NAAC Accreditation : 16 February 2004
NAAC Reaccrediration : 08 January 2011
NAAC Reaccrediration : 28 March 2017

Estd. : June 1964
NAAC : 'A' (CGPA : 3.01)

UGC (2F) dt. 20-03-1967,
Perm. Affi.No.-Affi./t.2/F.35/8275,dt.31-12-2002
Jr. College No. J 23.10.001

Shree Warana Vibhag Shikshan Mandal's

Yashwantrao Chavan Warana Mahavidyalaya

WARANANAGAR - 416 113, DIST. KOLHAPUR (MAHARASHTRA)

Affiliated to Shivaji University, Kolhapur

अनंत आमुची ध्येयासक्ती..!

I/C Principal
Prof. Dr. Prakash S. Chikurdekar
M.A.B.Ed.,M.Phil.,Ph.D.

Office : 02328 - 224041
Principal : 02328 - (O) 222820
Fax : 02328 - 224031
Website : www.ycwm.ac.in
E-Mail : ycwcwarana@yahoo.co.in

Founder Chairman : Late Shri V. A. Alias Tatyasaheb Kore

Chairman : Dr. Vinay V. Kore M.L.A.

7.1: Institutional Values and Social Responsibilities

7.1.3: Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following.

- Green audit / Environment audit
- Energy audit
- Clean and green campus initiatives
- Beyond the campus environmental promotion activities

Policy document on environment and energy usage
Certificate from the auditing agency

1. Energy Audit Certificate
2. Fire and Safety Audit Certificate
3. Energy Audit Report
4. Fire and Safety Audit Report

"LET'S GO GREEN TOGETHER....."

To,

Hon'ble Principal,

Yashwantrao Chavhan Warana Mahavidyalaya,

Warananagar

Subject: Energy Audit: Expert Opinion regarding...

Respected Sir,

We have carried out the Energy audit for the purpose of environmental Consciousness. Some of aspects related to energy is highlighted below:

- Green Audit can be defined as systematic identification, quantification, recording, reporting & analysis of components of environmental diversity. The term "Green" means eco-friendly or not damaging the environment. The green audit practically involves energy conservation, use of renewable sources, rain water harvesting, efforts of carbon neutrality, plantation, hazardous waste management & E-waste management.

- This document presents a proposal for both the process and the content of an environmental assessment of Yashwantrao Chavhan Warana Mahavidyalaya /College (YCWM). The process involves the formation and deliberation of assessment teams, each consisting of a group of knowledgeable stakeholders within the campus community. This report serves to highlight YCWM's many

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accomplishments, and to make recommendations for improving the College'senvironmental sustainability.

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Thanks and Regards

Yours Sincerely,

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India
- EIA Coordinator, accredited by NABET, Quality Council of India

SANDEEP
FIRE SERVICES

SANDEEP FIRE SERVICES
Manufacturer and suppliers for fire extinguisher and safety equipment
ISO 9001-2015 / Maharashtra fire services authorised licence agency

Date: - 02/04/2023

MEASUREMENT SHEET & TEST REPORT

To,

Yashwantrao Chavan Waran Mahavidhyalay
Warananagar
Tal. Panhala Dist . Kolhapur

Subject:- Maintenance of existing Fixed Fire Protection System

Side :- Warananagar Tal. Panhala Dist Kolhapur

Sr. No	Description	Quantity	Unit	Testing	Remark
1	Pump 3 HP	01	NOS	Yes	OK
2	Fire Hydrant Valve Dia 63 IS 5290	01	NOS	Yes	OK
3	Hose Reel Hose Dia 20mm.30 mtr long ISI Mark	06	NOS	Yes	OK
4	Single Door Hose Box	01	NOS	Yes	OK
5	Hose Pipe. 63 Mm Dai 15 Mtr Long	01	JOB	Yes	OK
6	Branch Pipe SS	01	NOS	Yes	OK
7	Starter	01	NOS	Yes	OK
8	Fire Inlet Two Way C.I Body IS 903	01	NOS	Yes	OK
9	Fire Alarm Panel Two Zone	01	NOS	Yes	OK
10	MCP	04	NOS	Yes	OK
11	Hooter	04	NOS	Yes	OK
12	Smoke Detector	30	NOS	Yes	OK
13	Fire Extinguisher Refilling Co2 4.5 Kg	02	NOS	Yes	OK
14	Fire Extinguisher Refilling ABC 4 Kg	04	NOS	Yes	OK

The above Fire Systems applied & providing & fixing and maintained by
As per Indian Standard Code of Practice and they are now in perfect working condition.

Thank you,
Yours Faithfully,

For SANDEEP FIRE SERVICES.

sandip lalasaheb khatmode

Digitally signed by sandip lalasaheb khatmode
Date: 2023.04.02 14:31:44 +05'30'

Sandeep L Khatmode.
(Fire & Safety Engg)
Auth. sign

Licence No MFS-LA/RF-88/RD -83

Head Ofc-S.R. No. 84/2, Saidapur, Sambhaji Nagar, Medha Road, Post kondave, Tal- Dist - Satara 415002
+91-9923236015 / 8208543278 sandip_fire@ymail.com www.sandeepfireservices.com

SANDEEP
FIRE SERVICES
Fire safety on, accidents gone

SANDEEP FIRE SERVICES
Manufacturer and suppliers for fire extinguisher and safety equipment
ISO 9001-2015 / Maharashtra fire services authorised licence agency

Date: - 02/04/2023

FORM-B

(As per section 3 (3) and rule 4 (2)

"Six monthly certificates to be given to be every January and July by the owner or the occupier for compliance Of the Fire Prevention and Life Safety Measures"

CERTIFICATE

Certified that we have carried out inspection of the fire prevention and life safety Measures installed in the following building premises.

Yashwantrao Chavan Warana Mahavidhyalay
Warananagar
Tal. Panhala Dist . Kolhapur

We further certify that these installations in the above mentioned buildings Are maintained in good repair efficient conditions during the period **01/07/2022 to 31/12/2022**, as required under the provision of the Maharashtra fire prevention & Life Safety measure Act 2006 (Mah III of 2007).

कोल्हापूर महानगरपालिका
अग्निशमन सेवा दल

3 APR 2023

For SANDEEP FIRE SERVICES.

sandip lalasaheb khatmode

Digitally signed by sandip lalasaheb khatmode
Date: 2023.04.02 14:32:22 +05'30'

Sandeep L Khatmode.
(Fire & Safety Engg)
Auth. sign
Licence No MFS-LA/RF-88/RD -83

Head Ofc-S.R. No. 84/2, Saidapur, Sambhaji Nagar, Medha Road, Post kondave, Tal- Dist - Satara 415002
+91-9923236015 / 8208543278 sandip_fire@ymail.com www.sandeepfireservices.com

Govt. of Maharashtra
Directorate of Maharashtra Fire Service
Vidyanagri, Hans Bhugra Marg, Santacruz (East),
Mumbai – 400 098, Tel-022-26677555, Fax-022-26677666
www.mahafireservice.gov.in

FORM N
[(See section 9 (3) and rule 14]
License to act as a License Agency for the purpose of Fire Prevention and Life Safety Measure

License No. MFS / LA / RF-88 / RD-83 Date: 11.02.2023

License is hereby renewed under the provisions of sub-section (3) of section 9 of the Maharashtra Fire Prevention and Life Safety Measure Act, 2006 (Mah. III of 2007) to **M/s. Sandeep Fire Services** having their registration office at **M No. 322, Saidapur Post, Kondave Satara 415002** and their contact details are Office Number: 9923236015 and Email ID: sandip_fire@ymail.com with PAN registration No. BVPPK1324Q and GST No. 27BVPPK1324Q1ZO to act as a License Agency for the purpose of the said Act for execution of the fire prevention and life safety measures in relation to

1. **Fire Fighting and Sprinkler System:** **Class D**
2. **Detection and Fire Suppression System:** **Class D**

M/s. Sandeep Fire Services shall not issue Form A or Form B under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance thereof in good repair and efficient condition, without there being actual such compliance or maintenance failing which license granted / renewed shall be suspended or cancelled as per sub section (4) of section 9 and shall be liable for penalty under section 36 of the Act.

Subject to the provision of sub section (4) of section 9 of the said Act and rule 14 of the Maharashtra Fire Prevention and Life Safety Measures Rules, 2009, the license will be valid for a period from **11.02.2023 to 10.02.2024**

Hatyal Kiran
Digitally signed by Hatyal Kiran
Date: 2023.02.21 09:56:34 +05'30'
Asst Director

SANTOSH SHRIDHAR WARICK
Digitally signed by SANTOSH SHRIDHAR WARICK
Date: 2023.02.21 15:20:14 +05'30'
(S S Warick)
Director
Maharashtra Fire Service

sandip lalasaheb khatmode
Digitally signed by sandip lalasaheb khatmode
Date: 2023.02.20 21:57:41 +05'30'
Digital Signature of Authorized Person to sign Form A or Form B

Note:
* in absence of digital sign of license holder (responsible to issue Form A or Form B) the license will be treated as invalid.

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

ENERGY AUDIT REPORT

2021-22

Prepared by :-

Mr.Vilas. S. Patil - Coordinator

Energy Audit Committee (2021-22)

Assistant Professor, Department of Physics,

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Yashwantrao Chavan Warna Mahavidyalaya, Warananagar.

A/P: Warananagar, Tal: Panhala, Dist: Kolhapur

(Maharashtra)

ISBN:

Published by:
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Mr. Vilas S. Patil.
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Energy Audit Committee (2016 to 2022),
Assistant Professor,
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(Maharashtra, India)

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

ENERGY AUDIT REPORT

2021-22

Energy Audit Committee (2021-22) of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Mr.Vilas S. Patil - Coordinator,
Energy Audit, (2021-22).

Dr. S.S.Khot-	Member	Dr. S.Y.Jadhav	Member
Prof.U.D.Kadam-	Member	Prof.U.G.Jambhore-	Member
Prof. M.N.Patil-	Member		

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

ENERGY AUDIT REPORT

(2021-22)

Chief Editor

Mr. Vilas S. Patil.
Coordinator, Energy Audit.

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Prof. A.K.Ladgaonkar
Prof. M.N. Patil
Prof. Miss. P. A. Motari

Field Team

Dr. S.S.Khot- Member
Prof.U.D.Kadam
Prof.C.R.Jadhav
Prof.U.G.Jambhore
Prof. M.N.Patil.
Prof.S.V.Patil

Shree, Subhash B. Shirgave

Special Assistance - Dr. Prashant Banne,
Director,
SAITECH Research and Development Organization.

Photo Assistance - Shubham K. Kumbhar (Alumni)

Hon. Principal, Dr. A.M. Shaikh.
Y.C. W. M. Warananagar.

Preface

Energy Audit is a key indicator parameter of systematic approach for decision-making in the area of energy conservation and management. It is attempts to determine how and where energy is used and to identify methods for energy savings. There is now a universal recognition of the fact that new technologies and much greater use of some that already exists provide the most hopeful prospects for the future. The opportunities lie in the use of existing renewable energy technologies, greater efforts at energy efficiency and the dissemination of these technologies and options.

An energy audit is a systematic review of the energy consuming installations in a facility to ensure that energy is being used sensibly and efficiently. An energy audit usually commences with the collection and analysis of all information that may affect the energy consumption of the facility, then follows with reviewing and analyzing the condition and performance of various installations and facility management, with an aim at identifying areas of inefficiency and suggesting means for improvement.

Through implementation of the suggested improvement measures, we can get the immediate benefit for paying less energy bills. On the other hand, lowering of energy consumption will lead to burn less fossil fuel for electricity generation and relatively less pollutants and greenhouse gases will be introduced into the atmosphere, thus contributing to conserve the environment.

I am sure; this report will be quite useful for Energy Management to intensify and implement energy conservation measures in the college and achieve desired savings. I appreciate the keen interest taken by our management to save this precious energy in the interest of the organization as well as our Nation.

I take this opportunity to convey my sincere thanks and gratitude for the kind cooperation extended by Hon. Dr. Vinayravji Kore (M.L.A), Chairman of SWVS Mandal, Warananagar and Hon. Prof. Dr. Vasanti Rasam, Administrative officer of SWVS Mandal, Warananagar.

I express my thanks to all Faculty Member, Non-teaching staff, Students, who helped us during the detailed Energy Audit.

Hon. Principal, Dr. A.M. Shaikh.
Y.C. W. M. Warananagar.

Mr.Vilas Shamrao Patil.
Coordinator, Green Audit Committee,
Assistant Professor,
Department of Physics, Y.C.W.M. Warananagar.

Acknowledgement

As per the Energy Conservation Act, 2001, Energy Audit is defined as "the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption". Present energy audit is a mare mile marker towards destination of achieving safe, healthy and energy efficient unit. I would like to emphasize that an energy audit is a continuous process. I have compiled a list of possible actions to conserve and efficiently utilize our scarce resources and identified their savings potential. Implementation of recommended measures can help consumes to achieve significant reduction in energy consumption level.

I express my sincere gratitude to the management of WVSM Warananagar for assigning the work of Energy Audit YCWM campus for the Year: 2021-22. I appreciate the co-operation and support extended to committee members during the entire tenure of field study. This report made with sincere efforts, gives details of the relevant data, collected during energy audit study, observation, analysis & recommendations made pertaining to different facilities in campus.

I am also thankful for Hon. Principal Dr. A. M. Shaikh, various respected HODs, Coordinators of different departments, Lecturers, Hostel Rectors & Non-teaching and administrative staffs who have given their valuable contribution for supporting during campus round for data collection, network study for accomplishing successful Energy audit.

I am pleased to submit this Detailed Energy Audit Report to Hon. Principal Dr. A.M. Shaikh of our college, representing on behalf of management of WVSM, Warananagar and wish him all the best for implementation of identified Energy Conservation Opportunity as well as recommendations.

Mr.Vilas Shamrao Patil.
Coordinator, Green Audit Committee,

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"LET'S GO GREEN TOGETHER"

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Yours Sincerely,

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India
- EIA Coordinator, accredited by NABET, Quality Council of India

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EXECUTIVE SUMMARY OF ENERGY AUDIT:

The Green Audit Committee 2014-15 of our college, Yashwantrao Chavan Warana Mahavidyahalaya, Warananagar has conducted a "Green Audit" in the academic year 2014-15, while auditing they evaluate energy audit indicator and published a wide report, was certified by the Central and State Govt. recognized/ registered agency/ expert Dr. Prashant Banne. According to expert opinion of Dr. Prashant Banne number of remedies, changes in use electricity, fuel, Natural gas, Solar energy, sun light are applied

In college Green Audit Committee 2021-22 was formed conduct second Green Audit for duration of 2015-16 to 2021-22 and find out the weaknesses/ lacuna in existing Environmental Management Plan and propose best environmental policy for YCWM campus, which increase the sustainability of the institutions and reduce their resource consumption, which will benefit the institutions and the nation in many ways. So Yashwantrao Chavan Warana Mahavidyahalaya, Warananagar has conducted a second "Green Audit" in the academic year 2021-22 and published a report. ‘Green audit’ is one of such potential tool which can be used effectively by any educational institution for resource usage identification and optimization. If green audit properly deployed with all indicators, it will increase the sustainability of the institutions and reduce their resource consumption, which will benefit the institutions and the nation in many ways.

‘Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable’. The main objective to carry out green audit is to check green practices followed by the college and to conduct a well formulated audit report to understand where we stand on a scale of environmental soundness. (This is the second attempt to conduct green audit of our college campus, there was baseline data and published Green Audit Report of 2014-15).

For collecting data Green Auditing questionnaires prepared based on the guidelines , rules, acts and formats set by Govt. of India, Ministry of Environment and Forest, New Delhi and Central Pollution Control Board, New Delhi. For preparation of questionnaires and in conducting ‘Green Audit’ guidelines and help is taken from alumni of our college Dr. Prashant Banne who is existing working as Director, SAITECH, Research and Development Organization in Kolhapur. Questionnaires were prepared for solid waste, energy, water, hazardous waste and e-waste. For audit purpose and suitability of analysis of data the study area i.e. our campus is grouped as Science Departments (includes Jr. and Sr. wing), Arts Departments (includes Arts Jr. wing ,HSVC wing and Language, Social sciences departments at Sr. wing), Commerce Department(includes Jr. and Sr. wing), Office(include Administrative Office, Principal chamber, meeting hall. Non-residential hall, store, strong room etc), Computer/ I/T. Lab. Gymkhana (includes gymnasium hall, gymkhana office, Shivneri ground, Medical officer room etc) , Exterior (includes Botanical Garden, Garden in front, in

back of new building, Roads in Campus and area in near etc) and Common facility centers (includes Library and MPSC Staff quarters, Canteen, Boys hostel , Ladies hostel etc).

