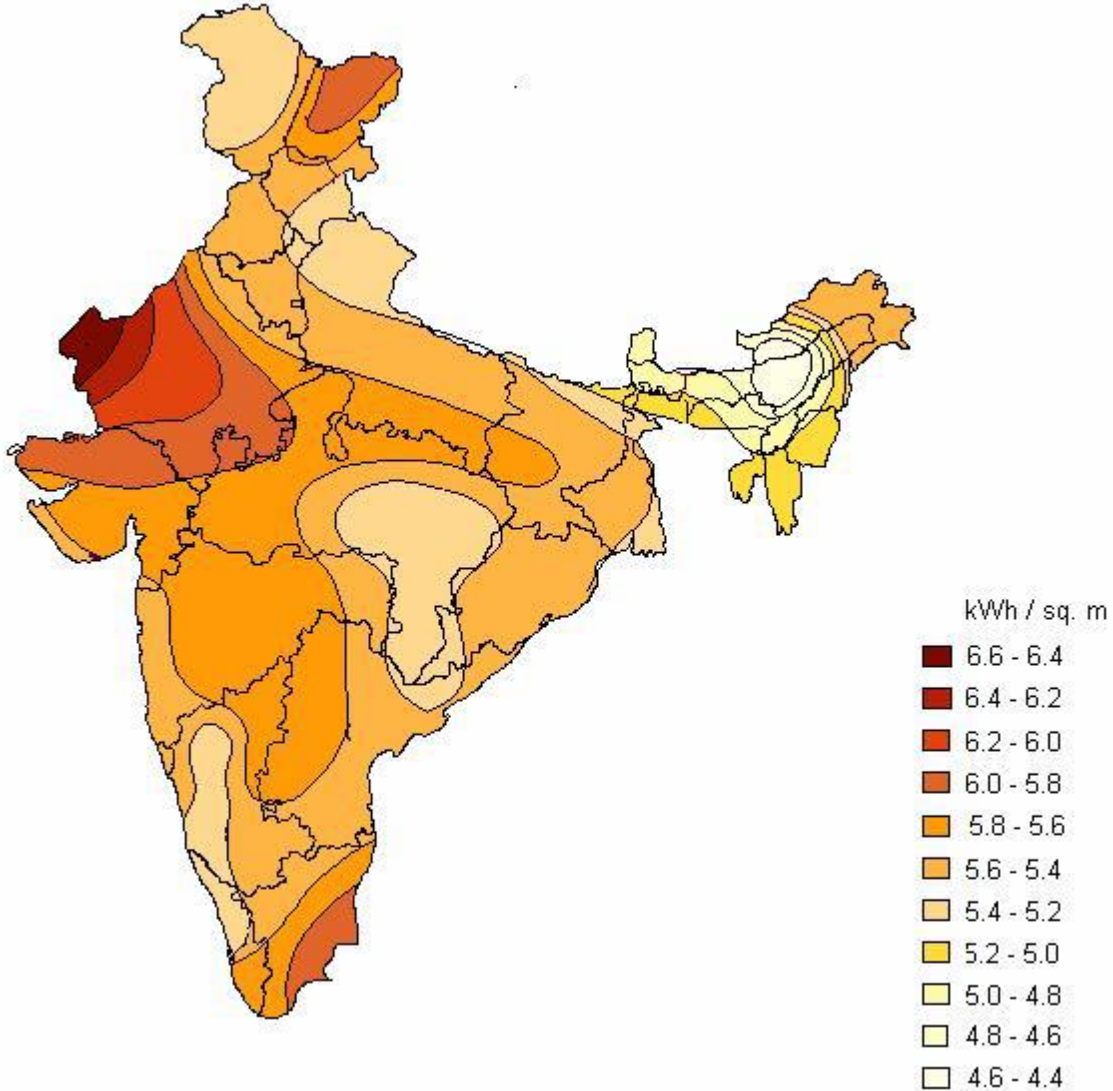




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Radiation Data



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

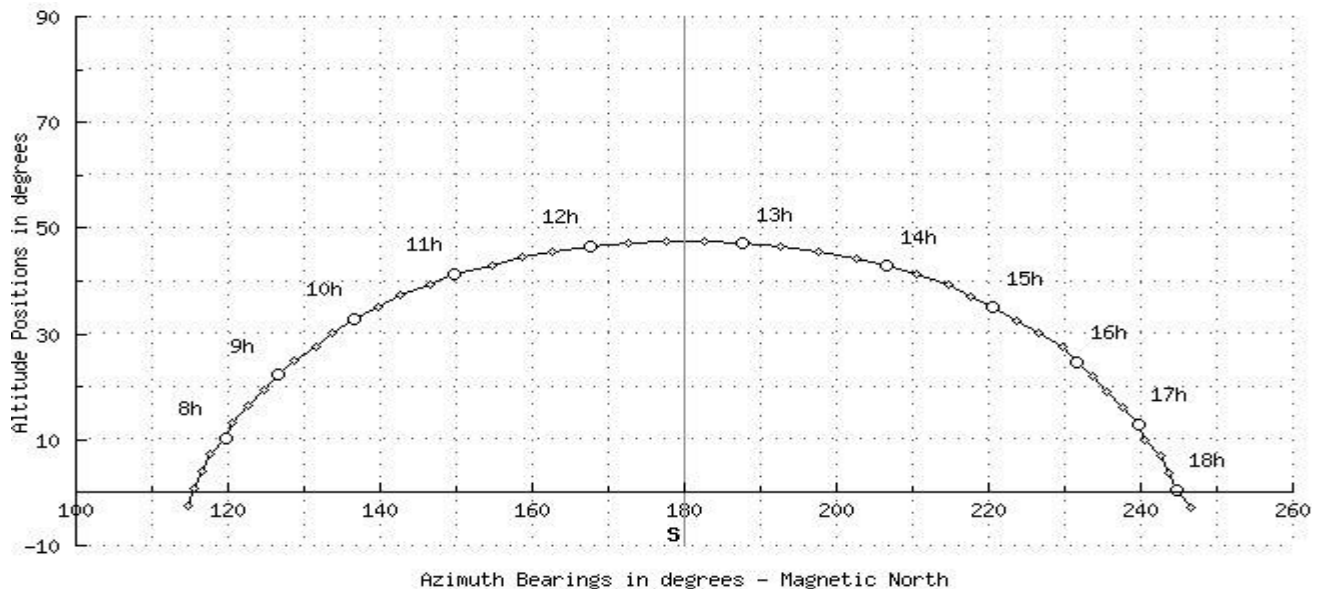
Thursday, 21st December 2020

Az'	Alt'	*Shadow	Az'	Alt'	*Shadow	Az'	Alt'	*Shadow	Az'	Alt'	*Shadow				
07:00	115°	-2°	-	10:00	137°	33°	1.54	13:00	188°	47°	0.93	16:00	232°	25°	2.14
	116°	1°	57.29		140°	35°	1.43		193°	46°	0.97		234°	22°	2.48
	117°	4°	14.3		143°	37°	1.33		198°	46°	0.97		236°	19°	2.9
	118°	7°	8.14		147°	40°	1.19		203°	44°	1.04		238°	16°	3.49
08:00	120°	10°	5.67	11:00	150°	41°	1.15	14:00	207°	43°	1.07	17:00	240°	13°	4.33
	121°	13°	4.33		155°	43°	1.07		211°	41°	1.15		241°	10°	5.67
	123°	16°	3.49		159°	44°	1.04		215°	39°	1.23		243°	7°	8.14
	125°	19°	2.9		163°	46°	0.97		218°	37°	1.33		244°	4°	14.3
09:00	127°	22°	2.48	12:00	168°	47°	0.93	15:00	221°	35°	1.43	18:00	245°	0°	-
	129°	25°	2.14		173°	47°	0.93		224°	33°	1.54		247°	-3°	-
	132°	28°	1.88		178°	47°	0.93		227°	30°	1.73				
	134°	30°	1.73		183°	47°	0.93		230°	27°	1.96				

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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11:28

Save PDF file

Longitude / Latitude : 72.8586 / 19.473553

Location: Kumbhar Pada, Chandansar, Virar East, Vasai Virar, Maharashtra. Pin-401305 (India)

DayLength (Min / Max): 10.82 / 13.18 hours

Avg Temp. (Min / Max): 23.0 °C / 31.0 °C

Tilt Angle for Solar PV: 17°

Annual Global Insolation: 1833 (kWh/m²/year)

Power Production of PV: 366.6 kWh/m²/year considering % efficiency and energy loss.

m² of PV will generate 3666.0 units per year.

or

10.0 units per day.