The environmental audit was carried for solid waste, electricity and energy, water, hazardous waste, noise and air quality. The 'Green Audit' also give a 'Environmental Management Plan' and propose an 'Green Policy' to increase the green practices in campus.

1. **Electricity and energy audit:**

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. However, many may not realize how much influence the higher education sector has in the larger energy market. Energy sources utilized by all the departments and common facility centers include electricity, liquid petroleum and LPG.

449.28 KW SOLAR POWER PACK PLANT- Our management installed 449.28 KW solar power pack plant on roof of science building which comprising 1452 nos. of solar panels of 320W inverter and associated all equipment's. Out of 1452 solar panels of power pack project 774 placed on Main building which generate 239.94 KW energy , 194 placed on new building generate 60.14 KW energy and 484 placed on YC science building which generate 150.04 KW energy. The material and associated equipment's installation cost of above project is 2,69,77,500/- (Rs.) and came in force on 21st February 2019, from that day the Maharashtra State Electricity Distribution Co. Ltd(Mahavitran) and Warana Shikhan Mandal work according to MOU between them. It contains the units of electricity consumption, electricity generation, import units and units in the bank/ storage. The detailed study of Solar power pack plant in duration of March 2019 to May- 2022 of 39 month in which total electricity consumption in campus 1950818 units, electricity generated by Solar power pack plant is 1627189, electricity imported from Mahavitran is 537059units and power bank in account of Warana shikshan mandal is 213430 units. In the duration of 39 months actual electricity units are payable are 323629 units out of it the of YCWM college is nearly around the 32563 units. The use of the electricity was is minimized than first phase of energy audit.

In duration year 2015-16 to 2021-22 in between 2019 to 2021 due to COVID Pandemic the physical exertion of educational institution is closed and only online mode of teaching -learning was on. Hence due lockdown in pandemic duration the electricity consumption was decreased. Especially in science wing regular practical's, projects and practical examinations are not performed in COVID pandemic hence electricity, liquid petroleum and LPG is averagely less consumed in second auditing duration.

Major use of energy is in Science Department, office, canteen, hostel and laboratories for lighting, transportation, cooking and laboratory work. Energy consumption by major energy consuming Equipment's in College laboratory is 2748.66 KW / Month, Energy consumption by less

energy consuming Equipments in College is 4358.26 KW / Month and Energy consumption by Lightning Equipments in College is 4449 KW / Month . Thus total Electric energy consumption in college is 11555.52 KW / Month. No any department and common facility centers were using CFL lamps in most of the department like Chemistry, Physics, Botany, Zoology. HSVC and in office also.

All the departments with common facility centers are using an incandescent lamp where increasing consumption of electricity observed. The street lights in front of main gate of campus are HID type and other street lights in campus are of sodium vapour lamp also increasing major consumption of electricity for lighting purpose. But some HID type and other street sodium vapour lamp are replaced by solar panel street lamps hence electricity consumption for lightning the campue was minimized in second phase of auditing.

In group of study area more electricity is consumed in administrative office, Computer laboratory, Science departments, library and MPSC center on the other hand, it consumed very less at arts and commerce departments.

In suggestions of Green Audit 2014-15 the building auditing, survey of adequate ventilation and natural light of infrastructure was essentially marked, hence it will be introduced in management plan. The management of institution was shouldered this task to the Civil Department of our sister branch college TKIET, Warananagar. By the recommendations of the building auditing team of engineers of the Civil department of TKIET college, some alteration and modifications in the infrastructures of Arts and Science buildings are performed in 2018-19. Hence due to adequate ventilation and natural light at major part of infrastructure, the consumption of electricity at air and light appliances in the college was minimized.

Hence , In science laboratory at some places exhausts fans are used at proper locations but their use has to be monitored in summer duration. Also high consumption of electricity is observed at office in duration of admission and examination.

Some water coolers (nearer to Chemistry lab and nearer Physics jr. lab. at first floor) are seen overflowing but its frequency was decreased, here wastage of electricity as well as water was minimized, here monitoring responsibility was given to peon in near labs of Chemistry (Mr. Sopan Parit) and Jr. Physics (Mr. Sameer Dhalaiet).

Major electricity is required for water fetching, irrigating purpose although sprinkler, drip irrigation is used for watering the gardens in campus. In science department like Physics, Chemistry, Mathematics, Botany and Zoology electricity was shut downed after occupancy time is one of greening practices for energy conservation.

Audit shows major teaching as well as non-teaching staff is in campus and nearer to campus for resident and mass number of students are come from nearby villages of Warananagar hence consumption in fuel is less.

As our college is situated in rural area but bigger number of students are using vehicles, it increases to 24.13 %, and staff using four wheelers is is also increased. Study shows about 16.23 % students come to the college by walking, 2.3% student are using bicycle and, 42% are using state transportation vehicles and some student make use of private transportation like Vadap.

Staff members who lived out campus are using the vehicles in sharing for daily transportation. Use of bicycle bank scheme for female student was functioning but less number of female students are demanding it and private transportation vehicles are restricted in YCM campus from gate.

The college follows 'No Vehicle Day' on 13th December on occasion of death anniversary of Late. Tatyasaheb Kore was minimizes the fuel consumption for a day, which is a one of green practices followed by the college.

Study tours, collection tours, visits, treks, save fort and clean forts abhiyan are followed by college which gives the message of importance of walking, which is very good green practice. Consumption of LPG for education or practical purpose is very less but high consumption is observed at common facility center like canteen, mess and staff quarters.

The LPG connection in name of the college and LPG is handled by departments of Physics, Chemistry, HSVC. For heating purpose at the time of practical, no leakages and off mode regulators are seen at time of verification.

Number of two wheelers is 712 , it consumes 8868 liter/month and number of four wheelers is 68, it consumes 1943 liter/month, i.e. total consumption of fuel in YCM campus is increased in second phase of auditing 10811 Liters/Month. But majority four-wheeler owners are using CNG gas and electricity driven cars, the staff parents as well as students are aware about the protection of environment and use of electricity driven vehicles, Green vehicles is increasing in campus.

Mr. Vilas S. Patil
Coordinator
Green Audit Committee

Dr. S. S. Khot.
Coordinator IQAC

Dr. A. M. Shaikh.
Principal, Y.C.W.M. Warananagar

Forwarded with best compliment for certification.
Summary of Energy Audit of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist-Kolhapur (Maharashtra State) is verified Certified by

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India
- EIA Coordinator, was accredited by NABET, Quality Council of India

Chapter -I

Look out into the universe and contemplate the glory of God. Observe the stars, millions of them, twinkling in the night sky, all with a message of unity, part of the very nature of God.
Sai Baba

Introduction

1.1 Introduction:

Warananagar is a classic illustration of integrated rural development through co-operative movement. It is a well planned township throbbing with industrial and educational activities. It is a place named after the river Warana which originates at Prachitgad in Satara district and merges in the river Krishna at Haripur near Sangli. The length of the river Warana is 80 Km. The river Warana forms the boundary line between Sangli and Kolhapur districts. Warananagar is situated on the banks of river Warana at the foot of Panhala and Jyotiba hill ranges, at 10 Km. westwards from Kini-Wathar on National Highway No. 4. Warananagar, where Yashwantrao Chavan Warana Mahavidyalaya is situated, is a hilly and rural area, called Warana. It comprises of near about 60 townships, villages and some remote settlements. During the Freedom Movement this place provided shelter to many freedom fighters and today it is remarkably known as a successful industrial and educational center. Just six decades ago, this area was a barren tract of land, notorious for day-light robbery. Life was difficult and full of hardship. The main occupation of the people was agriculture and fortune of the farmers was tied to climatic changes, scarcity of rain and volatile market prices. People were downtrodden and ignorant. With the establishment of a co-operative sugar factory, this area has been totally transformed. The credit for this socio-economic transformation goes to late Hon'ble Vishwanath Anna alias Tatyasaheb Kore, a visionary man with foresight, rare organizational skills and dedication. Late Hon'ble Tatyasaheb Kore was fully aware of the fact that along with the material prosperity, the cultural development and enlightenment is equally important and necessitated the creation of educational facilities. He wanted to provide work to the empty hands and made them strong and self-reliant.

Warana co-operative sugar factory is established in 1960 and proved to be a turning point which brought about socio-economic and consequently educational changes in the life of the people of this area. The development of sugar factory changed the socio-economical standard and living standard of poor farmers in Warana valley. But economic enrichment was not his only goal. His mission was to bring in the total transformation of rural youth and create a New Man who will be well educated, self-reliant, culturally rich and morally upright. He knew that along with the material prosperity, cultural

development and moral enlightenment are equally important. He realized that creation of educational facilities, particularly facility of higher education was the prior need of this area.

Before the establishment of the aforesaid educational facilities, the students of this area were deprived of higher education and only a few well-to-do could afford to go to Kolhapur, the nearest city, for pursuing higher education. Having realised this, the leadership decided to create these facilities for the youth of this area for their total transformation. This led to the establishment of Shree Warana Vibhag Shikshan Mandal (Education Society) and subsequently, Shree Warana Mahavidyalaya, Warananagar in 1964. The college was renamed as Yashwantrao Chavan Warana Mahavidyalaya, in 1992. Since 1964. our education society is striving towards the fulfillment of the above mentioned objectives. Establishment of our college, the first step in higher education, was followed by setting up of Primary and Secondary Schools, Engineering College, English Medium School, Military Academy and other educational institutes. All these institutes have more than adequate infrastructural facilities like imposing buildings, beautiful premises, spacious playgrounds. well qualified staff, rich libraries and laboratories. Each institute has proved to be a step ahead towards the achievement of our mission of 'Creating A New Man'.

1.1.1 Mission:-

"We stand united and determined for the total transformation of rural youth of Warana region towards self reliance, confidence and enlightment through higher education".

1.1.2Vision:-

"To become an Academy of excellence in higher education and human resource development in rural area".

1.2 Energy audit outline: Yashwantrao Chavan Warana Mahavidyalaya, Warananagar is playing a key role in the development of human resources and producing awareness about the environment consciousness, for which institute take number of steps by organizing different events of green practices. This institutes campus runs various activities with the aim to percolate the knowledge along with practical dimension among the society as well as the stakeholders. Our institute also try to give solution for different burning issues related to environment , its awareness as well as its protection.

Different types of evolutionary methods are used to assess the problem concerning environment includes Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), Carbon Footprint Mapping, Survey, Collection of data, Interviews, Observations, Green audit etc.

As educational institutions nowadays are becoming more sensitive to environmental factors more concepts are being introduced to make them eco friendly. To preserve the environment within the campus, various viewpoints are applied by the our institute to solve their environmental problems such as promotion of the energy savings, energy conservation, water reduction, water harvesting , water environment, Solid waste management, air quality, noise pollution, minimizing use of Plastic, etc. Our institution plays an active role in creating and modeling solution for such environmental problems. ‘Energy audit’ is one of such concepts or principles introduced to make the educational institute environmentally sustainable.

" Energy audit is a tool to assess general practices implemented by organization in term of its impact on environment". Energy audit also throws a light on adverse practices which are responsible for degradation of environment. It shows strength and weakness of organization towards conservation of environment. It is helpful to recognize the need to function around the year in a manner to minimize its harmful environmental impact through ‘ Green Energy Policy’. It means Energy Audit is the base line survey to decide the Green policy. It also pinpoints the disturbing practices of natural resources utilization. It shows the path to build, implement and test new innovative system for better utilization of resource and minimization of waste generation. It helps to achieve the goal of university to become a role model in higher education of sustainable campus in social, economical and environmental views.

1.3 Objectives of Energy audit:

1.To know the reality and status of Energy conservation Policy and green practices in the institution.

2. To identify and analyze significant environmental issues in duration of 2015 to 2022 in campus.

3. To examine the current practices which can have impact on the environment such as of resource utilization energy conservations, etc.

4. Formation of best green policy comprising the goal, vision and mission for Energy utilization practices campus.

5. Continues assessment for betterment in performance in energy practices and its evaluation.

6. To prepare Energy Audit Report and listing the green practices followed by different. departments, support services and administration office.

7. Prepare proposed best Energy conservation policy/ Management Plan/ Green Practices Plan from Academic year 2022-23.

Chapter-II

‘The best friend of earth of man is the tree. When we use the tree respectfully and economically, we have one of the greatest resources on the earth.’ - Frank Lloyd Wright

METHODOLOGY

2.0.METHODOLOGY :- This is the baseline survey made in 2014-15 of our college which is totally based on proposed strategy on the Greening concept approved by the IIT Council on Greening Educational Institutions in the meeting held on 2 nd March 2013 at Indian Institute of Science, where representatives from six IITs along with IISc participated. This is the second attempt to conduct Green Audit of Yashwantrao Chavan Warana Mahavidyalaya,Warananagar, campus; hence, there is baseline data for the present work which was collected in first attempt of Green auditing in academic year 2014-15. The present study is based on onsite visits, personal observations and questionnaires and survey tools. Initially, based on data requirement, sets of questionnaires about Electricity consumption, Water consumption, fuel waste, solid waste collection, chemical waste, E-waste, Air pollution, Noise pollution etc were prepared. The Green Audit committee members then visited to all the departments in Science, Arts, Commerce, Computer lab., Administrative office, Gymkhana, Exteriors, Common Facility Centers (Eight parts for simplify the study) of the college and the members helped for filling the questionnaires. Such filled questionnaires are collected from each department for each month in the Year 2021-22. The generated data is subsequently gathered together, tabularized and used for the further analysis. From the outcome of the overall study, a final report is prepared. At first, all the secondary data required for the study was collected from various sources, like concerned departments, garden etc. At the beginning two seminars were arranged for the staff to clear the idea of green auditing and guide lines were provided to fill the questionnaires. Different case studies and methodologies were studied and the following methodology was adopted for present work.

2.1 Survey by Questionnaire: Data for green audit report preparation was collected by questionnaire survey method. Questionnaires prepared to conduct the green audit in the YWCM campus is based on the guidelines, rules, acts and formats prepared by Ministry of Environment and Forest, New Delhi, Central Pollution Control Board and other statutory organizations and guidelines from proposed strategy on the Greening concept approved by the IIT. Most of the guidelines and formats based on broad aspects and some of the issues or formats were not applicable for YCWM campus. Therefore, using these guidelines and formats, combinations, modifications and restructuring was done and sets of questionnaires were prepared as solid waste, energy, fuel, water, hazardous waste, and e-waste, etc.

With the help of questionnaires some data related to Green Audit is collected from students, employers. and data related from management is collected from interaction with them.

All the questionnaires comprises of group of modules. The first module is related to the general information of the concerned department, which broadly includes name of the department, month and year, total number of students and employees, visitors of the department, average working days and office timings etc. The next module is related to the present consumption of resources like water, energy, fuel or the handling of solid waste and hazardous waste. Maintaining records of the handling of solid and hazardous waste is much important in green audit. There are possibilities of loss of resources like water, energy due to improper maintains and the assessment of this kind of probability is necessary in green audit. At some locations in some departments loss of water and major energy consumption was observed due to lack of observation and improper handling of technical equipment's. One separate module is based on the-questions related to this aspect. Another module is related to maintaining records like, records of disposal of solid waste and records of solid waste recovery etc. For the better convenience the coordinator, green audit committee members arranged number of meetings with the HODs, professors and laboratory assistants of all the departments and officers in charge in CFC. In these meetings idea of the environment audit, green audit, indicators of green audit, greening practices, environmental issues in campus are discussed for concept clearance. Some statistics like, basic energy consumption characteristics for electrical equipment, Wattages of different common equipments in colleges etc. was provided with the questionnaires itself. Coordinator and co-coordinator of Green Audit committee guided to fill the questionnaire in month of Jan. 2022. The filled questionnaires from each department are collected at the end of each month in span of Jan. 2022 to Dec. 2022.