Long Term Monthly Temperature (°C)												
Months	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Min	23	18	19	22	24	27	26	25	25	25	24	22
Max	31	29	29	31	32	33	32	30	29	30	32	33

Long Term Monthly Solar Insolation (2009-2021)(kWh/m ²)												
Months	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Min	1506	110	134	150	180	165	92	73	128	116	123	111
Max	2162	136	152	186	196	213	206	217	221	211	192	141
Avg	1833	131	143	178	189	202	145	125	164	152	150	122



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12:23 [Icons] [Signal] [4G LTE] [VoLTE] [89%]

Solar Calculator **SAC** [Location] [Search] [Menu]

Latitude: 19.342761 Altitude: -57

Longitude: 72.808325 Accuracy: 41

[Get Location] [Calculate]

Summary Table Charts Maps Forecast

Long Term Monthly Temperature (°C)													
Months	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	23	19	20	22	25	27	26	25	25	25	24	22	20
Max	31	29	29	30	32	33	32	30	29	30	32	32	30

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	1511	110	135	150	179	164	95	78	128	115	122	118	117
Max	2157	135	151	185	195	213	207	218	222	197	162	140	132
Avg	1846	130	143	178	189	203	150	132	164	153	150	129	126

Monthly Solar Insolation (2009 -2022)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	642	133	145	175	189								
2021	1694	129	138	182	182	164	133	119	128	118	159	120	122



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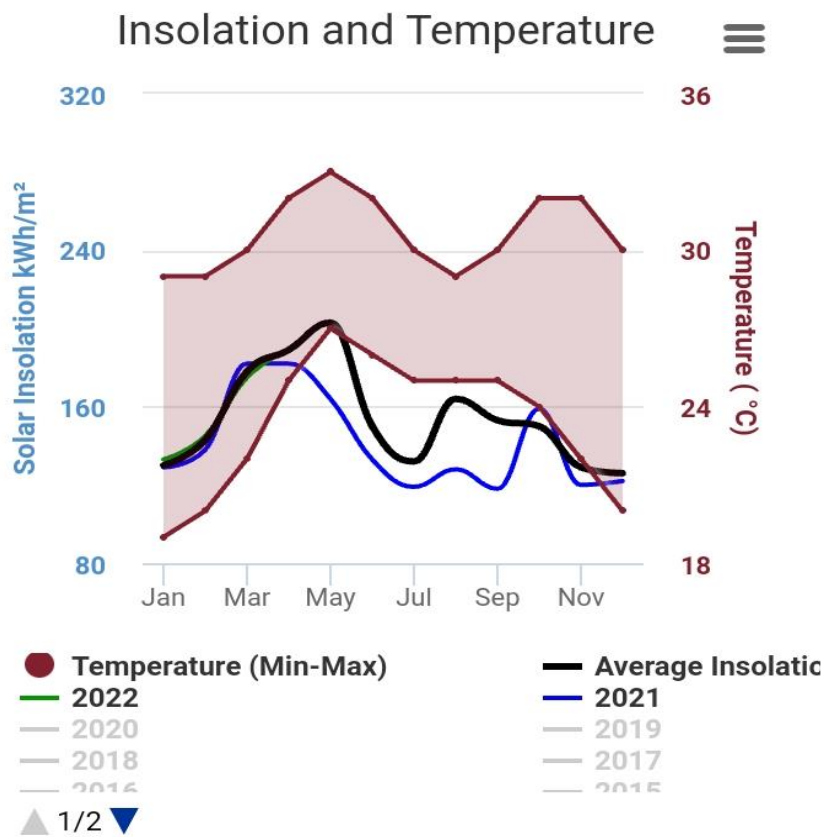
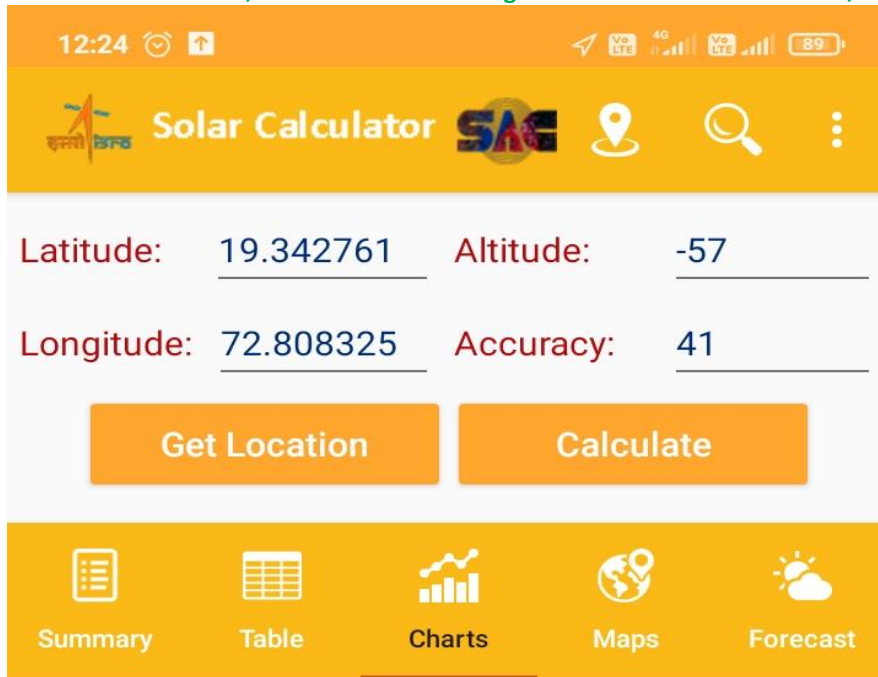
The screenshot shows the Solar Calculator app interface. At the top, the status bar displays the time 12:23, signal strength, 4G LTE, and battery level at 89%. The app header includes the title 'Solar Calculator', the SAC logo, and navigation icons for location, search, and menu. The main form contains input fields for Latitude (19.342761), Altitude (-57), Longitude (72.808325), and Accuracy (41). Below these are 'Get Location' and 'Calculate' buttons. A navigation bar at the bottom offers options: Summary, Table, Charts, Maps, and Forecast. The 'Table' view is active, displaying a table titled 'Monthly Solar Insolation (2009 -2022)(kWh/m²)' with columns for years and months (Jan-Dec) and rows for each year from 2012 to 2022.

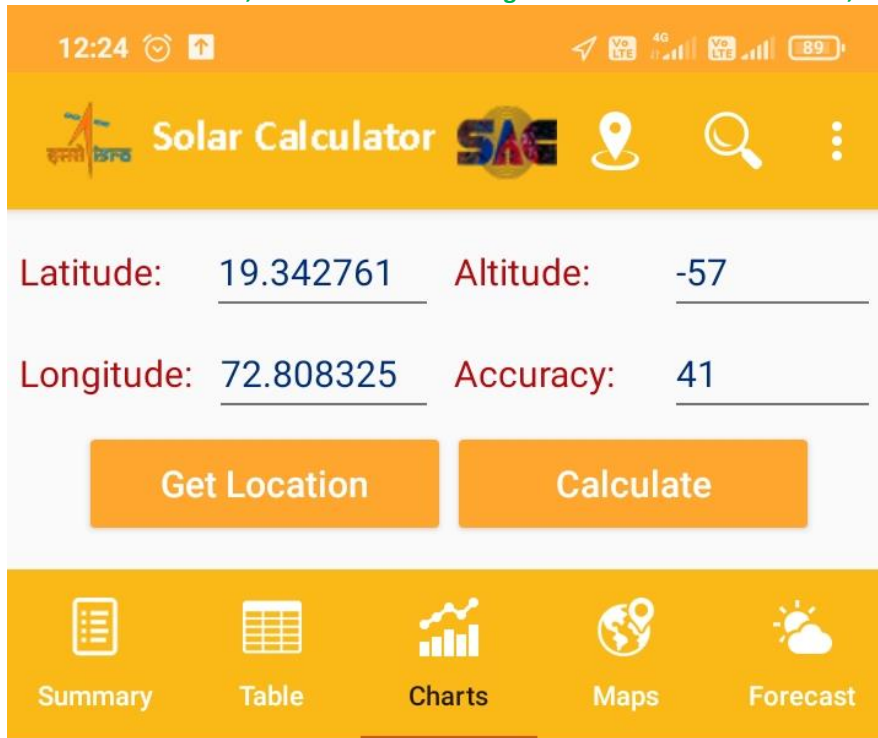
Monthly Solar Insolation (2009 -2022)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	642	133	145	175	189								
2021	1694	129	138	182	182	164	133	119	128	118	159	120	122
2020	1785	128	141	174	180	201	144	138	137	153	148	120	121
2019	1677	110	138	150	179	204	157	100	156	115	122	129	117
2018	1851	132	135	171	193	197	136	114	192	174	152	133	122
2017	1879	132	143	181	192	204	148	138	169	167	152	131	122
2016	1839	132	149	181	190	205	150	110	176	140	147	131	128
2015	1832	134	141	175	193	209	134	142	142	156	152	126	128
2014	1799	128	138	184	193	200	175	101	130	150	145	127	128
2013	1712	133	144	181	191	211	95	78	138	128	142	139	132
2012	2014	133	151	185	187	213	170	129	222	192	162	140	130



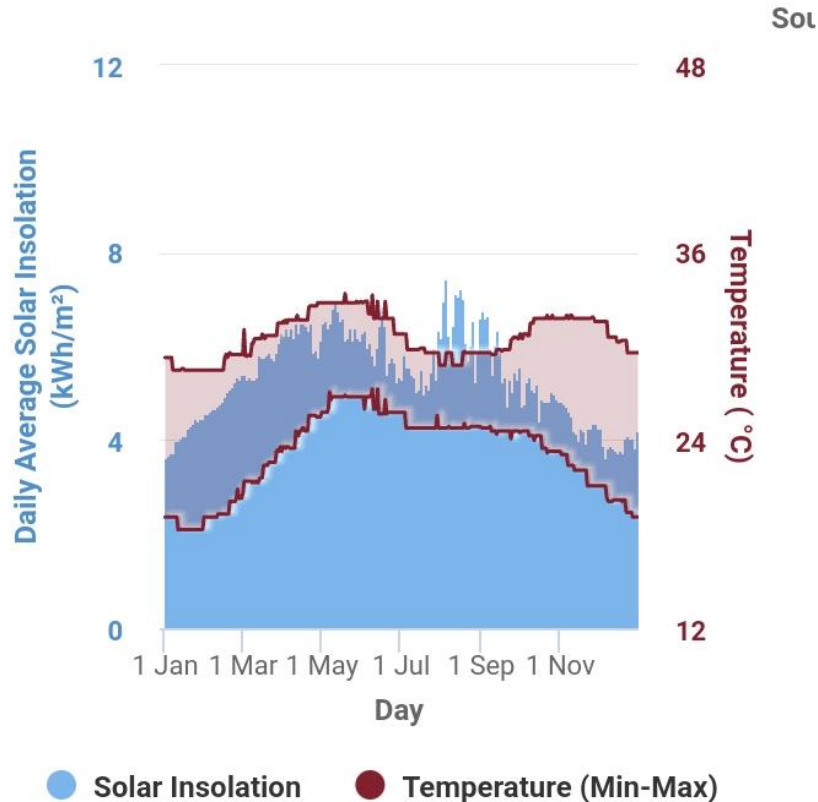
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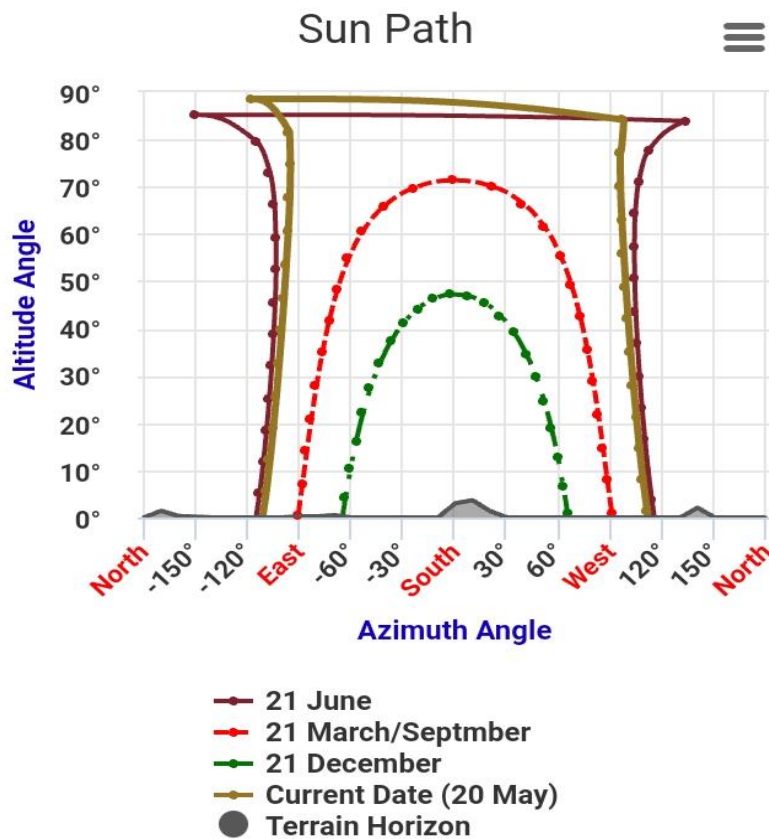
Daily Average Solar Insolation (2014-17) & Temperature





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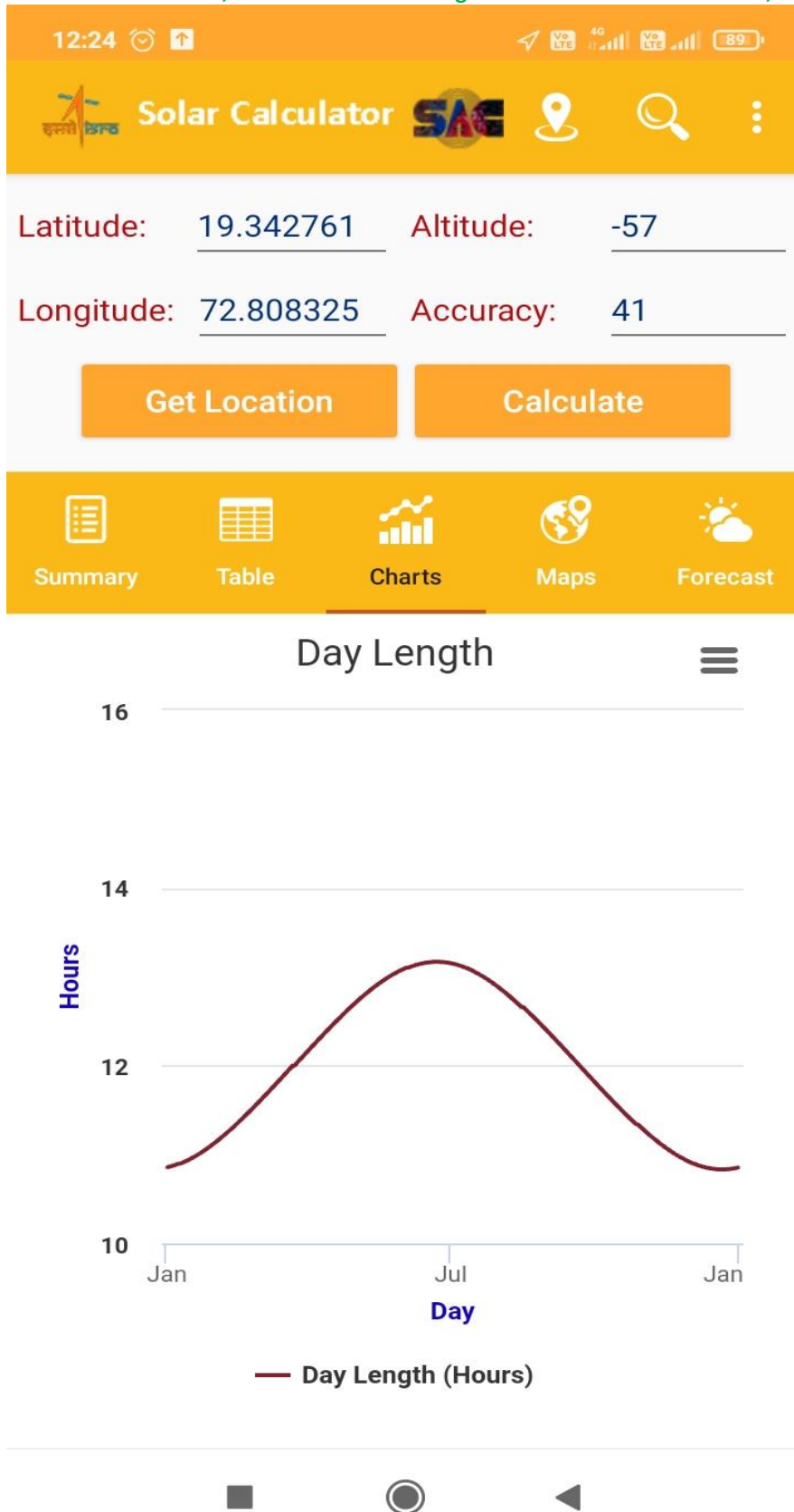
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Solar rooftop and power plants | SCADA and remote monitoring | Net metering collections
Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
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12:24