2.2 Site visits and observations : YCWM campus is of 27 acres and has vast built up area comprising of various departments, administrative building, teachers and staff quarters, student hostels, girls hostel, medical facility center, Gardens, Library, sports complex etc. All these amenities have different kinds of infrastructure as per their requirement. All these buildings and parts of campus were visited by the Green Audit committee members to check the present condition. They are checked with the

help of the filled questionnaires of departments and verified on site. Personal observations were made during the onsite visit. The census pertaining plants and trees in campus was carried out by Junior, Senior wing faculty , students of B.Sc.-II and III of Botany and Zoology department after their regular college timing in span of 2th November 2022 to 16th November 2022. (Exhibit –A Tree Counting: Survey of trees, plants etc. in campus-). All the amenities were clubbed in as per their similarities and differences, which makes the survey and further analysis easier. For convenience all the science departments (Sr. and Jr.) were clubbed in one group, all Arts departments (Sr. and Jr.) were clubbed in one group, whole commerce department (Sr. and Jr.) as one group, administrative departments/ office / common staff room and related common things were clubbed in one group, computer lab. as one group, the Botanical garden, garden in front of new building, in front of library, in back of college buildings and roads in campus were clubbed as one group as Exteriors, Gymkhana , Gymnasium hall, Shivneri Kridangan were clubbed in one group, in another common facility centers services including Canteen, mess, Library, MPSC center, Boys/ girls hostel, teacher's quarters , medical facility center were grouped together. In such way YCWM campus is divided into eight parts for convenience of study of green Audit.

2.3 Onsite/Offsite Monitoring :-After collection of information from various department, committee members visited periodically and verified the data. The data related to energy survey, lighting survey, vehicle survey, solid waste generation, E- solid waste generation, water waste etc is verified personally by committee. Committee is periodically monitoring water storage, water requirements, water losses and water leakages in campus. Dr. Prashant Banne and his team periodically monitored and recorded the information regarding the air quality, noise pollution at Onsite/Offsite the campus.

2.4. Data analysis and report preparation: A proper analysis and presentation of data produced from work is a vital element. In case of green audit, the filled questionnaires of the survey from each group, were tabulated as per their modules, in excels spreadsheets. The tabulated data is then used for further analysis. For better understanding of the results and to avoid complications, averages and percentages of the Tables were calculated. Graphical representation of these results was made to give a quick idea of the status. Interpretation of the overall outcomes was made which incorporates all the primary and

secondary data, references and interrelations within. Final report preparation was done using this interpretation.

Chapter- III

‘What we are doing to the forests of the world is but a mirror reflection of what we are doing to ourselves and to one another.’

- Mahatma Ghandi

"Only when I saw the Earth from space, in all its ineffable beauty and fragility, did I realize that humankind's most urgent task is to cherish and preserve it for future generations."

- Barack Obama

If we go on using the Earth uncaringly and without replenishing it, then we are just greedy consumers.

- Satish Kumar

The Energy Audit

3.1. Electricity and Energy audit:

Main energy source in the campus is electricity of MSEB. As 'Warana' is industrial and educational complex, MSEB department supplied 1mega Volt uninterrupted power supply . Warana Shikshan Mandal provides electricity to our college, When rarely interrupted we get electricity from diesel generator (≈5 KV) which is common facility of Warana Shikshan Mandal . Energy sources utilized by all the departments of college include electricity, liquid petroleum and LPG. Major use of the energy is at office, canteen, hostel and laboratories for lighting, transportation, cooking and laboratory work. There is provision of generating electricity on site of campus.

449.28 KW solar power pack plant-

Our management installed 449.28 KW solar power pack plant on roof of science building which comprising 1452 nos. of solar panels of 320W inverter and associated all equipment's. Out of 1452 solar panels of power pack project 774 placed on Main building which generate 239.94 KW energy , 194 placed on new building generate 60.14 KW energy and 484 placed on YC science building which generate 150.04 KW energy. The material and associated equipment's installation cost of above project is 2,69,77,500/- (Rs.) and came in force on 21st February 2019, from that day the Maharashtra State Electricity Distribution Co. Ltd (MAHAVITRAN) and Warana Shikhan Mandal work according to MOU between them. It contains the units of electricity consumption, electricity generation, import units and units in the bank/ storage. The detailed study of Solar power pack plant in duration of March 2019 to May- 2022 of 39 month in which total electricity consumption in campus 1950818 units, electricity generated by Solar power pack plant is 1627189, electricity imported from MAHAVITRAN is 537059 units and power bank in account of Warana Shikshan Mandal is 213430 units. In the duration of 39 months actual electricity units are payable are 323629 units out of it the of YCWM college is nearly around the 32563 units. The use of the electricity was is minimized than first phase of energy audit.

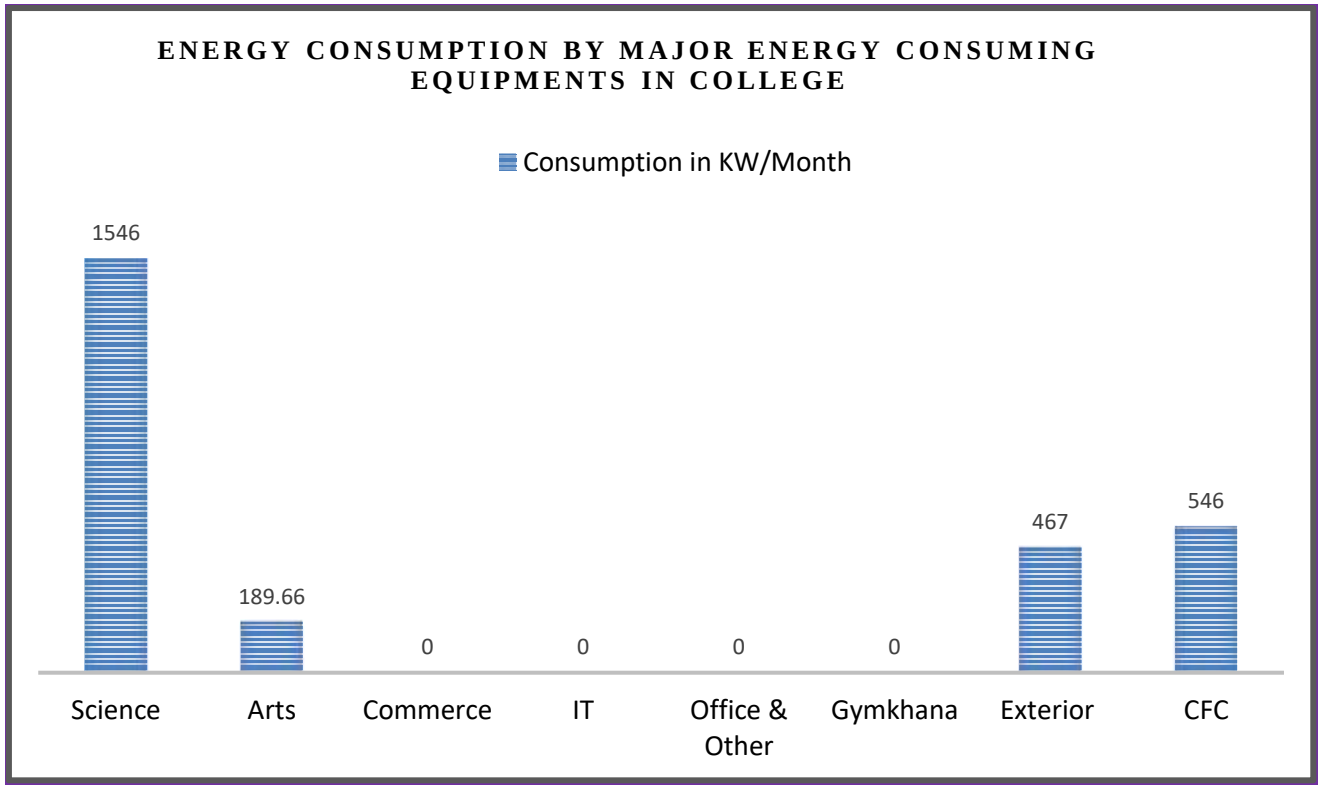
To analyze the total energy consumption, various units and departments in the college are categorized into eight groups viz. Science Departments, Commerce Department, Arts Department, Computer IT Department, Office , Gymkhana , Exteriors and common Facility centers. Further at each category, energy consumption is calculated on energy usage like office equipment's (Computers, Printers, Laptop, LCD projector), Lights, fan and vehicles for evaluating fuel consumption. For sort of analysis electric energy consuming equipment's are categories in to three groups Major energy consuming Equipment's, less energy consuming Equipment's , Lightning equipment's and collected data analyzed together for total energy consumption.

3.2.1 Energy consumption at college

Table No. 1.1 Energy consumption by Major energy consuming Equipment's in College.

Sr.No.	Department	Consumption in KW/Month	Description
1)	Science	1546	High
2)	Arts	189.66	
3)	Commerce	00	Low
4)	IT	00	Low
5)	Office & Other	00	Low
6)	Gymkhana	00	Low
7)	Exterior	467	
8)	CFC	546	
Total		2748.66	

Graph No.1.1 Energy consumption by Major energy consuming Equipments in College.

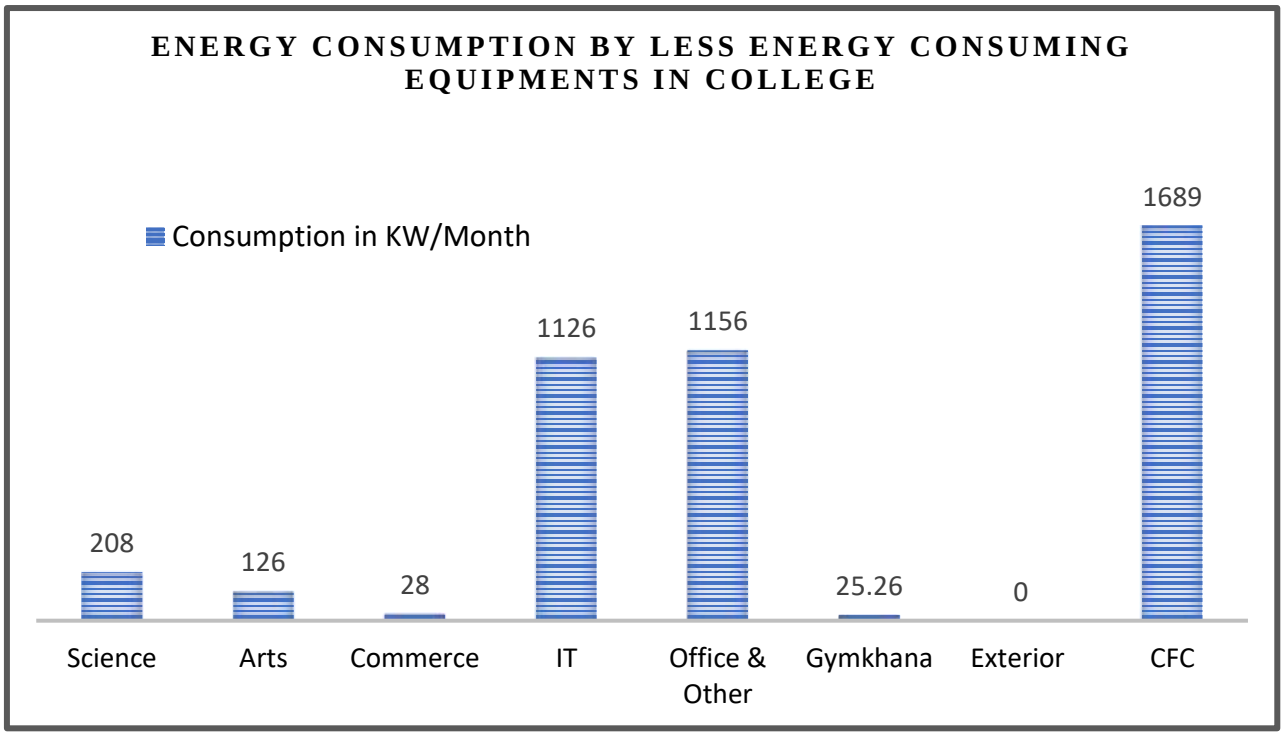


Above table and graph shows major energy consuming Equipment's are available at science departments hence energy consumption for it is high (1546 KW/Month) and less number of Major energy consuming Equipment's are required at Arts, commerce, IT, office and gymkhana, hence electric energy for these department is low.

Table No. 1.2 Energy consumption by less energy consuming Equipment's in College

Sr. No.	Department	Consumption in KW/Month	Description
1)	Science	208	
2)	Arts	126	
3)	Commerce	28	
4)	IT	1126	
5)	Office & Other	1156	
6)	Gymkhana	25.26	
7)	Exterior	00	Low
8)	CFC	1689	High
Total		4358.26	

Graph No.1.2 Energy consumption by less energy consuming Equipments in College.

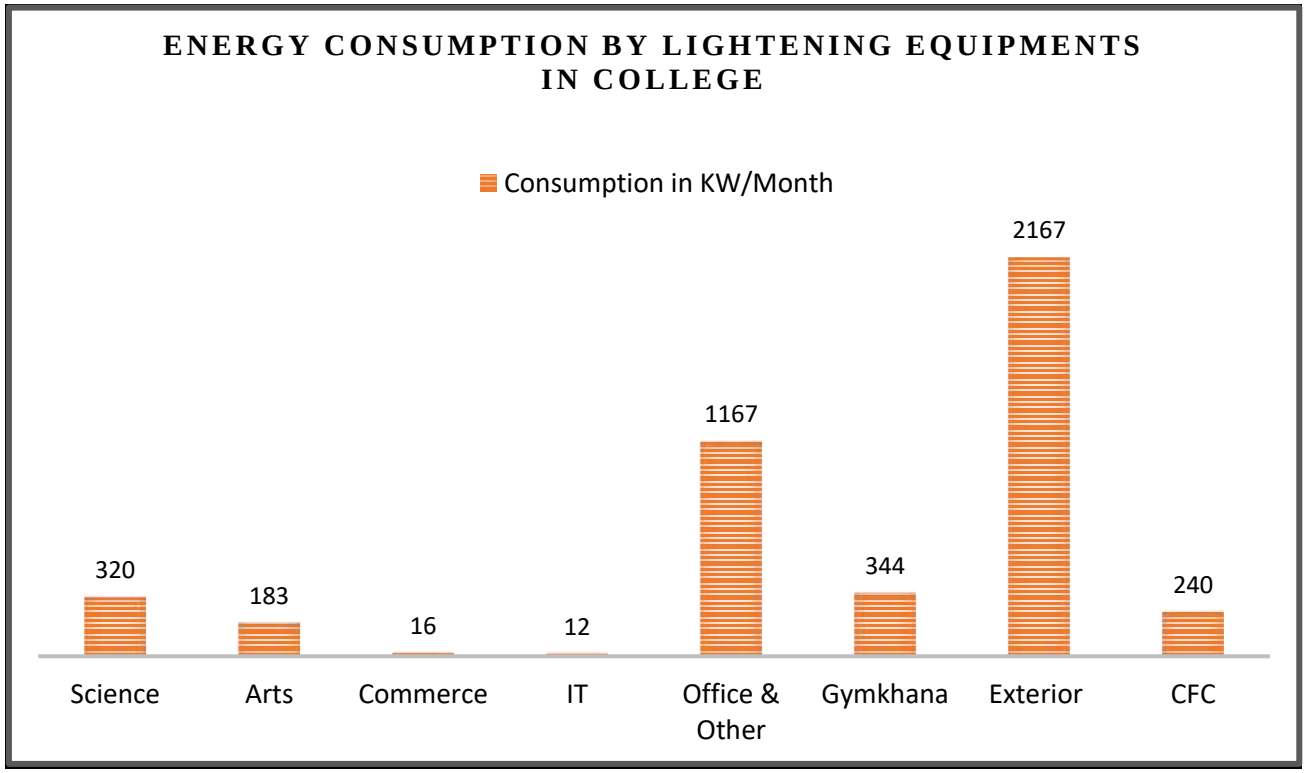


Above table and graph shows less energy consuming equipment's consuming high energy at IT, Office and CFC (1689 KW/Month)while such equipment's consuming very less electric energy at Gymkhana, Commerce, IT and exterior of college.

Table No. 1.3 Energy consumption by Lightning Equipment's in College

Sr.No.	Department	Consumption in KW/Month	Description
1)	Science	320	
2)	Arts	183	
3)	Commerce	16	Low
4)	IT	12	
5)	Office & Other	1167	High
6)	Gymkhana	344	
7)	Exterior	2167	
8)	CFC	240	
Total		4449	

Graph No.1.3 Energy consumption by Lightening Equipments in College.

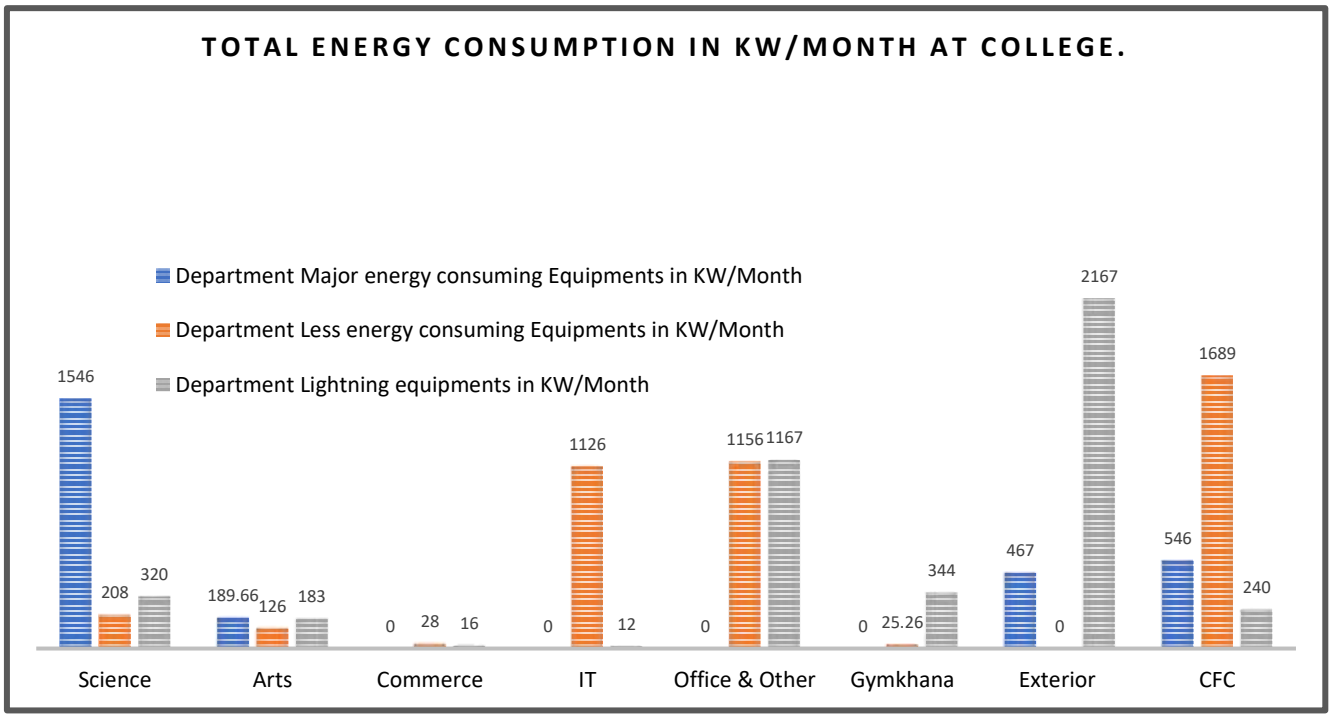


Energy consumption by Lightning equipment's in different departments of College is shown above. High energy consumption for lightning purpose is shown at Exteriors of college while very small consumption of it is shown at I.T and Commerce department.

Table No. 1.4 Total energy consumption in KW/Month at college

Sr.No.	Department	Total energy consumption by			Total	Description
		Major energy consuming Equipments in KW/Month	Less energy consuming Equipments in KW/Month	Lightning equipments in KW/Month		
1)	Science	1546	208	320	2074	High
2)	Arts	189.66	126	183	498.66	
3)	Commerce	00	28	16	44	Low
4)	IT	00	1126	12	1138	
5)	Office & Other	00	1156	1167	2323	
6)	Gymkhana	00	25.26	344	369.26	
7)	Exterior	467	00	2167	2634	High
8)	CFC	546	1689	240	2475	
Total		2748.66	4358.26	4449	11555.92	

Graph No.1.4 Total energy consumption in KW/Month at college.

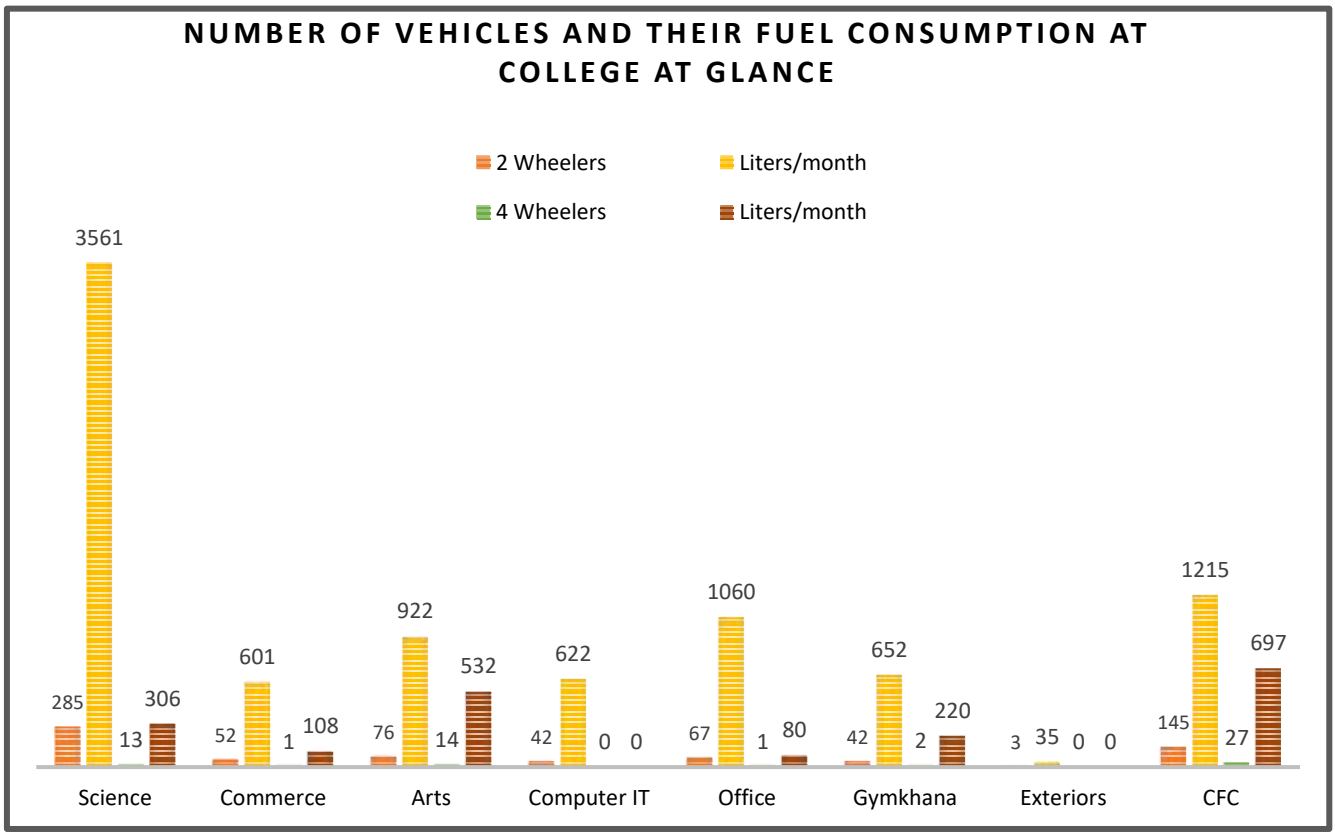


Collected data for total electric energy consumption in different departments of the college shows that more consumption is observed at Exteriors (≈2634 KW/Month) while in Arts, Commerce and Gymkhana its overall consumption is very less.

Table No. 1.5 Number of Vehicles and Their Fuel Consumption at college at glance:-

Sr. No	Department	Vehicles				Description
		2 Wheelers	Liters/month	4 Wheelers	Liters/month	
1.	Science	285	3561	13	306	High
2.	Commerce	52	601	01	108	
3.	Arts	76	922	14	532	
4.	Computer IT	42	622	00	00	
5.	Office	67	1060	01	80	
6.	Gymkhana	42	652	02	220	
7.	Exteriors	03	35	00	00	Low
8.	CFC	145	1215	27	697	
Total		712	8668	58	1943	

Graph No. 1.5 Number of Vehicles and Their Fuel Consumption at college at glance



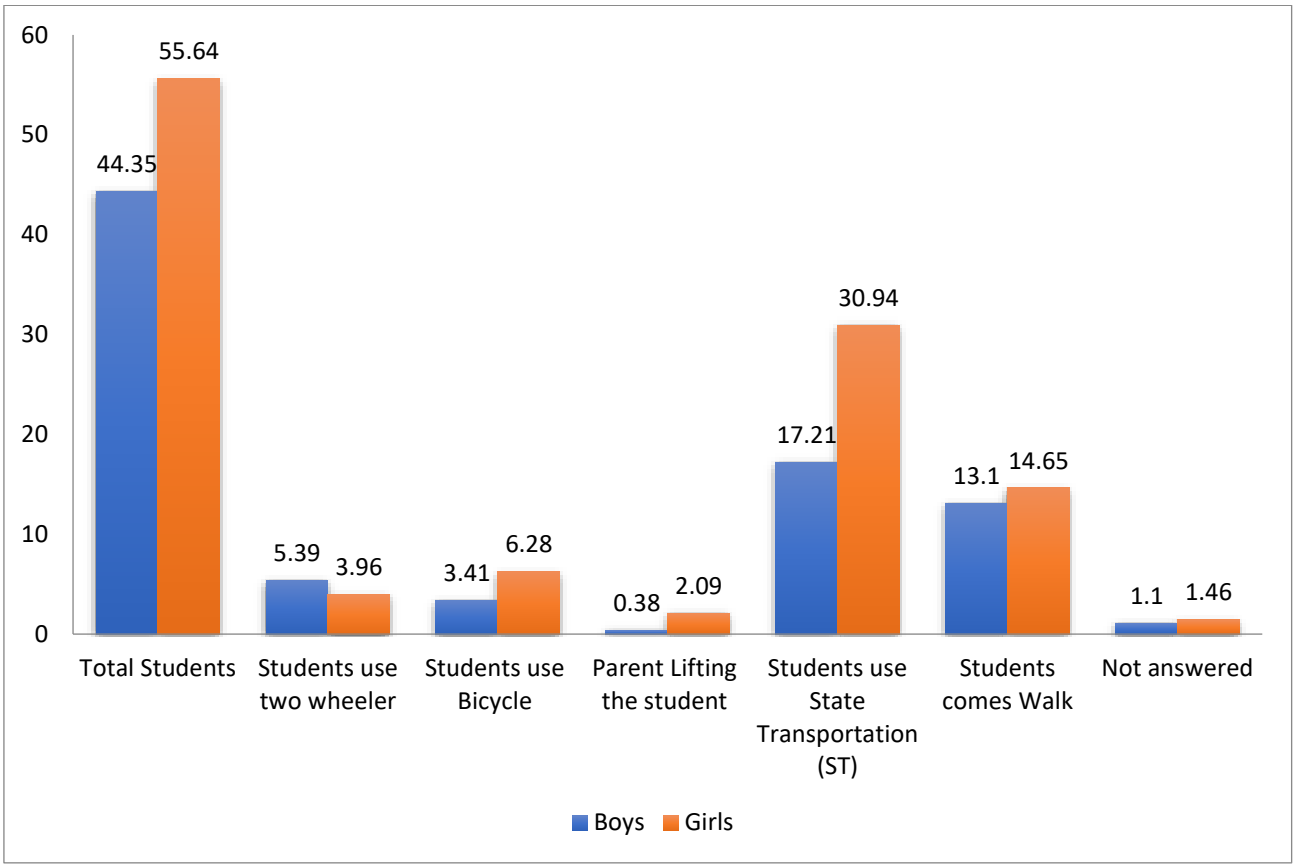
We collected data from students, teaching staff, administrative/non-teaching staff about Vehicles, their Fuel Consumption and mode of transportation using questionnaires . It is collectively shown in above reveals that larger number of vehicles and higher consumption of fuel (≈3561 Liter/Month) is at Science department while less number of vehicles and consumption of fuel at IT and Exterior of the college.

Mainly fuel consumption on college campus is by vehicles , it is also an important criterion for energy audit. Average count of two wheelers is 712 and of four wheelers it is 58 . It is seen that number of two wheelers is more than that of four wheelers. The fuel utilized by two wheelers is 8668 liters /month and by four wheelers is 1943 liters /month . Collected data also shows that number of four wheelers is maximum at science departments while minimum at Exterior and Computer/I.T. department. Science department has maximum number of two wheelers as number of students is maximum at the concern department. At the exterior of the college campus has minimum number of two wheelers because there is minimum number of students/ staff and guest are interacting in this part if college.

Table No.1.6 Students data at glance : Number of Vehicles and Their Fuel Consumption at College

Sr.no		Total Students			Students use two wheeler			Students use Bicycle			Parent Lifting the student			Students use State Transportation (ST)			Students comes Walk			Not answ-ered
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1	%	44.35	55.64	100	5.39	3.96	09.34	3.41	6.28	9.69	0.38	2.09	2.48	17.21	30.94	48.15	13.10	14.65	27.76	2.56
% with total		100%			09.34%			9.69%			2.48%			48.15%			27.76%			2.56 %

Graph No. 1.6 : Students data at glance : Number of Vehicles and Their Fuel Consumption at College



We collected an information from students for the completion of Energy Audit. In this form also survey of student's vehicle, type of transportation used by the students is done. We prepared a questionnaire to get information in detail. As the strength of students in our college is 4450, circulation of an questionnaires to students, taking information, gathering together, handling it for analysis is very difficult, hence our Green Audit team collected all relating information from the students in the classroom at the time of lectures by raising their hands. With this method it minimized not only physical and mental exertion but also it saved an expense on much of stationary and minimizes relating solid waste. We got the information of students who were present in the classroom on the day of data collection is only the demerit of this method. The collected data, its statistical analysis , distribution and percentage with total is shown in above Table No.2.6 . It shows the percentage of female students is (55.64 %) greater than male students (44.35%). About 48.15 % students are using State Transportation (ST), about 10% students are using bicycle and about 28% students use the walking mode while only 9.5% students use their own two wheeler vehicle. Parents of 2.5% students drop them to the college.

In our college there is cycle bank scheme for girl students, so majority of girls' student use bicycle for college and It is seen that 11.50% of girls are using bicycle for transportation also about 27% of girls students use walking mode.

Table No.1.7 Data of the Students using vehicles: (%):

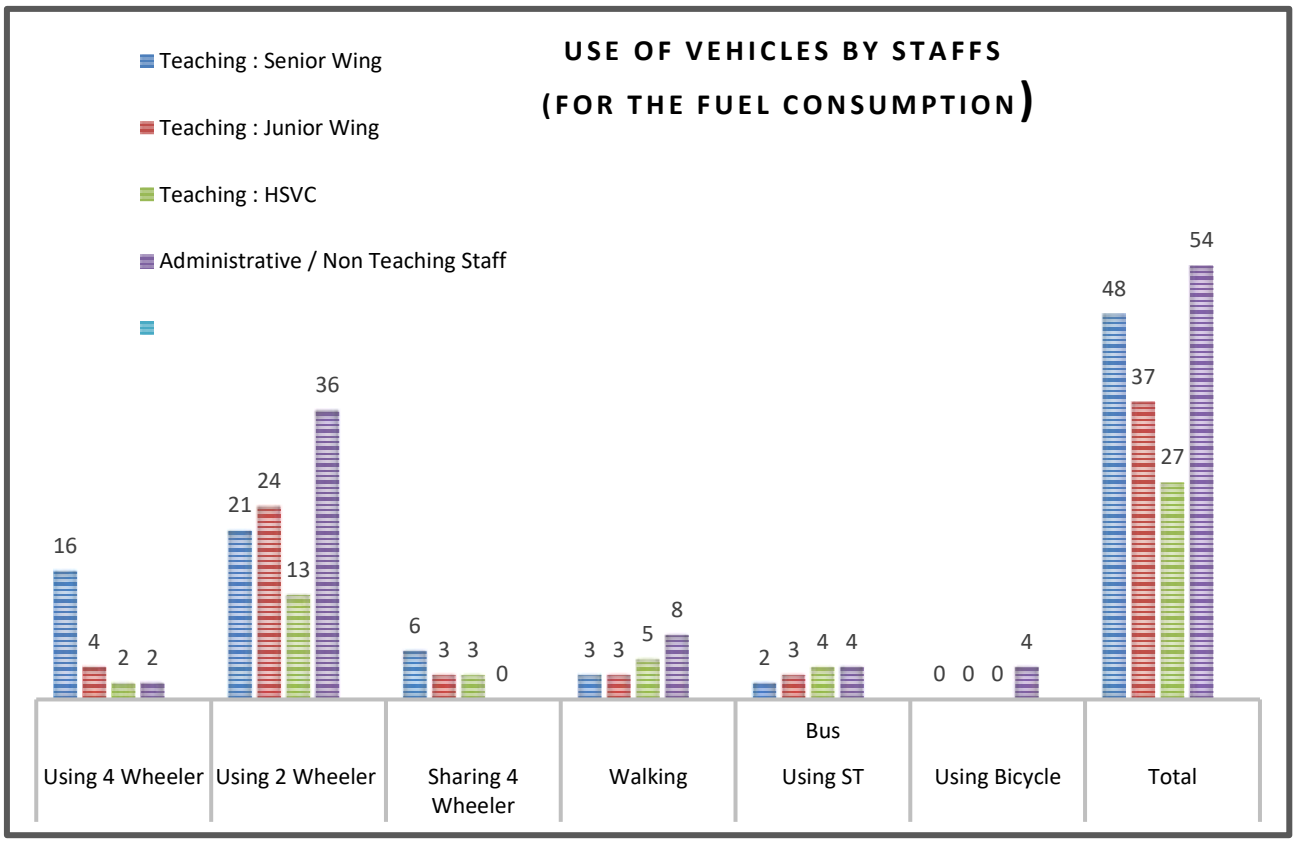
Sr.no.		Total Students		Students using two wheeler		Students using Bicycle		Parent Lifting the student		Students using State Transportation (ST)		Students come by Walk mode		Not answered
Boys /Girls		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
1.	%with total strength	44.35	55.64	5.39	3.96	3.41	6.28	0.38	2.09	17.21	30.94	13.10	14.65	2.56

This table shows the comparative percentages of male and female students adopting the mode of transportation for college. It reveals that percentage of girl students adopting State Transportation (ST),walking, bicycle is greater than that of the percentage of boy students and Greater number of boys about12% are using two wheeler at the same time only 7% of girl student are using their two wheeler. That our girl students are more conscious about environment than boys student, so they use environment friendly modes of transportation like ST (Vehicle with sharing), Bicycle, walking etc.