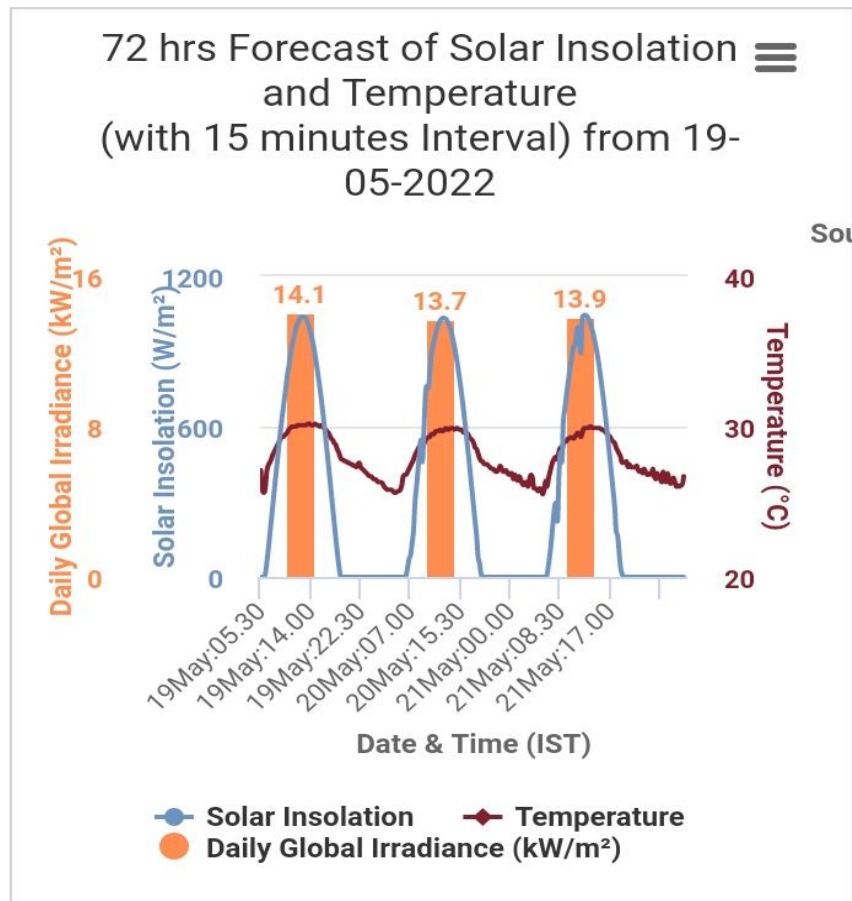
Solar Calculator SAC

Latitude: 19.342761 Altitude: -57

Longitude: 72.808325 Accuracy: 41

Get Location Calculate

Summary Table Charts Maps Forecast



Solar r... ..ctions
 Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
 Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
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12:26

Wind Calculator

Latitude: 19.3428341

Longitude: 72.8082637

Table Chart Forecast

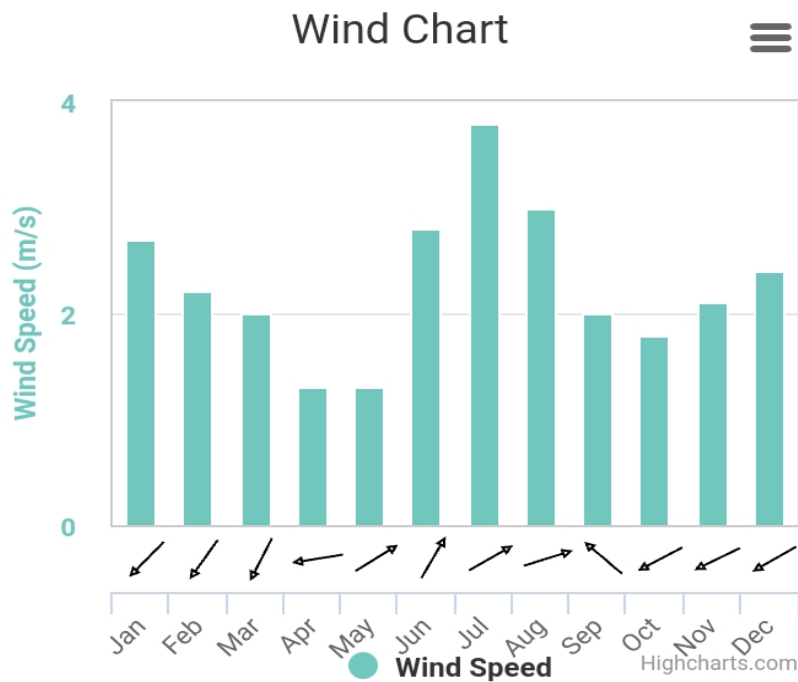
Latitude : 19.3428341
Longitude : 72.8082637

Month	Wind Speed (m/s)	Wind Direction(°)
January	2.7	223 ↙
February	2.2	213 ↙
March	2.0	205 ↙
April	1.3	260 ←
May	1.3	56 →
June	2.8	29 ↗
July	3.8	58 →
August	3.0	72 →
September	2.0	314 ↖
October	1.8	241 ←
November	2.1	242 ←
December	2.4	238 ←



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12:27 89%

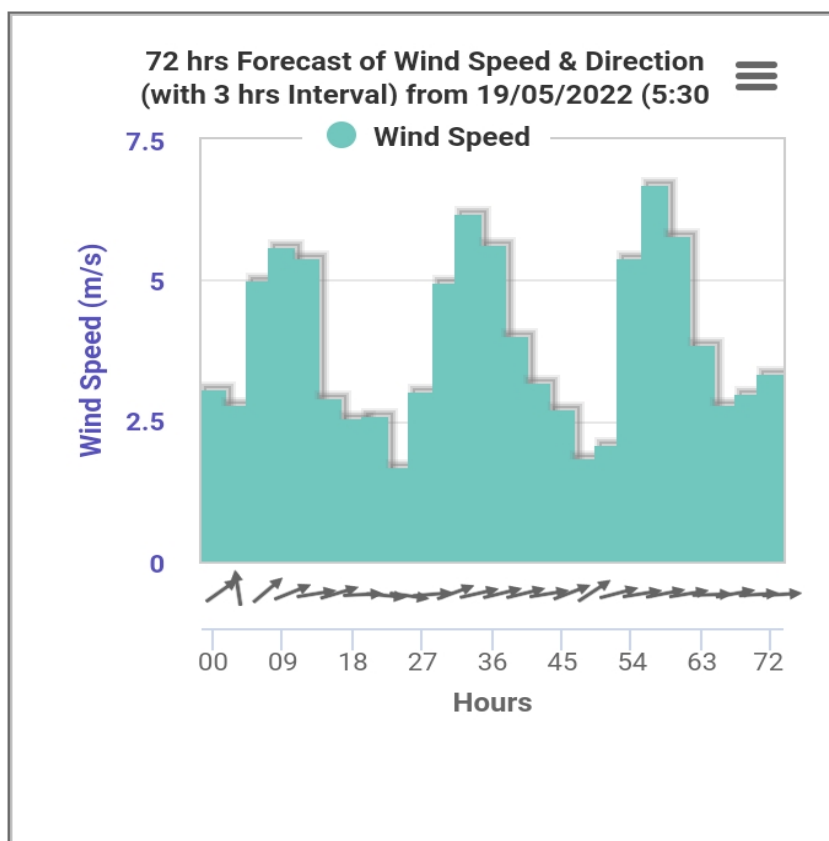
Wind Calculator

Latitude: 19.3428341 Get Location

Longitude: 72.8082637 Calculate

Table Chart Forecast

Height (hPa): Surface



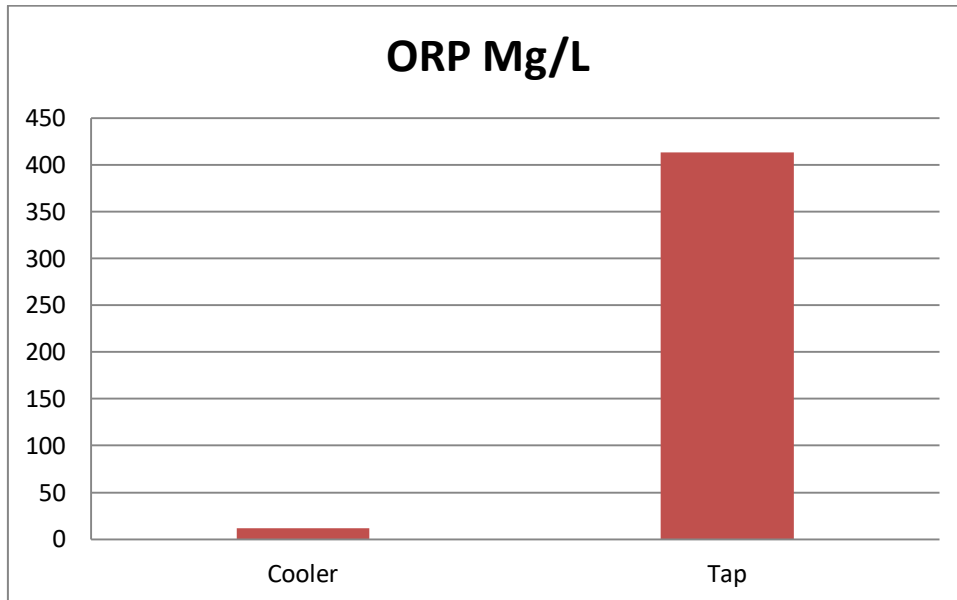
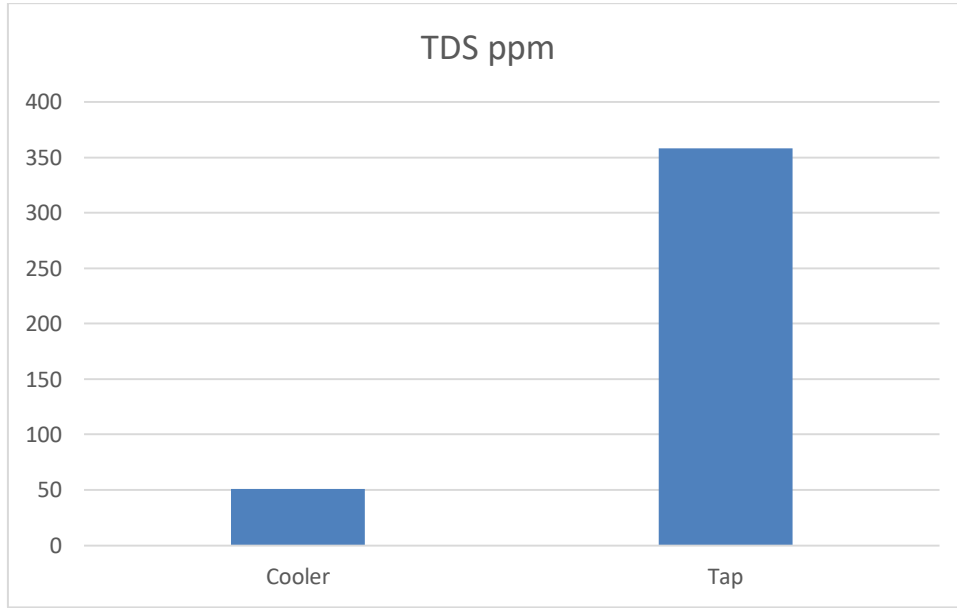