Table No. 1.8 Use of Vehicles by Staffs (For the Fuel Consumption)

Sr. No.	Staff	Using 4 Wheeler	Using 2 Wheeler	Sharing 4 Wheeler	Walking	Using ST Bus	Using Bicycle	Total
1.	Teaching : Senior Wing	16	21	06	03	02	00	48
2.	Teaching : Junior Wing	04	24	03	03	03	00	37
3.	Teaching : HSVC	02	13	03	05	04	00	27
4.	Administrative / Non Teaching Staff	02	36	00	08	04	04	54
Total		24	94	12	19	13	4	166
% with total		13.48%	63.12%	4.96%	9.93%	5.67%	2.84%	100%

Graph No. 1.7 Use of Vehicles by Staffs (For the Fuel Consumption)



Like the students we collected an information from staff for the completion of Energy Audit. In this survey of Staff (Faculty of all Sr. Jr. wing, office staff, non-teaching staff, Gardner etc) we collected data about vehicle, type of transportation used by them to come to college. So we prepared questionnaire to get information in detail, distributed them, helped them for filling, completed in all respect and collected. Its statistical analysis is grouped in four categories Teaching : Senior Wing, Teaching :Junior Wing, Teaching : HSVC, and Administrative / Non Teaching Staff is shown in above Table No:2.8.

Above Table as well as Graph 2.8 shows the use of vehicle by staff of our college. About 14% of staff is using four wheeler, 63% staff is using two wheeler vehicles while about 5% staff is using four wheeler with sharing, 10 % are come by walking, about 6% staff use ST and about 3% staff using Bicycle for transportation.

Table No. 1.9 Showing Residence of staff:-

Sr	Details	No. Staff having residence near campus	No. Staff having residence just far from campus	Total
1.	Its %	**63.83%**	**36.17%**	100%

While collecting information from staff by questionnaire we collected the information about the residence of the staff from college campus. From above Table No :2.9 it clears that about 63.83%

of our staff resides near the college campus and only 36.17% of staff resides just far from campus (≈ 25 to 30 KM distance) which minimize fuel consumption in liter per month.

Table No.1.10 LPG consumption in college:-

Sr.No	Department		Kg per year	Total
1.	Science	Physics	40	200
		Chemistry	120	
		Botany	40	
2.	Commerce	--	--	--
3.	Arts	HSVC	240	240
4.	Computer IT	--	--	---
5.	Office	--	--	--
6.	Gymkhana	--	--	--
7.	Exteriors	--	--	--
8.	CFC	--	5342	5342
Total				5782

In our college LPG gas required for practical purpose at science wing in Chemistry, Physics, Botany department, at Arts wing in HSVC and at Common Facility Centers (CFC) in canteen for cooking/ domestic. Collected information shows LPG consumption is higher at CFC.

3.2.1 Science Department

It includes Department of Physics, Chemistry, Mathematics, Botany and Zoology. The collected data also shows that Department of Mathematics has maximum number of office equipment's and energy consumption is 40.01 KW / month while minimum number of office equipment's and energy utilization is by Botany and Zoology department.

Table No. 1.11 Department wise office Equipment's and their energy consumption (KW/ Month) at Science Department.

Sr, No.	Departments	No. of office equipment's					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	OHP	LCD projectors			
1	Physics	04	01	03	01	01	10	35	
2	Chemistry	02	01	05	01	01	10	42	
3	Maths.	10	01	01	01	01	14	49	High
4	Botany	01	01	03	01	01	07	22	Low
5	Zoology	01	01	03	01	01	07	21	Low
	Total	18	5	15	05	05	48	169	

Total number of office equipment's at Science department is 48 and energy consumption is 169 KW/Month.

Maximum number of office equipments and energy consumption by them is in the Mathematics department that is 49 KW/Month and minimum number of office equipments and energy consumption by them is in the Botany and zoology department that is nearly 21 to 22KW/Month.

Similarly, to analyze the electric consumption lightening equipment(Tube, bulb, CFL etc) and fans(Ceiling, Table, Wall, Pedestal etc.) is also considered.

Table 1.12 Department wise Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Week) at science Department:

Sr, No.	Departments	No. of equipments				Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	CFL	Ceiling /Table Fans			
1.	Physics	42	12	00	14	68	130.96	High
2.	Chemistry	16	00	15	12	43	114.21	
3.	Maths	08	00	02	05	15	92.25	
4.	Botany	18	00	00	06	24	76.17	
5.	Zoology	14	00	00	05	19	72.20	Low
		98	12	17	40	162	485.79	

Maximum use of the energy for lightening and fan is in the Department of Physics, minimum use of the energy for lightening and fan is in the Department of Zoology. The total number of fluorescent tube is maximum i.e. 98 and their electric consumption is 215.83 KW per Month. In science department total number of ceiling fans is 40 and their electric consumption is 237.17 KW per Month.

Energy consumption of fuel was calculated by counting two wheeler and four wheeler at the Science Department.

Table No. 1.13 :Number of Vehicles and Their Fuel Consumption at Science Departments

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	210	12
2.	Average Liters of fuel / month	2553	540
3.	Maximum at	Chemistry	Zoology
4.	Minimum at	Maths. and Zoology	Physics

In science departments there are 210 two wheelers, utilizes 2553 liters/ month fuel while only 12 four wheelers utilizes 540 liters/ month fuel. Department of Chemistry utilizes maximum fuel/month by two wheelers while Department of Zoology utilizes maximum fuel/month by four wheelers . Minimum fuel for two wheelers is utilized by Mathematics and Zoology Department and minimum fuel for four wheelers is utilized by Physics Department.

3.2.2 Arts department

Department of Marathi, Hindi, English, History, Economics, Sociology, Geography and HSVC were studied in this category.

Table No. 1.14 Department wise Office Equipments and their energy consumption (KW/ Month) at Arts Department.

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KWper Month	Description
		Computers	Printers	Laptops	OHP	LCD projectors			
1.	Marathi	01	--	--	--	--	01	04	
2.	Hindi	01	--	--	--	--	01	8.28	
3.	English	01	--	--	--	--	01	19.12	
4.	History	01	--	--	--	--	01	5.33	
5.	Economics	01	--	--	--	--	01	4.2	
6.	Sociology	01	--	--	--	--	01	14.95	
7.	Geography	01	01	01		01	04	5.21	
8,	HSVC	01	01				02	10.35	
Total		08	02	01		01	12	71.44	

Table No. 1.15. Energy consumption (KW/Month) at Office equipments in Arts Department.

Name of Equipment	Computers /Laptops	Printers	Projectors	Total
Number of unit	09	02	01	10
Energy consumed/ Month	64.02	2.26	5.16	71.44

Total number of office equipments at Arts department is 12 and energy consumption is 71.44 KW/Month. As office equipment ,number of computers in Arts department is maximum i.e.09 than printers and LCD projector hence energy consumed is maximum i.e. 64.02 KW/Month followed by projectors and printers i.e 5.16 KW/Month and 2.26 KW/Month respectively.

Maximum number of office equipments is maximum i.e. 04 at Geography and energy consumption in the Department English is 19.12 KW/Month and minimum number of office equipments and energy consumption by them is in the Marathi department that is 04 KW/Month.

Table 1.16. Department wise Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Week) at Arts Department

Sr, No.	Departments	No. of equipments			Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	Ceiling /Table Fans			
	Marathi	01	00	01	02	6.9	
	Hindi	02	00	02	04	3.76	low
	English	01	00	01	02	103.2	
	History	01	00	01	02	8.26	
	Economics	01	00	01	02	6.4	
	Sociology	01	00	01	02	103.89	High
	Geography	18	00	05	23	6.36	
	HSVC	05	07	03	15	11.2	
	Total	30	7	15	52	249.97	

Table No.1.17 Number of florescent tubes, bulbs and fans and their energy consumption (KW/Month) at Arts Department.

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	30	07	15	52
Energy consumed/Month	121.29	38.08	90.6	249.97

Maximum use of the energy for lightening and fan is in the Department of sociology minimum use of the energy for lightening and fan is in the Department of Hindi. The total number of fluorescent tube is maximum i.e. 30 and their electric consumption is 121.29 KW per Month. In Arts department total number of ceiling fans is 15 and their electric consumption is 90.6 KW per Month.

Energy consumption of fuel was calculated by counting two wheeler and four wheeler at the Science Department.

Table No.1.18. Number of Vehicles and Their Fuel Consumption at Arts Departments:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	87	14
2.	Average Liters of fuel / month	1012	532
3.	Maximum at	HSVC	HSVC
4.	Minimum at	English	Economics

In Arts departments there are 87 two wheelers ,utilizes 1012 liters/ month fuel while only 14 four wheelers utilizes 532 liters/ month fuel. HSVC at jr. wing utilizes maximum fuel/month by two wheelers and by four wheelers . Minimum fuel for two wheelers is utilized by English Department and minimum fuel for four wheelers is utilized by Economics Department

3.2.3. Commerce Department: Senior and Junior commerce wing is categorized here.

Table No. 1.19. Office Equipments and their energy consumption (KW/ Month) at Commerce Department.

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	OHP	LCD projectors			
1.	Commerce	01	0	0	0	0	01	8.21	low

Table No. 1.20. Energy consumption in (KW/Month) at Office equipments in Commerce Department.

Name of Equipment	Computers/Laptops	Printers	Projectors	Total
Number	01	00	00	01
Energy consumed/Month	8.21	00	00	8.21

Number of office equipment's at Commerce department is 01and energy consumption is 8.21 KW/Month.

Table 1.21. Department wise Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at Commerce Department

Sr, No.	Departments	No. of equipments			Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	Ceiling /Table Fans			
1.	Commerce	01	00	01	02	9.4	low

Table No. 1.22. Number of florescent tubes, bulbs and fans and their energy consumption (KW/Month) at Commerce Department.

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	01	00	01	02
Energy consumed/Month	2.85	00	6.55	9.4

Number of lightening equipments and fans at Commerce department is 02 and energy consumption is 9.4 KW/Month.

Table No.1.23. Number of Vehicles and Their Fuel Consumption at Commerce Departments:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	40	01
2.	Average Liters of fuel / month	475	108

In Commerce departments there are 40 two wheelers , utilizes 475 liters/ month fuel while only 01 four wheelers utilizes 108 liters/ month fuel.

3.2.4. I.T. Department: Computer Science, I.T.,COC computer and subjects, two computer laboratory were studied in this category .

Table No. 1.24. Total Office Equipments and their energy consumption (KW/ Month) at I.T. Department.

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	OHP	LCD projectors			
1.	I.T	63	01	02	00	01	67	807.58	high

Table No. 1.25. Office Equipment's and their energy consumption (KW/ Month) at I.T. Department.

Name of Equipment	Computers/Laptops	Printers	Projectors	Total
Number	65	01	01	67
Energy consumed/Month	792.78	8.2	6.6	807.58

Total number of office equipment's at I.T. department is 67 out of that 63 are computers, 02 laptops, 01 printer and 01 LCD screen, total energy consumption is maximum i.e. 807.58 KW/Month.

Table 1.26 Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at I.T. Department

Sr, No.	Departments	No. of equipment's			Total equipment's	Energy Consumed KW per Month	Description
		Tubes	Bulbs	Ceiling /Table Fans			
1.	IT	12	00	10	22	233.84	High

Table 1.27. Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at I.T. Department

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	12	00	10	22
Energy consumed/Month	12.86	00	220.98	233.84

Number of lightening equipment's and fans at I.T. department is 22in which 12 are tube and 10 are fans and energy consumption is 12.86 KW/Month ,220.98 KW/Month respectively. Here total energy consumed is 233.84 KW/Month.

Table No.1.28. Number of Vehicles and Their Fuel Consumption at Computer(I.T) Departments:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	04	00
2.	Average Liters of fuel / month	110	00

In Computer (I.T.) departments there are only 04 two wheelers ,utilizes 110liters/ month fuel which is very less rather than other departments, also no any staff member has an four wheelers.

3.2.5. Office :

The energy consumption in Main administrative office, Principal's chamber, Staff room, Ladies room, store room, enquiry section, meeting hall, NAAC room, Non residential hall, CAP section etc, were studied in this category.

Table No. 1.29. Office Equipment's and their energy consumption (KW/ Month) at Office

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	OHP	LCD projectors			
	Office	13	08	02		01	24	801.03	High
	CAP	02	03				05	57.47	
		15	11	02		01	29	858.5	

Table No. 1.30. Office Equipments and their energy consumption (KW/ Month) at Office.

Name of Equipment	Computers/Laptops	Printers	Projectors	Total
Number	17	11	01	29
Energy consumed/Month	644.8	175.3	38.4	858.5

Total number of office equipments at office department is 29 out of that 17 are computers/ laptops,11 printer and 01 LCD screen, total energy consumption is maximum i.e. 858.5 KW/Month.

Table 1.31. Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at office

Sr, No.	Departments	No. of equipments				Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	LED	Ceiling /Table Fans			
	Office	43	00	21	64	128	1470	high
	CAP	04	00	04	08	16	23.1	
		47		25	72	144	1493.1	

Table 1.32. Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at office

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	47	25	72	144
Energy consumed/Month	1126.15	143.69	223.26	1493.1

Number of lightening equipments and fans at office department is 144 in which 47 are tube, 25 bulbs and 72 are fans and energy consumption is 1126.13 KW/Month ,143.69 KW/Month ,223.26 KW/Month respectively. Here total energy consumed is 1493.1 KW/Month.

Table No.1.33. Number of Vehicles and Their Fuel Consumption at Office:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	67	01
2.	Average Liters of fuel / month	1060	80

At administrative office there are 67 two wheelers ,utilizes 1060 liters/ month fuel while only 01 four wheelers utilizes 80 liters/ month fuel.

3.2.6 Gymkhana : The energy consumption in Gymkhana office, Gymnasium hall, Shivneri ground etc, were studied in this category.

Table No. 1.34. Office Equipments and their energy consumption (KW/ Month) at Gymkhana

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	LCD	projectors			
1.	Gymkhana	01	01	00	00	00	02	20.83	

Table No1.35. Office Equipments and their energy consumption (KW/ Month) at Gymkhana

Name of Equipment	Computers/Laptops	Printers	Projectors	Total
Number	01	01	00	02
Energy consumed/Month	19.61	1.22	00	20.83

Total number of office equipments at Gymkhana department is 02, total energy consumption is maximum i.e. 20.83 KW/Month.

Table 1.36. Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at Gymkhana.

Sr, No.	Departments	No. of equipments				Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	CFL	Ceiling /Table Fans			
1.	Gymkhana	62	00	04	04	70	498.63	

Table 1.37.Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at Gymkhana.