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7 Water

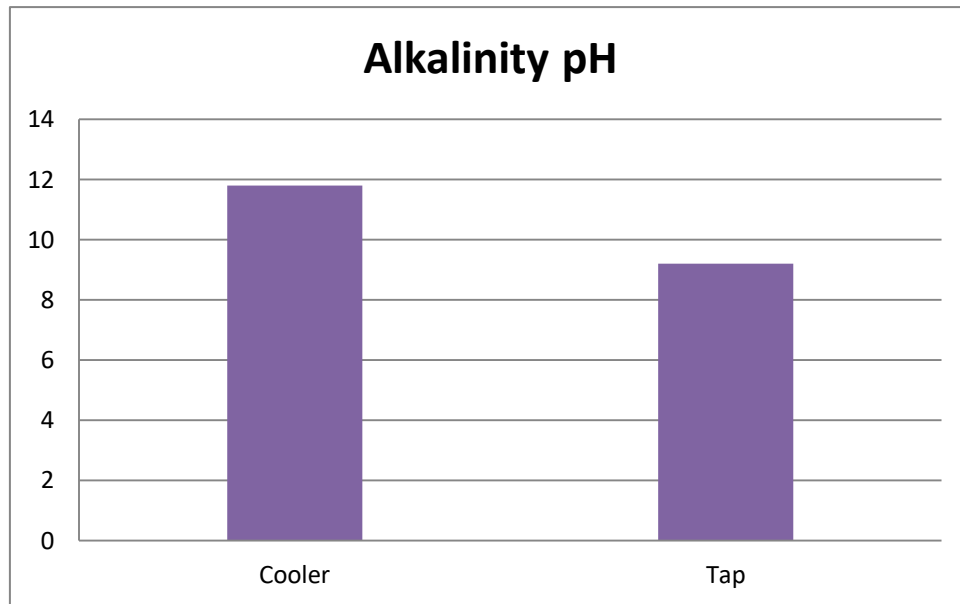
SL No	Use	TDS	ORP	Alkalinity
No	Activity	ppm	Mg/L	pH
1	Cooler	51	12	11.8
2	Tap	358	413	9.2





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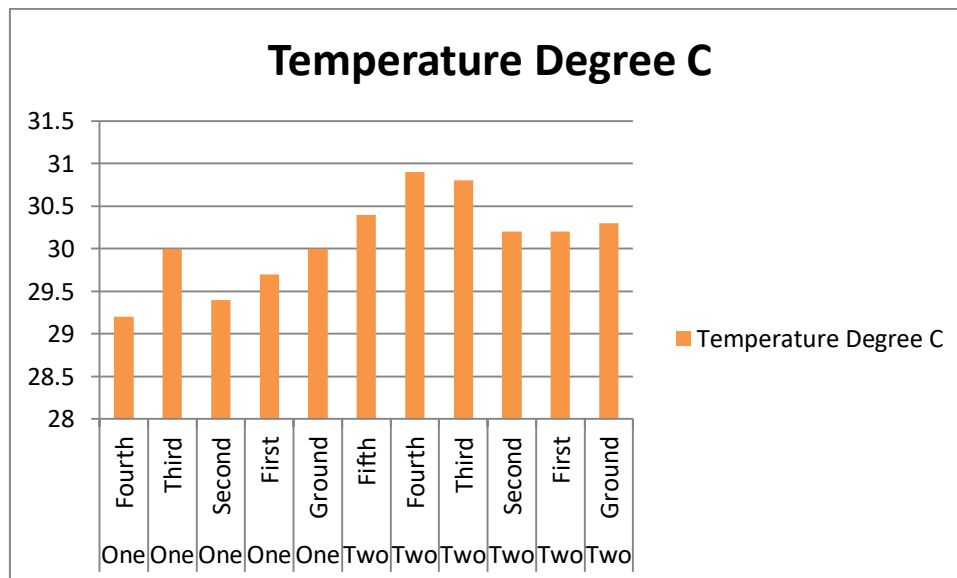


8 Atmosphere (Temperature, Humidity and Noise)

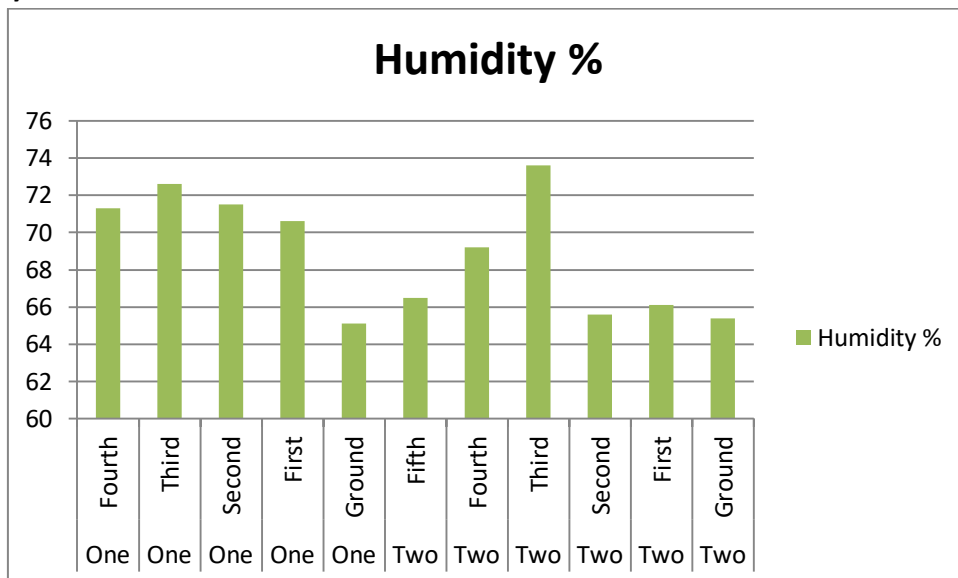
Building	Floor	Temperature	Humidity	Noise
		Degree C	%	dB
One	Fourth	29.2	71.3	58
One	Third	30	72.6	59
One	Second	29.4	71.5	59
One	First	29.7	70.6	67
One	Ground	30	65.1	49
Two	Fifth	30.4	66.5	49
Two	Fourth	30.9	69.2	47
Two	Third	30.8	73.6	57
Two	Second	30.2	65.6	58
Two	First	30.2	66.1	48
Two	Ground	30.3	65.4	59