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	62	04	04	70
Energy consumed/Month	470.20	7.60	20.83	498.63

Number of lightening equipments and fans at Gymkhana department is 70 in which 62 are tube, 04 bulbs and 04 are fans and energy consumption is 470.2 KW/Month ,7.6 KW/Month , 20.83 KW/Month respectively. Here total energy consumed is 498.63 KW/Month.

Table No 1.38 Number of Vehicles and Their Fuel Consumption at Gymkhana:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	38	02
2.	Average Liters of fuel / month	520	220

At Gymkhana there are 38 two wheelers ,utilizes 520 liters/ month fuel while only 02 four wheelers utilizes 220 liters/ month fuel.

3.2.7. Exteriors: The energy consumption in Botanical Garden, Gardens, Lawns in campus, roads in campus, Lamps used lighting the campus etc, were studied in this category.

Table No. 1.39 Office Equipments and their energy consumption (KW/ Month) at Exteriors

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	LCD	Projectors			
1.	Exteriors	00	00	00	00	00	00	00	nil

No any office equipments are used in Exterior**.**

Table .1.40 Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at Exteriors

Sr, No.	Departments	No. of equipments				Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	CFL	Ceiling /Table Fans			
1.	Exterior	22	20	04	00	46	2279.3	high

Table 1.41. Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at Exteriors

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	22	24	00	46
Energy consumed/Month	1676.04	603.26	00	2279.3

Number of lightening equipments and fans at Exteriors of college is 46 in which 22 are tube, 24 bulbs and energy consumption is 1676.04 KW/Month ,603.26 KW/Month respectively. Here total energy consumed is high i.e.2279.3 KW/ Month .

Table No. 1.42. Number of Vehicles and Their Fuel Consumption at Exteriors:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	03	00
2.	Average Liters of fuel / month	35	00

At Exterior of college campus there are only 03 two wheelers ,utilizes 35 liters/ month fuel while there are no four wheelers .

3.2.8.. Common Facility centers (CFC)

The energy consumption in Library, Canteen, VKCA ,Boys Hostel, Girl Hostel, Staff Quarter, Health center, Medical center etc, were studied in this category. But electricity bills of section Boys Hostel, Girl Hostel, Staff Quarter, Health center , Medical center is paid by Management . Hence energy consumption in these section is not considered for the report. The energy consumption in Library, Canteen, VKCA ,Boys Hostel, Girl Hostel, Staff Quarter, Health center, Medical center etc, were studied in this category. But electricity bills of section Boys Hostel, Girl Hostel, Staff Quarter, Health center , Medical center is paid by Management . Hence energy consumption in these section is not considered for report

Table No. 1.43. Office Equipments and their energy consumption (KW/ Month) at CFC.

Sr, No.	Departments	No. of office equipments					Total equipments	Energy Consumed KW per Month	Description
		Computers	Printers	Laptops	LCD	projectors			
1.	Exteriors	00	00	00	00	00	00	00	nil

No any office equipments are used in CFC**.**

Table 1.44. Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at CFC

Sr, No.	Departments	No. of equipments				Total equipments	Energy Consumed KW per Month	Description
		Tubes	Bulbs	CFL	Ceiling /Table Fans			
	CFC	117	08	08	72	205	730.21	

Table 1.45 Number of Fluorescent Tubes, Bulbs and Fans and Their Energy Consumption (KW / Month) at CFC

Name of Equipment	Tubes	Bulbs	Ceiling fans	Total
Number	117	16	72	205
Energy consumed/Month	201.16	48.28	480.77	730.21

Number of lightening equipments and fans at CFC of college is 205 in which 117 are tube, 16 bulbs 72 fans and energy consumption is 201.16 KW/Month ,48.28 KW/Month,480.77 KW/Month respectively. Here total energy consumed is high i.e.730.21 KW/Month .

Table No.1.46. Number of Vehicles and Their Fuel Consumption at CFC:

Sr. No.	Vehicle	Two Wheelers	Four Wheelers
1.	No. of Vehicle	148	27
2.	Average Liters of fuel / month	1193	697
3.	Maximum at	Staff Quarter	Staff Quarter
4.	Minimum at	Medical center	Medical center

In Common Facility Centers (CFC) there are 148 two wheelers ,utilize 1193 liters/ month fuel while only 27 four wheelers utilizes 697 liters/ month fuel. At staff quarters utilizes maximum fuel/month by two wheelers as well as four wheelers . Minimum fuel for two wheelers and four wheelers is utilized by Medical center.

Chapter- IV
Green Energy Practices in Campus

- **Solar Water heater at Boys hostel**

- **The Institution has facilities for alternate sources of energy and energy conservation measures**
- **449.28 KW SOLAR POWER PACK PLANT**

- **Wheeling to the Grid (solar Power Station)**

- **Grid Center-**

- **Use of LED bulbs/ power efficient equipment**

- **Use of Biogas plant**

- **Use of Biogas for Practical Purpose**

- **Use of Biogas for Practical Purpose**

- **Sensor-based energy conservation**

Smart Energy saving Sensor-based energy conservation

- **Use of natural Solar light**

- **Green open Lawn Behind Science Building (Natural Light)**

- **Use of LED Lamps** `

- **Study in Lawn in Front of Library**

- **Green Lawn: Study Area**

- **Natural Sun light in Campus**

- **Sprinklers are used for watering garden/ lawns.**

- **Boys Hostel Campus**

- **Study Near Boys Hostel Campus**

- **Wide Roads and foot paths**

- **Study area :Nilkantheshaver Garden**

- **Sunny Campus near Gymnasium Hall**

- **Top View of Entrance**

Chapter-V

Energy Conservation Through Green Practices

5.0 Awareness Energy Conservation and Energy Conservation through Green Practices:

5.1 Initiatives taken by the college for Awareness of Energy Conservation -

In the present year the college started Environmental Eco-club to implement green policy around the year to make the college eco-friendly. The club undertakes activities like organization of related event , beautification, tree plantations, awareness programs, water and power management

In order to create environmental awareness amongst the students, they are encouraged to participate in activities like 'Swachata Abhiyan', Save Fuel, No Vehicle Day, Save Energy etc.

Various competitions like Rangoli, Essay, Elocution, Poster Presentation etc. on the topics related to environment and Energy Conservation are organized. Students are also motivated to give message of eco-friendly practices through Street Plays, Rallies, Articles in Botanical News Letter, Wall Paper, Warana Varshik etc

5.2. Onsite Energy conservation Practices:

There is a close connection between excess use of energy and environmental damage. Consumption of energy for routine activities like lighting, heating, cooling and ventilation results into severe depletion of invaluable environmental resources. Attempts are made for energy conservation through following measures:

- Majority of our class rooms, office, gymnasium, canteen, hostels and staff quarters are provided with spacious windows to have enough ventilation and sun light, so the use of electricity is naturally less.
- Preference is given to the most energy efficient and environmentally sound appliances such as energy-saving CFL and LED bulbs and LED tubes with reflectors. All computers in the institution are provided with LED screens.
- It is ensured that all electronic and electrical equipment, such as computers, are switched off when not in use and are generally configured in power saving mode, when such option is available. The air-conditioners are not used anywhere in the campus.
- LPG is used in the department of Physics, Chemistry and HSVC for practical and educational purpose but its consumption is very less.
- 'No Vehicle Day' is observed every year on 13th December which is death anniversary of the founder of the institution late Tatyasaheb Kore.
- Students and staff are encouraged to walk by organizing workshop on 'Yogic Walking' and walking competition for faculty members.
- Majority of staff coming from other places use vehicles in sharing. About 45 % of students use state transport vehicles for college.
- To promote use of cycling, Cycle Bank Scheme for girl students is run as one of our Best Practices.

5.3. Use of renewable energy:

To make the campus pollution free and to conserve conventional energy resources, our college tries to enhance use of solar energy. Presently, use of renewable energy in our campus is as listed below.

- Sunlight is our principle source of energy. All the rooms in both the buildings are airy and sunny and do not need electricity during day time.
- Solar water heating panels are used for Boys and Girls Hostels.

- **449.28 KW Solar Power Pack Plant on Roof**- Our management installed 449.28 KW solar power pack plant on roof of science building which comprising 1452 nos. of solar panels of 320W inverter and associated all equipment's. Out of 1452 solar panels of power pack project 774 placed on Main building which generate 239.94 KW energy , 194 placed on new building generate 60.14 KW energy and 484 placed on YC science building which generate 150.04 KW energy. The material and

associated equipment's installation cost of above project is 2,69,77,500/- (Rs.) and came in force on 21st February 2019, from that day the Maharashtra State Electricity Distribution Co. Ltd(Mahavitran) and Warana Shikhan Mandal work according to MOU between them. It contains the units of electricity consumption, electricity generation, import units and units in the bank/ storage. The detailed study of Solar power pack plant in duration of March 2019 to May- 2022 of 39 month in which total electricity consumption in campus 1950818 units, electricity generated by Solar power pack plant is 1627189, electricity imported from Mahavitran is 537059units and power bank in account of Warana shikshan mandal is 213430 units. In the duration of 39 months actual electricity units are payable are 323629 units out of it the of YCWM college is nearly around the 32563 units. The use of the electricity was is minimized than first phase of energy audit.

5.4. Cycle Bank for Girl Students- The scheme is started with a goal to Promote women education particularly in rural area. - Warana region where our institution is situated comprises of near about 70 villages and some hilly settlements. Majority of our students

come from such places. Facilities of S. T. bus is available but very often does not suit to the college timings. Even the students have to walk miles together to reach the nearby bus stand, as there is no provision of state transport to the settlements where they live.. Very often students have to travel by private transport which is more expensive and inconvenient, particularly for the girl students. It has been noticed that because of the inadequacy of transportation facility, parents from rural area do not allow their daughtrs to have higher education.

Establishment of Cycle Bank Scheme for the girl students is a novel concept to provide easy and almost cost free transportation facility to girl students and promote the noble cause of 'women education'.

Every year about 80-85 bicycle are distributed among girl students who coming from rural areas and facing travelling problems, under cycle bank scheme. Which they can use for transportation to college and also for personal purpose.

As cycling is one of the best exercises, the beneficiaries have developed physical fitness also. It is one of best green practices of our institution which minimize fuel consumption, Energy consumption control co_2 and air pollution of campus surrounding.

5.5.Tree plantation-Tree plantation is done in and outside the campus by faculty, students, various occasion like Krantidin, Anniversaries of distinguished people, Teacher's day etc.

Also college organize tree plantation programmes through NSS and NCC in adopted villages. The students gave the plants to their teachers as a gift on Teacher's Day. Usually plants are used as gifts and token of appreciation. The greenery in campus helps for carbon neutrality.

5.6.Drip/sprinkle irrigation: Drip/sprinkle irrigation has been used for watering the garden / lawns The increased green cover has reduced carbon foot- print of the college campus. It reduces water and electricity consumption.

5.7.Warana Magazine-Institution tries to create awareness about the issues related to Energy, Energy conservations, Necessity of Non-Conventional energy and environment among students through students articles, photos, sketches, poems. visit reports, essays etc in Warana Magazine. Through our Annual Warana Varshik the message of Energy Conservation, environmental consciousness and cleanliness is given to the society.

5.8.Lead college activity: College organize different activities under the Lead College Activity : To different activities under the Lead College Activity : To Enhance Use of Non-conventional and Renewable Energy, To use the smart energy saving devices and appliances, To create the environmental awareness between the stakeholders college organize the workshops and seminars through which eminent personalities and expertise give the guidelines.

5.9.Cultural programs-In different programmes like Yovkamohostav, Cultural competition, NSS/ NCC cultural programme the message of 'Save Nature', 'Save Environment', 'Save Water', 'Save energy', 'Save baby girl', 'Save birds' etc is given through street plays (Pathnatya) , Muknatya, dances, one act play, street plays (Pathnatya) , Muknatya, dances, one act play and group songs. Such practices create awareness about environmental consciousness and students participate actively.

5.10.Projects on environmental Science –In the syllabi of B.A./B.Sc./B.Com.II under the subject Environmental Studies, projects have been included pertaining the energy conservation. It creates the better understanding about the energy conservation and environmental consciousness.

5.11.Elocution competition- College organize elocution competition in different subjects related environment issues. Every year such competitions were arranged on different occasions in these students were motivated to handle on the subjects related energy conservation , water harvesting , save earth, solid waste management and environmental consciousness. Zilla Parishad, Kolhapur and Panchyat samiti , Panhala combined arrange an elocution completion in each year named 'Swachata Karadak Spardha.'

(on subject of water harvesting, pollution free town, Energy conservation, Swachat Abiyan etc) . In which our college student team is winner of fist two prizes from last three years.

5.12.No Vehicle Day:- 'No Vehicle Day' is arranged every year on 13th December which is death anniversary of the Late Tatyasaheb Kore, founder of the institution. Which is one step to reduce the fuel consumption as well as carbon emission.

5.13.Poster presentation and exhibition :- college organize poster presentation campaign, through this competition our student throw the light on environmental and energy issues by handling the burning issues related to care of environment.

Poster presentation and exhibition give some solution for care of environment and increase the awareness about it. In such competition student handle the issues like Hiking price of electricity, tree

cuttings, necessity of plantation, Water harvesting, Drip irrigation, chemical free cultivation, say no to plastic, Solid waste management, save water etc

.

5.14.Essay writing:-The college organizes essay competitions in different subjects like preservation of eco- system, Energy Conservation, go toward villages, Free addictions, Save biodiversity, tree plantation, save baby girl, save energy, benefits of blood donation, rural cleanliness etc.

5.15.Lecture of eminent personality- Every year we organize the lectures of the eminent personality in different sectors who aware and improve the technical knowledge about burning issues of environment, Energy and its ecology.

5.16.Treks-Trekking is essential for every one , it keeps us healthy and strong. Keeping this object Departments like Geography, History, Sociology, Botany, Zoology, NCC,NSS units
organize treks to historical and biodiversity place which gives the message if walk and create awareness about Fuel energy conservation..

5.17. Study tours/ Visits:- Departments of Science and Arts organize study tours and visits to Non-Conventional energy places.

5.18. Use of CFL Lamps :- To light the exterior of buildings as well as for lightening purpose in department of chemistry and HSVC uses CFL from last seven year.

5.19.Rangoli competition/ Wall Paper presentation-- In these activity number of students helps in making the awareness of other students with well handling of burning issues of Energy crises, Energy conservation, Remedies, Environmental pollution etc. The college create the awareness about Energy and Environment protection by organizing 'Rangoli Competition' and Wall paper presentation.

Chapter-VI

Proposed Policy for Energy Conservation

Energy Conservation Policy: 2021-22

The Energy Audit committee of our college conducted green audit in 2014 -15 very keenly and its second phase is conducted in 2021-22. By the green audit report, college has already taken some steps to conserve the energy as well as to avoid loss of energy. College students, faculty members and other staff all are committed to undertake this green audit as a means of continually improving in environmental performance of campus and to make it eco-friendly. College recognizes the need to function around the year in a manner to minimize its harmful environmental impact so green policy is decided.

YCWM College Energy Conservation Policy is based on three pillars:

- Environmental sustainability: The Green Policy must ensure sustainability of the environment.
- Economic viability: Economic viability options should be considered in the implementation of the Green Policy.
- Social acceptance: Social acceptance is a key to the success of the Green Policy and therefore, the social context of the community, faculty and students must be taken into consideration in the Green Policy.

To this end YCWM College will:

1. Reduce energy consumption, especially of electrical and fuel energy in college campus.

YCWM College therefore commits to:

- No of electrical Appliances are replaced by most energy efficient and environmentally sound appliances, which includes using energy-saving light (CFL, LED) bulbs and LED tubes with reflectors.
- Ventilation and natural light survey of infrastructure was conducted accordingly some renovation of infrastructure was applied. Maximize the use of windows for air and natural light.
- Encourage staff, students and conference guests to save energy through visible reminders, incentives and information to increase awareness. This particularly concerns switching off electrical appliances when not in use.
- Conduct switch off drills at regular intervals and fix its responsibility on teaching / non teaching staff.
- Ensure that all electronic and electrical equipment's, such as computers, are switched off when not in use, and are generally configured in power saving mode when such option is available.

- Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls
- Each block of institute has individual power control panels and energy meters installations, which help in separate and effective monitoring and control of energy consumption.
- Arrange 'No Vehicle Days' periodically/frequently (monthly if possible).
- Encourage to the students and staff of the college for walk and use vehicle with sharing to minimize fuel energy consumption.

Mr. Vilas Shamrao Patil.

Assistant Professor,
Department of Physics,
and
Coordinator Energy Audit

Dr. A. M. Shaikh

Principal,
Yashwantaro Chawan Warana Mahavidyalaya,
Warananagar.

Chapter-VII

CONCLUSION, RECOMMANDATIONS AND MANAGEMENT PLAN

CONCLUSION , RECOMMANDATIONS AND MANAGEMENT PLAN

The Energy Audit Committee of Yashwantrao Chavan Warana Mahavidyalaya. Warannagar has conducted a "Green Audit and its report" of our college in the academic year 2014-17 and second phase of green auditing was conducted in 2021-22 for duration of 2015-2022. As we know that 'Energy auditing' is the process of identifying and determining whether institutions practices are eco-friendly and sustainable and energy conservational. Energy Audit means is process of checking energy practices followed by college and to conduct a well formulated audit report of usage of all types of energies and recommend the remedies to stand at better scale of energy conservation. It can able to understand that the energy practices inside the college are the eco-friendly or not?. In second attempt to conduct energy audit of our college campus, in auditing of campus we make the detaied record all type of energy practices followed by college, accordingly from report the conclusions, recommendations and best management plan as an 'Energy Policy' of college to keep college campus environment eco-friendly.

Conclusions:

Following are some of the conclusions which can be taken for improvement in the Energy practices campus. in

- Students and staff of the college are encouraged for walk and use vehicle with sharing to minimize fuel energy consumption and Green or electrical vehicles are increasing.
- LPG is handled by department of Physics, Chemistry, HSVC for practical for educational or practical purpose but its consumption is very less.
- In science department like physics, chemistry, Mathematics, Botany and Zoology electricity was shut downed after occupancy time is one best greening practice for energy conservation.
- Electricity consumption is more at some departments.
- CFL lamps is used more in some department.
- Majority staff using two-wheeler vehicles, some staffs using four wheeler in sharing
- Major electricity required for water fetching and irrigating .
- College installed 449.28 KW solar power pack plant on roof of science building which comprising 1452 nos. of solar panels of 320W inverter and associated all equipment's. 1452 solar panels of power pack project 774 placed on Main building which generate 239.94 KW energy, 194 placed on new building generate 60.14 KW energy and 484 placed on YC science building which generate 150.04 KW energy.The material and associated equipment's installation cost of above project is 2,69,77,500/- (Rs.) and came in force on 21st February 2019 which reduce the expense on electricity.
- Roof top rain water harvesting has proved beneficial for filling up the well on campus.
- A special day like, Teachers Day, Guru panama are celebrated by new plantation in our campus also for Welcome of the guest's plants are used.
- The air-conditioners are not used anywhere in the campus.

- There is no use of air conditioners in college campus.
- To promote use of cycling, Cycle Bank Scheme for girl students is run as one of our Best Practices.
- The air-conditioners are not used anywhere in the campus.
- All the rooms in both buildings are airy and sunny and do not need electricity during day time.
- Solar water heating panels are used for Boys and Girls Hostels.
- Solar power lamps are used to light some part of area in front of new and old buildings.
- Drips and sprinklers are used for watering the gardens and lawns.

Recommendations: Following are some of the key recommendation for improving Energy usage in campus

environment:

- Conduct switch off drills at regular intervals and fix its responsibility on teaching / non-teaching staff.
- Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls
- Institution has done Water Audit that has helped to save water. Responsibility of monitoring the overflows of water tank is fixed on peons/ non -teaching staff in the concerned department.
- save electricity by proper maintenance of the wiring and electrical equipment.
- Adopted solar power to light up the roads, area in front of new and old buildings
- An environmental Green policy has to be prepared with all the conclusions, recommendations and current green practice carried by college.
- A frequent visit should be conducted to ensure that the generated waste is measured, monitored and recorded regularly and information should make available from concerned staff.
- Start an E-banking suvidha for junior wing class and distance mode admissions as experimental and again implement it for other wings.
- Use the facility of extension counter of Shree Warana Bank,Warananagar for bank mode payment.
- Increase the biogas use for the purpose of heating for the practical.

MANAGEMENT PLAN FOR ENERGY CONSERVATION.

After studying a present situation of Energy usage, it's utilization, methods adopted for practicing the use of energy in campus. The Energy Audit committee has prepared an Management Plan for the energy Conservation in college. This plan will reveal the strengths , weaknesses and suggests remedies for the green and clean campus.

ENVIRONMENTAL MANAGEMENTPLAN
ENERGY
ELECTRICITY

SRENGTHS	WEAKNESS	SUGGESTIONS	PRIORITY
1)Use of Solar water heater at girls and boys hostel. 2)Use of LED/ CFL lamp for lightning in some department like Chemistry, HSVC. 3) No use of air conditioner any where in campus. 4)In science wing electricity supply is closed after occupancy time. 5) Adequate ventilation and natural light is present in classroom as well as in some department. 6)Use of LCD,LED monitors in everywhere. (no CRT monitors are observed.) 7)Recently ventilation and light survey is proposed with help of experts of our sister concern branch of TKIET. 8) For watering drip, sprinklers irrigating system are used. 9) College installed 449.28 KW solar power pack plant on roof of science building	1)More electricity is used for water fetching purpose. 2)Use of electricity is more in some department like admin. Office. Computer/ I.T lab. and science department etc. 3) Unnecessary use of Lights , fans and computers at some places when no one is using. 4)Some traditional heating coil (energy consuming) equipments are used in science departments. e.g. Botany, chemistry. 5) Requirement of electricity for computer lab. is large.	1)Avoid use of light / fan (electricity) when adequate natural light / ventilation is present. 2)Create an awareness about electricity saving(e.g. circular, notice, supplying instructions etc) 3)Take steps to use renewable energy resources i.e. wind mills. 4)Monitor and control the overflows of water tank. 5) Place central electricity cut- off switch to shut down / close electric supply in all departments after occupancy time. 6) Use solar pump for fetching water in tanks.	Low

FUEL

STRENGTHS	WEAKNESS	SUGGESTIONS	PRIORITY
1)Bicycle Bank Scheme for girl student with about 90 bicycle 2) About 48.15 % students are using State Transportation(ST), about 10% students are using bicycle and about 28% students use the walking mode . 3)while only 9.5% students use their own two wheeler vehicle to college. 4) about 14% of staff using four wheeler,64% staff using an two wheeler vehicles 5)while about 4% staff is using four wheeler with shairing,10 % come by walking, about 6% staff use ST and about 3% staff is using Bicycle for transportation 6)Important is that about 23% staff did not use any type of vehicle and adopt environment friendly mode(walking) of transportation for college.	1)Use of two wheeler is maximum. 2)Major use of LPG at CFC (common facility center) like canteen and mess. 3) PUC checking is not organized. 4)Less number of student as well as staff come by walking. 5) Avoid use of carbon paper and don't fill the cartridges of computer printer in office or inside the campus.	1)General awareness about walk and health fitness should be created among stake holders. 2) Organize PUC checking camp periodically for awareness of pollution. 3)Produce an awareness among stakeholders of institution to use vehicle in sharing. 4)Plan bio-gas project for kitchen purpose of canteen and mess. 5)Frequently organize No Vehicle day, bicycle day etc. 6)Conduct free PUC camp in the college.	Medium

STRENGTHS	WEAKNESS	SUGGESTIONS	PRIORITY
7) About 67.5% of our staff resides near the college campus and only 32.5% of staff resides just far from campus (Far from 25 to 30 KM distance) which minimize fuel consumption in liter per month. 8)'No Vehicle day' on some occasion. 9)Use of LPG very less ,it is used at some departments of science and HSVC where is it essential. 8) Number of green practices through like Tracking, study tour, save fuel, sports, save electricity, poster presentation, debates, writings etc awareness in stake holder is produced by some departments and college also. 9)Diesel generator is occasionally /rarely used. 10) Campus has uninterrupted 1 kv electricity power supply of electricity provided by MSEB. 11) Less use of institutional transportation vehicle.			

12) There are a good number of trees and plants that make the campus of college green. The college campus has flower plants, medicinal plants, fruit plants and local Varieties.			

Mr. Vilas S. Patil Coordinator Energy Audit Committee

Dr. S. S. Khot. Coordinator IQAC

Dr.S.Y. Jadhav NAAC Cr. VII

Dr. A. M. Shaikh. Principal, Y.C.W.M. Warananagar

Forwarded with best compliment for certification.

The Energy Audit Report of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist-Kolhapur (Maharashtra State) is Verified Certified by :

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India
- EIA Coordinator, was accredited by NABET, Quality Council of India

Annexures

Annexure-A-

Yashwantrao Chavan Warana Mahavidyalaya
WARANANAGAR (P.O.) DIST. KOLHAPUR (MAHARASHTRA)
Affiliated to Shivaji University, Kolhapur

I/C Principal
M.A.B.Ed.,M.Phil.,Ph.D

Office : 02328 - 224041
Principal : 02328 - (O) 222820
Fax : 02328 - 224031
Website : www.ycwm.ac.in
E-Mail : ycwcwarana@yahoo.co.in

Founder Chairman : Late Shri V. A. Alias Tatyasaheb Kore

Chairman : Dr. Vinay V. K... M.L.A

Ref. No.: YCWM : 409 /2022-2023

Date : 05 JUL 2022

प्रति,

मा. प्रशासकीय अधिकारीसाो,
श्री वारणा विभाग शिक्षण मंडळ,
वारणानगर.

विषय :- नॅक क्रॅटेरिया -७ साठी सोलर प्रोजेक्टची माहिती मिळणेबाबत.

महोदया,

महाविद्यालयाच्या नॅक क्रॅटेरिया -७ साठी मंडळातंर्गत Solar Project बाबतची खालील माहिती आवश्यक आहे.

1. शासनाच्या कोणत्या योजने अंतर्गत सदरचा प्रोजेक्ट आहे. त्या संबधीचे सर्व नियम व अटी.
2. पूर्ण प्रोजेक्टचे सर्व इस्टीमेशन कॉस्ट.
3. सदर प्रोजेक्टचे Design Structure ले आऊट.
4. प्रोजेक्ट सुरु झाल्यापासून प्रतिवर्षी किती इलेक्ट्रीक इनर्जी जनरेट झाली त्याचा डाटा.
5. प्रतिबर्षी मंडळातंर्गत संस्थेचे किती युनिट वजा झाले इ.

वरील माहीती नुसार महाविद्यालयास नॅक बाबतचे अधिक गुण प्राप्त होतील तरी कृपया सदरची माहीती मिळावी ही नम्र विनंती.

कळावे,
05/07/22

आपला विश्वासू

Forwarded to HOD (ENTC)
M. Deputy Shirkoyadda for H.O.

प्र. प्राचार्य,
यशवंतराव चव्हाण वारणा महाविलय, वारणानगर.

प्रत :- 1. मा. प्राचार्य अभियांत्रिकी महाविद्यालय, वारणानगर.
2. इलेक्ट्रीक विभाग अभियांत्रिकी महाविद्यालय, वारणानगर

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Annexure-B-

O/C

Shree Warana Vibhag Shikshan Mandal, Warananagar

Shri. G. H. Patil, Secretary — Shri. Vinay V. Kore, Chairman

Ref.: /71 /2017-2018 Date : 21.03.2018.

To,

The Director,
M/s. Seven Greens Solar Systems Private Limited,
Block No. 33-34, Building No. 1, Shri Ram CHS,
Ram Mandir Road, Khernagar,
Bandra East, Mumbai - 400 051.
Tel: 022 6060 7779

Subject : Purchase Order for installing 449.28 KW solar power plant.

COMPANY: **M/s. Seven Greens Solar Systems Private Limited**
GSTIN No.: 27AAQCS0641G1Z9

DELIVERY ADDRESS : AT POST-WARANANAGAR TAL PANHALA, DIST KOLHAPUR
DELIVERY DATE : NOT LATER THAN 26th April, 2018
INSTALLATION DATE : NOT LATER THAN 30th April, 2018

Please arrange to supply the following against this order in accordance with the terms and conditions attached with the PO.

Terms of Payments: 1. Advance of Rs.94,42,125 /- along with purchase order.
2. Rs. 37,76,850/- after Supply of Material on site.
3. Rs. 37,76,850/-after Installation of the system
4. Rs. 18,88,425/- after Commissioning of the plant.
5. 30 % Subsidy amount of Rs.80,93,250/- you will receive directly from MEDA

Sr No.	Material Description	Qty	Rate per Unit (Rs.)	Amount (Rs.)
	449.28 KW SOLAR POWER PACK COMPRISING OF 1404 NOS.OF SOLAR PANELS OF 320 W (RENESWYS MAKE), INVERTER (KSTAR MAKE) And ASSOCIATED EQUIPMENTS	1	2,65,77,500/-	2,65,77,500/-
	INSTALLATION FOR ABOVE	1	4,00,000/-	4,00,000/-
	TOTAL			2,69,77,500/-

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Tal.Panhala, Dist.Kolhapur - 416 113, Phone : (02328) 224030, 223561

Shree Warana Vibhag Shikshan Mandal, Warananagar

[redacted] Shri. Vinay V. Kore, Chairman

Ref.: 17 / /2017-2018 Date : 21.03.2018.

Effective PO VALUE : Rs.2,69,77,500 /-
(Rupees Two Crore Sixty Nine Lacs Seventy Seven Thousand Five Hundred Only)
Net Amount Payable after deducting Subsidy Of 30% which will get credited directly into your account from MEDA is Rs. 1,88,84,250/- (Rupees. One Crore Eighty Eight Lacs Eighty Four Thousand Two Hundred and Fifty Only.
Other Terms and Conditions:

1) This refers to your quotation referred to above and subsequent discussions with you at various times.
2) Prices are including taxes and duties.
3) Payment: 1. Advance of Rs.94,42,125 /- along with purchase order. Rs. 37,76,850/- after Supply of Material on site. Rs. 37,76,850/-after Installation of the system. Rs. 18,88,425/- after Commissioning of the plant.. 30 % Subsidy amount of Rs.80,93,250/- you will receive directly from MEDA
4) Warranty: Standard 5 years from date of installation (site warranty). In the event of any failure of the product after installation during the aforesaid period of 5 years, you will arrange to install a replacement product at your own cost and take away the defective / failed product at your own cost.
5) Manufacturer's warranty of Inverter will be of 5 Years and Solar modules will be of 25 years
6) Maintenance: Routine maintenance such as panel cleaning, etc. will be initially carried out by you, following which the same would be carried out by us, under your supervision. You would train our personnel in this regard.
7) Delivery Instructions: Invoice to be handed over to Mr. Sanjay S. Bulle, with address as above.
8) **You will assist us with completion of all documentation related to MAHAVITARAN NET METERING. Further you will assist us with completion of all documentation related to obtaining the 30 % subsidy on Solar Roof-top Systems under the NET METERING POLICY of the Government of India. As discussed by you, subsidy would be credited directly to your account.**
9) **Contact person: Mr. Sanjay S. Bulle +91 7798885075.**
10) No escalation or variation in the price is payable to you, on account of any increase or modification in the tax structure or introduction / modification of existing levy structures.
11) Police Verification Clause: You will ensure that all personnel deployed by you for installation are Indian nationals and it is your responsibility to ensure that all personnel deployed in our premises are not involved in any criminal or anti-national activities.

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

WARANA VIBHAG SHIKSHAN MANDAL Reg. No. F 99 Dt. 13-7-1964 WARANANAGAR (KOLHAPUR)

GREENS SOLAR SYSTEMS MUMBAI

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Tal.Panhala, Dist.Kolhapur - 416 113, Phone : (02328) 224030, 223561

Shree Warana Vibhag Shikshan Mandal, Warananagar

Shri. G. D. Patil, Secretary | Shri. Vinay V. Kore, Chairman

Ref.: /7/ /2017-2018 Date : 21.03.2018.

12)You shall be fully responsible for
   a. Behavior and conduct of your employees
   b. Disputes arising on account of your employees
   c. Any loss or damage to our property caused by your employees
   d. Payment of salary / wages to your employees
   e. Adherence of your employee to all statutory rules and regulations in force from time to time

13)Confidentiality: Any information provided to you, which is not in the public domain, may not be shared with any third parties without our prior consent.

14)You shall make all necessary arrangements to ensure smooth and trouble free services without any duty failure

15)You shall keep us indemnified against all acts of omission or negligence, dishonesty or misconduct of your employees. We shall not be responsible for death, accident or injury to your employees while on our duty. You shall not make any claim and we shall not be liable to pay any compensation or damages to any such employees or to third parties.

16)You will make sure that your employees are aware about and will adhere to general and commonly followed safety, security procedures and requirements in connection with services offered by you.

17)Smoking / consumption of alcohol while on duty is strictly prohibited.