Charts

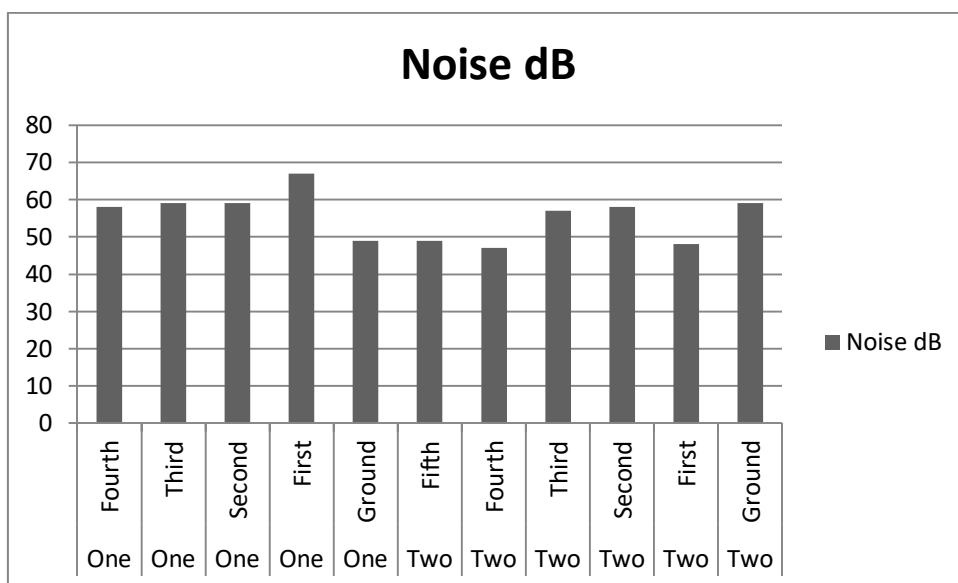
Temperature Data



Humidity Data



Noise Data



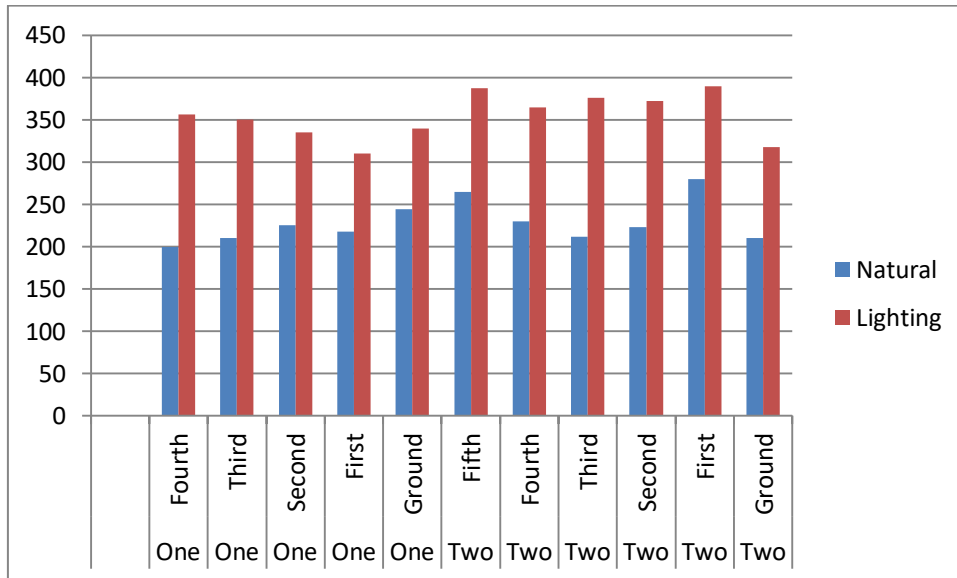


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9 Illumination

Building	Floor	Natural	Lighting
One	Fourth	200	356
One	Third	210	350
One	Second	225	335
One	First	218	310
One	Ground	244	340
Two	Fifth	265	387
Two	Fourth	230	365
Two	Third	212	376
Two	Second	223	372
Two	First	280	390
Two	Ground	210	318



Solar rooftop and power plants | Solar and Electric Consultation | New Electric Connections
 Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
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10 Energy Audit

10.4 Electrical Energy System

CA No	Meter No	Sanctioned Load	DISCOM	Phase
001911073583	055-MSE83203	79 KW	MSEDCL	Three

10.5 Electrical Bill Analysis

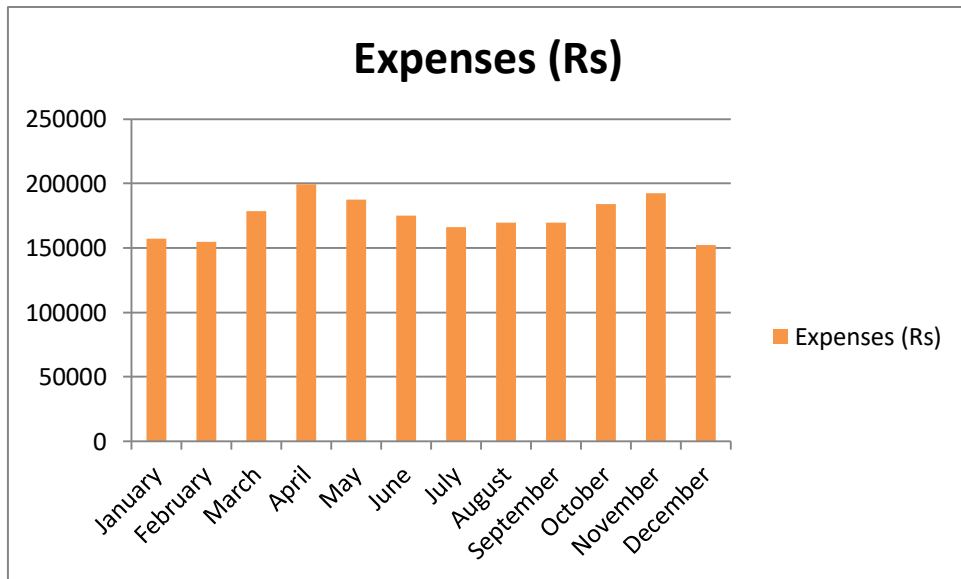
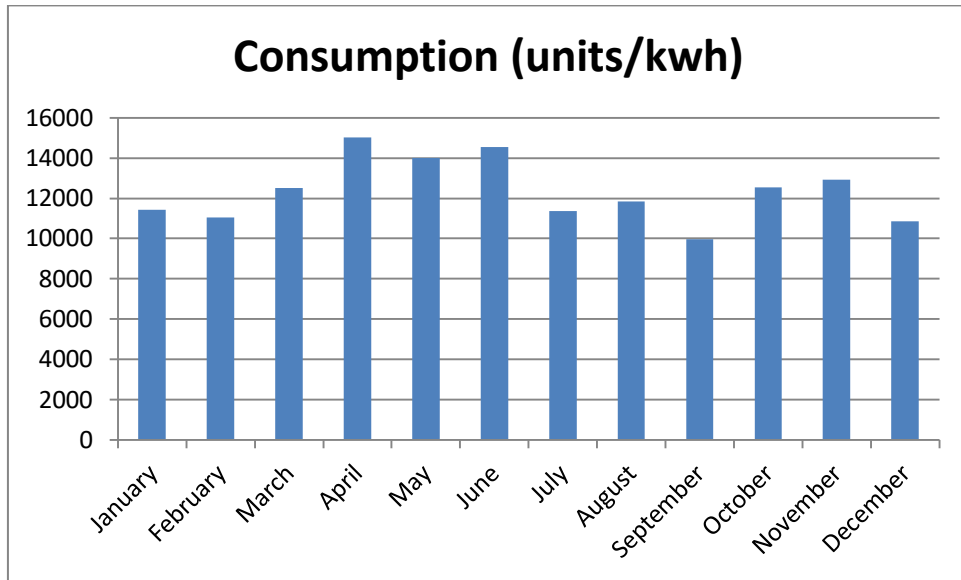
Billing Summary			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	11432	157244.2	13.75
February	11048	154503.1	13.98
March	12514	178490	14.26
April	15033	199404.4	13.26
May	14007	187589.7	13.39
June	14553	174909.7	12.02
July	11362	166410.2	14.65
August	11837	169521.7	14.32
September	9973	169521.7	17.00
October	12542	184298.1	14.69
November	12940	192642.7	14.89
December	10844	152377.2	14.05

Head	Value	Remark
Sanctioned Demand	65KVA	Benchmark
Recorded Maximum Demand	56KVA	Within Limit
Power Factor	0.84	Very Low



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10.6 Consumption Scenario

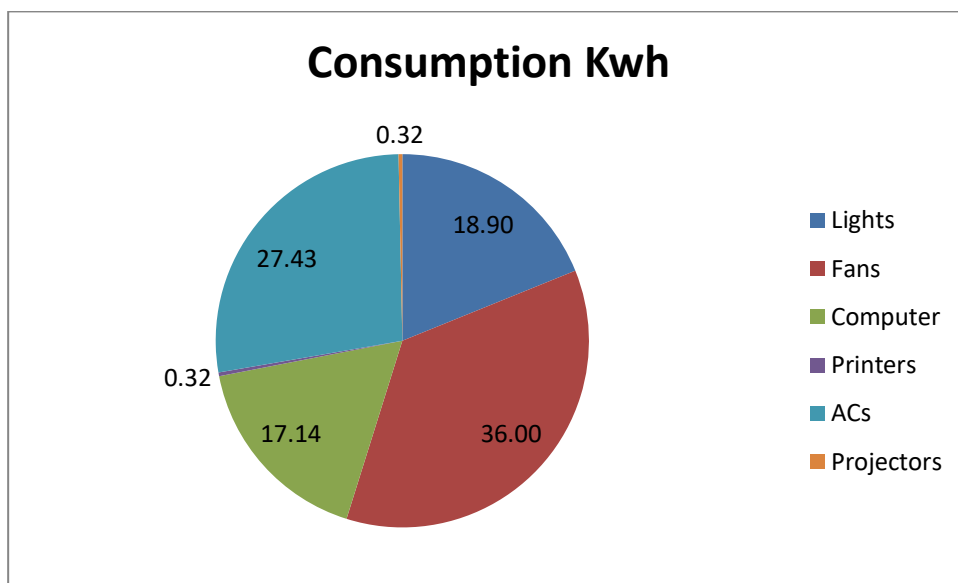
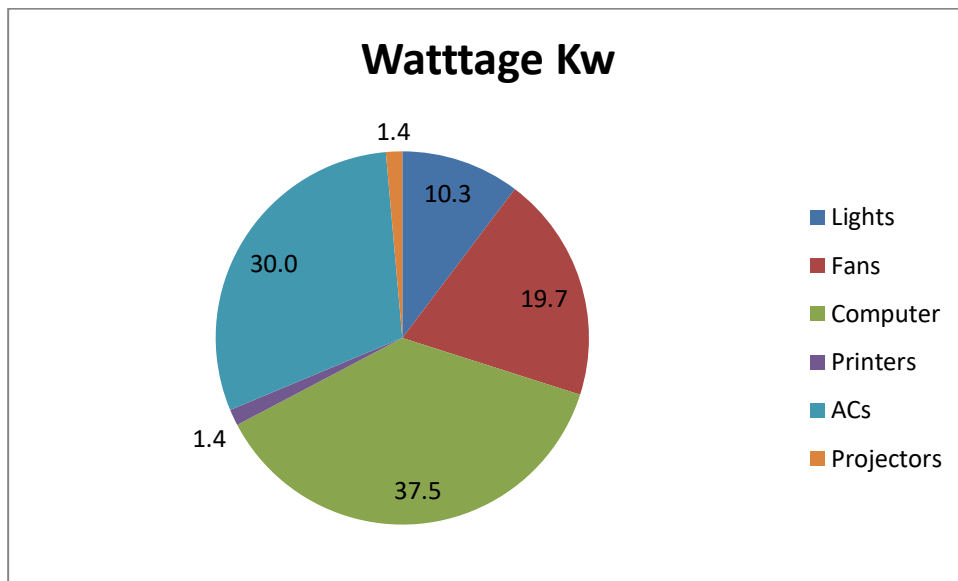
	Usage (Kwh)	Payment (Rs)	Duration
Total	148085	2086913	Annual
Min	9973	152377.2	September
Max	15033	199404.4	April
Average	12340.42	173909.4	Annual

10.7 Assessment of Major Loads

SL No	Floor	Room No	Room Name	Lights	Fans	Computer	Printers	ACs	Projectors	Other	Daily working hours
1	Gr. Floor	13	Class room/ Labs	60	65	300	17	18	17	NA	8 hrs
2	First	26	Class room/ Labs	50	65						
3	Second	22	Class room/ Labs	50	65						
4	Third	22	Class room/ Labs	60	65						
5	Fourth	22	Class room/ Labs	60	40						
6	Fifth	6	Class room/ Labs	30	15						

Loads	Measures	Lights	Fans	Computer	Printers	ACs	Projectors
Quantity	Nos	310	315	300	17	18	17
Wattage	Kw	12.4	23.6	45.0	1.7	36.0	1.7
Consumption	Kwh	99.2	189	90	1.7	144	1.7

Percentage Share



**10.8 Use of Renewable Energy System
Not Available**



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11 Safety Assessment

11.1 Status of presence of electrical safety hazards:

SL No	Safety Hazard Yes/No Remarks	Yes/No	Remarks
1)	Existence of non ISI/standardized appliances	No	
2)	Whether the existing wiring is more than 20 years old.(Wiring more than 20 years old must be recommended for replacement)	No	
3)	Whether Fire detection and Alarm system is installed?	No	
4)	Whether sufficient number of fire extinguishers is installed?	Yes	
5)	Segregated UPS room with proper ventilation/exhaust is provided?	NA	
6)	Is their display of emergency telephone number of nearest fire station, hospital and key person?	No	
7)	Whether frequent sparking at certain place(s) reported	No	
8)	Whether switches found with burnt marks	No	
9)	Existence of non standardized tube lights/CFLs/Bulbs and TL starters and chokes	No	
10)	Dampness in walls and ceiling	No	
11)	Loose switches/plugs	No	
12)	Naked wiring or connections	No	
13)	All Electrical cables/wiring are in conduits and are protected by a fire proof insulation	Yes	
14)	Seepage /Leakage of water in walls or on and around electrical installations	Minor	
15)	Whether connection to each AC is provided through an individual MCB of appropriate rating & of standard make and ISI approved.	Yes	
16)	Whether there are frequent tripping due to overloads ?	No	



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11.2 Safety Survey:

- 11.2.1 Actual Cable Size (at meter): 185 Sqmm
- 11.2.2 Year of Installation: 2009
- 11.2.3 Actual Available Cut-out Size: 250A
- 11.2.4 Year of Installation: 2009
- 11.2.5 Actual Required ELCB Size: **Present at Branches but bypassed or failed in test**
- 11.2.6 Meter Cabin Condition: Good
- 11.2.7 Availability of Fire extinguisher/ Sand Buckets: **NO Sand Buckets**
- 11.2.8 Water proofing/Seepage: No seepage
- 11.2.9 Damages/Tampering: No
- 11.2.10 Adequacy in connections/Termination/Joints: Good
- 11.2.11 Ease of accessibility: Good
- 11.2.12 Danger Signs: **NO**
- 11.2.13 Smoke detectors : Good
- 11.2.14 Alarm system: Yes
- 11.2.15 Emergency Entry/Exit door: Yes
- 11.2.16 Emergency evacuation plan: **NO**
- 11.2.17 Fire extinguishers: Yes
- 11.2.18 Public Address system : YES
- 11.2.19 Rodent arrester: **NO**
- 11.2.20 CCTV: Yes
- 11.2.21 Meter cabin: Good Condition
 - 11.2.21.1 Leakage: **NO**
 - 11.2.21.2 Damaged/tempered/cracks: **NO**
 - 11.2.21.3 Name plate: **No**
 - 11.2.21.4 Water logging possibility: **No**
- 11.2.22 Physical Inspection of Power source : Good Condition
 - 11.2.22.1 Adequacy as per standards **OK**
 - 11.2.22.2 Rusting of panel **NO**
 - 11.2.22.3 Visible scaling **NO**
 - 11.2.22.4 Scaled/ Unclean wires breakers **NO**
 - 11.2.22.5 Wet / Dampness **NO**



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11.3 Following Regulations have been breached by electric connections present

1. Regulation 3: Registers of designated persons

No registers maintained

2. Regulation 18: Danger Notice

Not provided

3. Regulation 27: Generation station Fire Bucket with clean Dry sand

No

Training of staff

No

4. Regulation 28: Precautions and response to electric Shock

No

5. Regulation 34: Insulation Resistance

No

6. Regulation 41: Earth Resistance

No

Record of Registered value

No

7. Regulation 42: Provision of ELCB/RCB

No (Bypassed or Failed in sample test)



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12 Wastage Types and Management

SL No	Wastage Type	Quantity	Action
1	Biomass	8-10Kg per day (as discussed)	Put near tree roots
2	Paper	10-20Kg approx. per month	Cleaned by housekeeping and sent to municipal wastage
3	Water	100-500Ltrs approx. per year due to leakage	Not considered
4	E-Waste	Un-quantified	Cleaned by housekeeping and sent to municipal wastage
5	Bio-Hazardous	NIL	NIL
6	Fuel	Electricity Wastage by running fans and lights for uncounted time after room cleaning	NIL
7	Production	NIL	NIL
8	Process	Occasional electricity wastage by room user/s accidentally keeping equipments switched On while leaving the room.	NIL
9	Food	Occasionally wastage in very low quantity	Cleaned by housekeeping and sent to municipal wastage
10	Man-Hours	NIL	NIL

Best Practices

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)
6. Fix a Notice on Back-side of Exit Door of Room-"SWITCH OFF all electrical equipments and Taps". (point no.8 and 6)
7. In present scenario observed there is no any recycling procedure is thought, documented or observed in premises.
8. Recycling of one side used papers to be observed.
9. Prepare and observed a Generalized SOP having attributes specialize on each type of wastage and it's re-usage and/or recycling.



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13 Environment Impact on Natural resources

13.1 Table-1: Overall

Environmental Impact Analysis Report		
Annual Consumption	1408085	KWh
Annual Green- Impact		
Co2 Generated	905304	Kg
Coal Burned	822880.8	Kg
Diesel Burned	436099.8	Ltr
Natural Gas Burned	16638902	Cub Ft
Trees Cut	41211.6	Nos
Water Consumed	2968361.2	Ltr
Life Time Green- Impact		
Co2 Generated	16483514	Kg
Coal Burned	47318461	Kg
Diesel Burned	7941340.2	Ltr
Natural Gas Burned	302994439	Cub Ft
Trees Cut	750479	Nos
Water Consumed	54053855.2	Ltr

13.2 Table-2: Occupational Area Based

Environmental Impact Analysis Report		
Annual Consumption	1408085	KWh
Annual Green- Impact		
Co2 Generated	9.43	Kg
Coal Burned	8.57	Kg
Diesel Burned	4.54	Ltr
Natural Gas Burned	173.32	Cub Ft
Trees Cut	0.43	Nos
Water Consumed	30.92	Ltr
Life Time Green- Impact		
Co2 Generated	171.70	Kg
Coal Burned	492.90	Kg
Diesel Burned	82.72	Ltr
Natural Gas Burned	3156.19	Cub Ft
Trees Cut	7.82	Nos
Water Consumed	563.06	Ltr

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13.3 Table-3: Footfall Based

Environmental Impact Analysis Report		
Annual Consumption	1408085	KWh
Annual Green- Impact		
Co2 Generated	226.33	Kg
Coal Burned	205.72	Kg
Diesel Burned	109.02	Ltr
Natural Gas Burned	4159.73	Cub Ft
Trees Cut	10.30	Nos
Water Consumed	742.09	Ltr
Life Time Green- Impact		
Co2 Generated	4120.88	Kg
Coal Burned	11829.62	Kg
Diesel Burned	1985.34	Ltr
Natural Gas Burned	75748.61	Cub Ft
Trees Cut	187.62	Nos
Water Consumed	13513.46	Ltr

13.4 Table-4: Carbon Footprints

Head	General	Per Square Foot	Per Person
Per Year	905304	9.43	226.33
Lifetime (20Years)	16483514	171.70	4120.88

Ranges:

Best: (Below 1800/Per Person per year)

Average: (Below 3000 and Above 1800/Per Person per year)

Bad: (Above 3000/Per Person per year)

Carbon Footprint found best category.

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Plantation Drive:

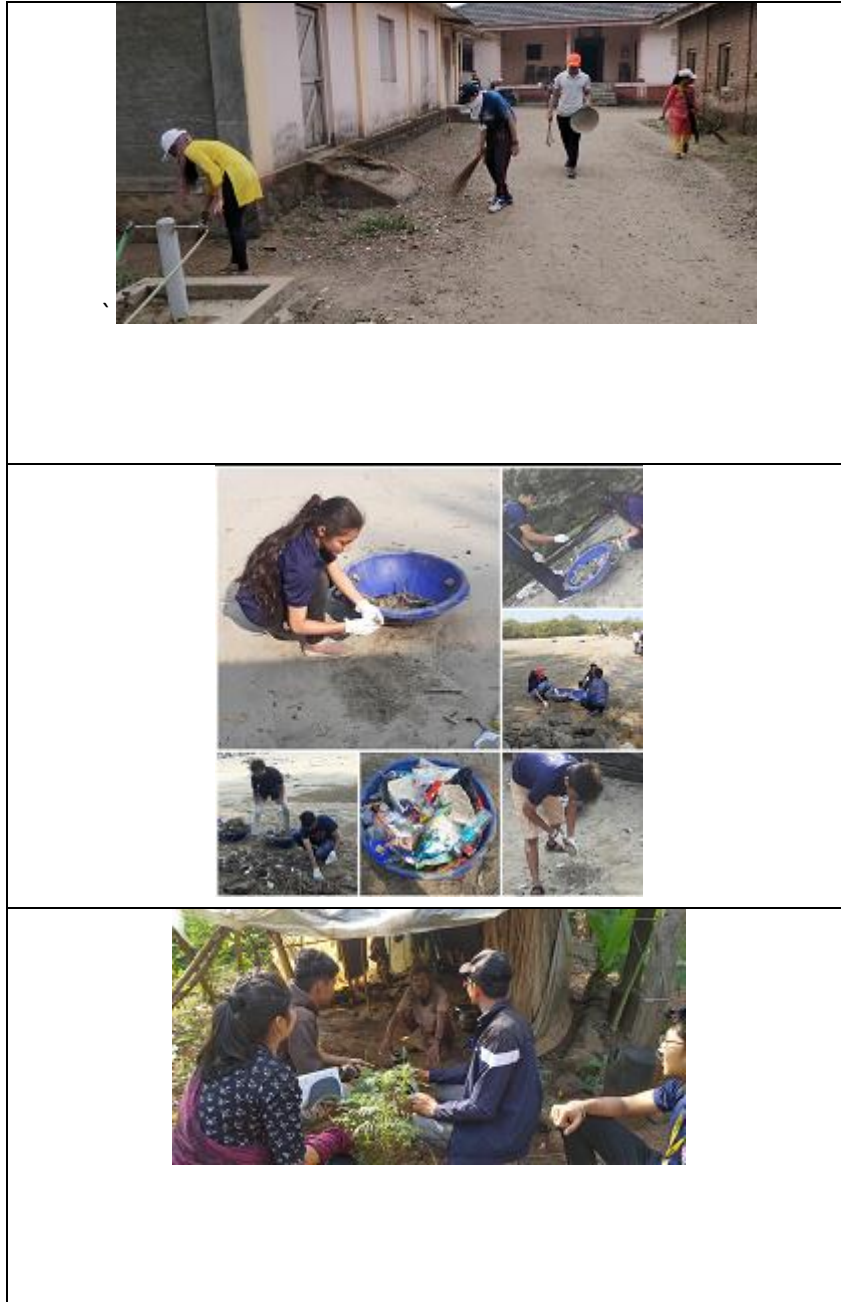




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Safe and Waste Free Environment Drive:



**Solar rooftop and power plants | Solar and Electric Consultation | New Electric Connections
Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits& Assessment**

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

saurengineers@gmail.com 9168402909/9867499812/9821116443.....62

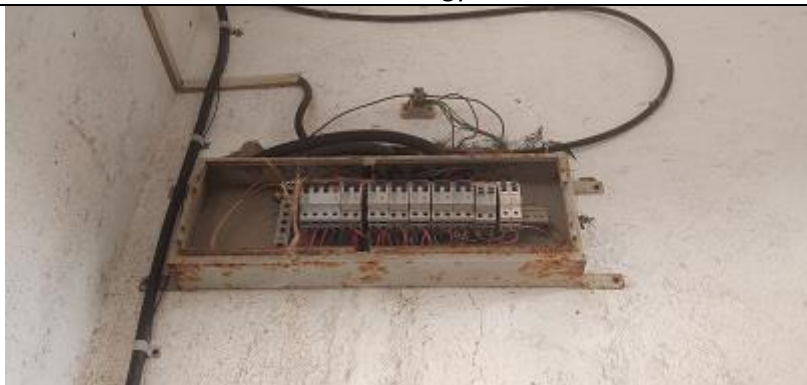
Critical safety Parameters:



Damaged Feeder Pillar



Meter Cabin with Waste Dumping
Old Technology Used



Un professional and risky wiring



Hanging Risky Installations



Non Insulated Portable cables



Old Risky Installations



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14 Suggestions

1. Air quality is found moderate. There is scope to increase in Tree diversity; Plants like Tulsi, Camphora, Etc. can be planted for getting more pollution-free atmosphere. Also to increase the quality more greenery can be implemented. This can be done through gardening in empty places, terrace gardening and Green walls.
2. Water quality is found average. Quality is observed from RO output. To maintain the quality, water testing has to be done in every season (after every four months). A standard operating process has to be defined, documented and observed for tank and pipeline cleaning and maintenance.
3. Noise level is appropriate.
4. Illumination level found good. To maintain accurate level, windows to be cleaned regularly, obstacles on windows to be moved, Proper capacity and efficiency of luminaries to be used and luminaries also to be cleaned once in a week. For details refer illumination section.
5. The climatic conditions are hot and humid. This increases fan consumption.
6. The site has excellent solar irradiation which can be utilized for electricity generation.
7. To maintain green and eco-friendly college campus, more trees need to be planted. A thick green belt development along the fence is strongly recommended. The plant diversity shall be maintained. The plant species that are found suitable are suggested for plantation and greenbelt development. In addition to above, some flowering plants, shrubs, herbs and climber plant species suggested for beautification in the college campus.
8. Arrange Exhibitions and identification programs for students and locals to understand medicinal plants.
9. Gift small plants or seeds/seed-balls to students leaving or going to native place and encourage them to plant at their own premises.
10. Emergency evacuation plan to be prepared and displayed at centre place.
11. Generate awareness among user about environment conservation.
12. Prepare and observe SOPs for the same.
13. Use energy efficient Lighting.
14. Use Energy efficient fans.
15. Keep AC temperature to 26⁰ C.
16. Clean Luminaries, Fans, ACs regularly to increase efficiency.
17. Prepare and observe SOPs for maintenance of equipments.
18. Avoid Draft printing, use email/Whatsapp maximum.
19. Following tests are to be conducted at-least annually
 - Earthing
 - Lightning Arrestor



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- Grounding Continuity
- Voltage
- Polarity
- Neutral Current
- Load Unbalance
- Earth Resistance
- Insulation Resistance
- Illumination
- Power Quality
- Thermography

20. Safety Precautions

- a. Prepare and Display SLD of Installation
- b. Install New Earth pits and conductors.
- c. Replace all DBs and Feeders
- d. Install Sand Buckets, Insulation Mats in meter cabin and panel room
- e. Install IOT based Energy and Safety Monitoring system

21. Saving Opportunities (considering current average rate and six hours daily usage)

- A. Replacing Regular Tube lights with LED will save approximately Rs. 15,000 per month.
- B. Replacing Regular Fans with BLDC Energy saving Fans will save approximately Rs. 40,000 per month.
- C. Manage Power Factor to appropriate limit will save approximately Rs. 5,000 per month.
- D. Installation of SPVGCRT (Solar Photovoltaic Grid Connected Roof Top) System with Net Metering facility can save 80% of Electricity bill. (Solar Resource Analysis is required).



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15 Disclaimer

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.

16 Conclusion

We hereby conclude report for “Energy Audit, Green Audit and Environment Audit” of the Work done under scope of work for “VIVA Institute of Technology, Virar, Dist. Palghar 401201”. Please study it thoroughly and implement recommendations and suggestions at earliest.