18)You shall make arrangements for lunch, dinner and snacks for your employees at your own cost.

19)You will not employ any child labour to work in our premises.

20)You will undertake that in case any liability pertaining to non-compliance with the above obligations is to be discharged by us, you undertake to reimburse the same to us.

SHREE WARANA VIBHAG SHIKSHAN MANDAL * Reg. No. F 99 Dt. 13-7-1964 WARANANAGAR (KOLHAPUR)

PRESIDENT
Shree Warana Vibhag Shikshan Mandal
Warananagar, Dist. Kolhapur.

ACCEPTED
For Seven Greens Solar Systems Pvt. Ltd.

Nikhil Modak

Authorized Signatory

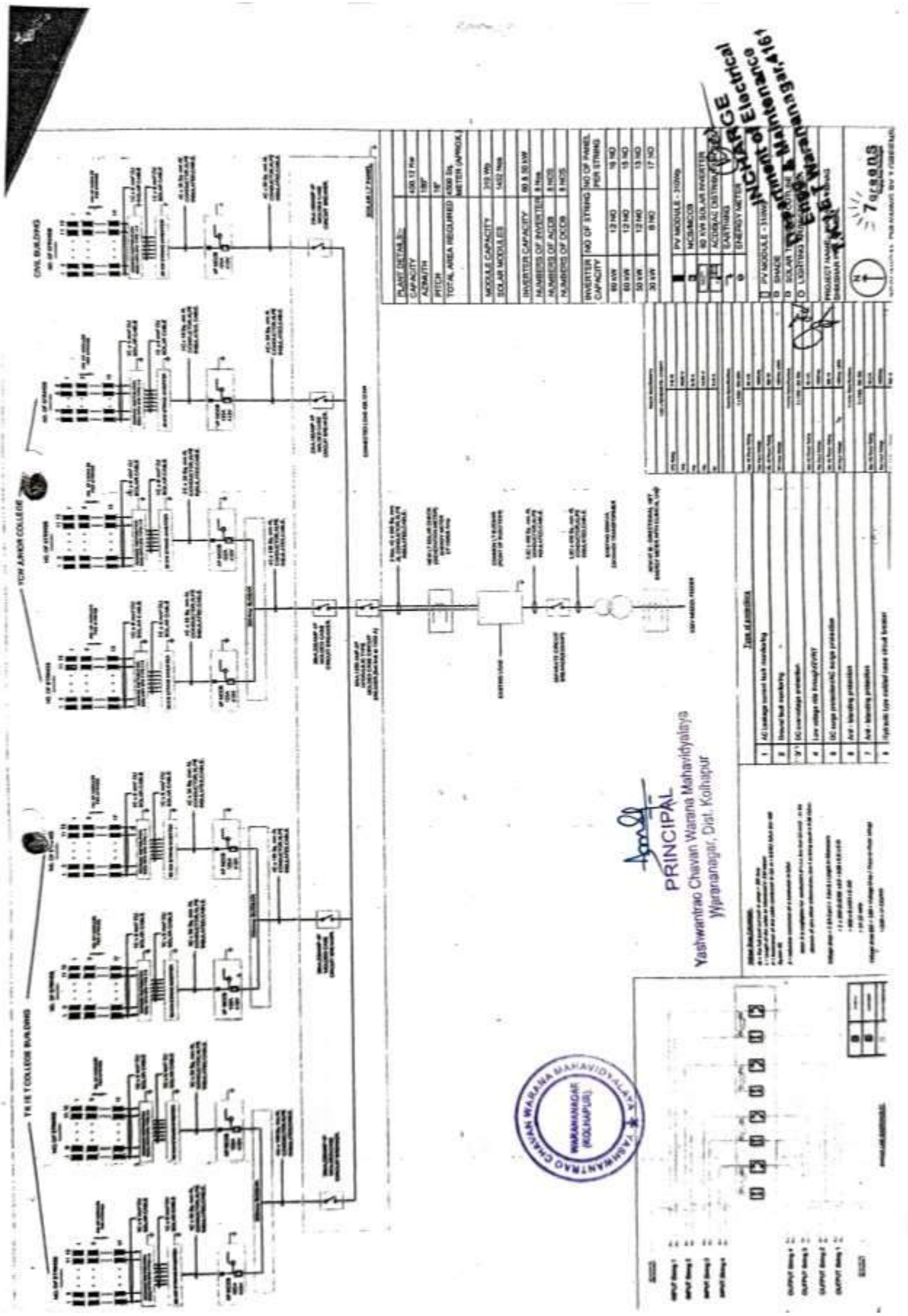
SEVEN GREENS SOLAR SYSTEMS PVT. LTD. MUMBAI

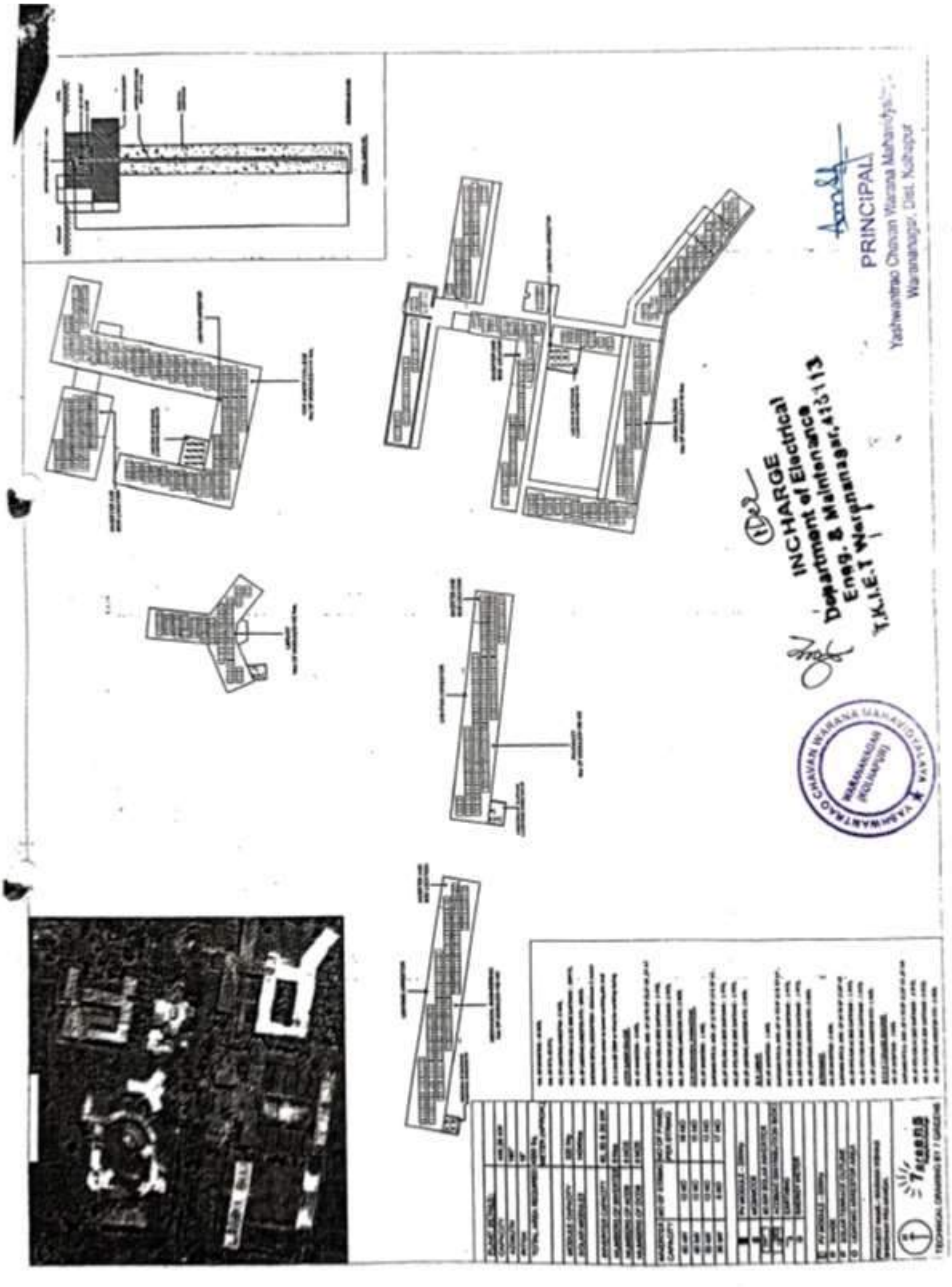
YASHWANTRAO CHAVAN WARANA VIDYANAGAR (KOLHAPUR)

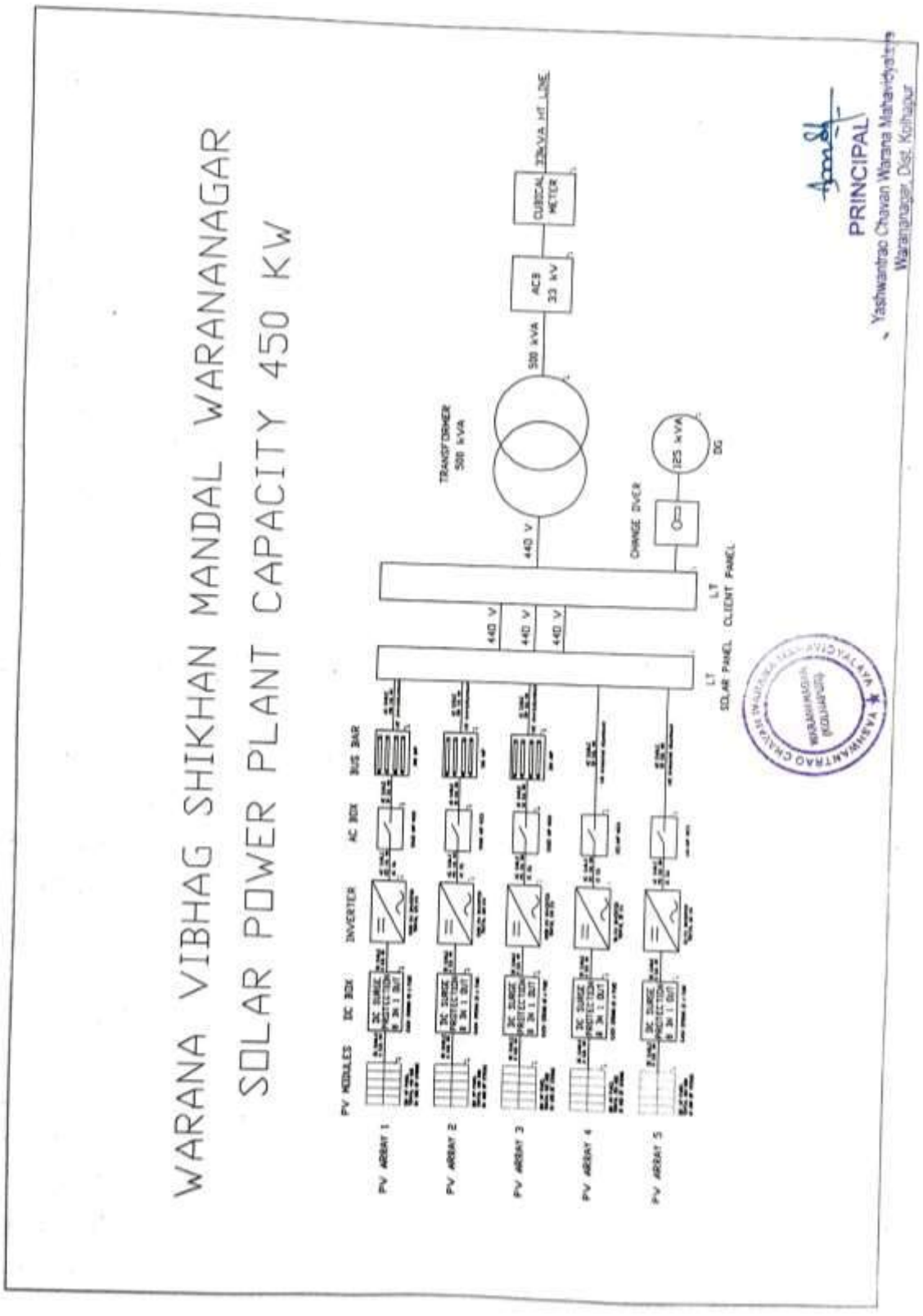
PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya,
Warananagar, Dist. Kolhapur

Tal.Panhala, Dist.Kolhapur - 416 113. Phone : (02328) 224030, 223561

Annexure-C-


PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Waranangar, Dist. Kolhapur


INCHARGE
Department of Electrical
Engg. & Maintenance
PRINCIPAL


WARANA VIBHAG SHIKHAN MANDAL WARANANAGAR
SOLAR POWER PLANT CAPACITY 450 KW
PV MODULES
DC BOX
INVERTER
AC BOX
BUS BAR
PV ARRAY 1
PV ARRAY 2
PV ARRAY 3
PV ARRAY 4
PV ARRAY 5
440 V
440 V
440 V
LT SOLAR PANEL
LT CLIENT PANEL
CHANGE OVER
125 kVA DG
TRANSFORMER 500 kVA
440 V
500 kVA
ACB 33 kV
CUBICAL METER
33kVA HT LINE
PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Annexure-D-

RenewSys™
let there be light

DESERV™

3M6- 300/305/310/315/320/325

DESERV 3M6 72 cells PV Modules Series are offered with power ratings ranging from 300 Wp to 325 Wp. The high performance Multi Crystalline Silicon Modules are designed for on-grid as well as off-grid applications.

KEY FEATURES

- Made in India
- Positive power tolerance
- Highly reliable Anti- reflective coated glass
- Windspeed - 2400 Pa
  Snowload - 5400 Pa
- IP67 Junction box
- 1000 V Vdc
- PID resistant
- 25 YEARS Limited power output warranty
- 10 YEARS Product warranty

IEC Certified - 61215, 61730, TS 62804, 61853
IEC 61701 (Salt mist corrosion resistant- Severity 6)
IEC 62716 (Ammonia corrosion resistant)
UL Certified 1703
IEC 60068-2-68 (Sand Abrasion)

YASHWANTRAO CHAVAN WARANA SHIKSHAN PRASARAK MANDAL WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

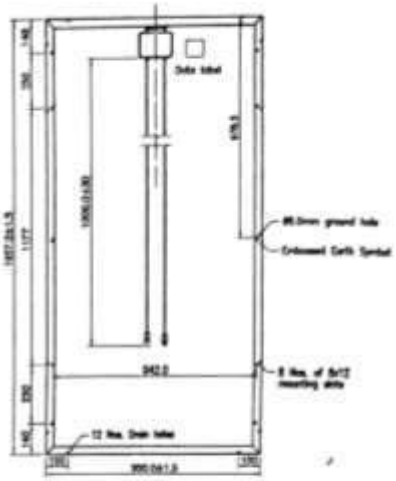
IMS Certified Company (ISO 9001:2015 & OHSAS 18001:2007)

RenewSys has a global presence with offices in Dubai, Johannesburg, Lagos, London, Mauritius and Singapore as well as representative offices in USA and many countries of Europe.

Performance under standard test conditions (1000W/m² AM 1.5, 25°C)

	DESERV 3M6-300	DESERV 3M6-305	DESERV 3M6-310	DESERV 3M6-315	DESERV 3M6-320	DESERV 3M6-325
Rated power (Pmax), Wp	300	305	310	315	320	325
Max power voltage (Vmp), V	36.52	36.75	36.86	36.92	37.20	37.41
Max power current (Imp), A	08.22	08.30	08.41	08.55	08.61	08.69
Open circuit voltage (Voc), V	45.65	45.94	46.08	46.15	46.18	46.21
Short circuit current (Isc), A	08.56	08.65	08.76	08.91	09.06	09.18
Module efficiency (%)	15.48	15.74	16.00	16.26	16.51	16.77

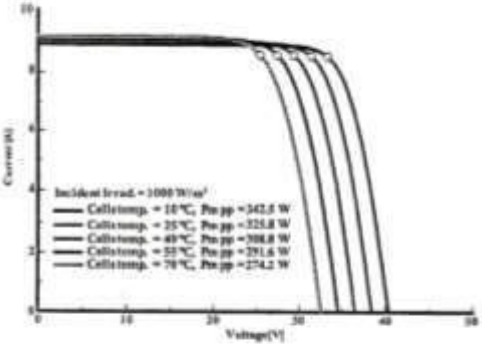
72 Cells PV Solar Module Dimensions



Operating Conditions

Ambient temperature, °C	-40 to + 85
Maximum system voltage,Vdc	1000
Hail impact velocity, m/sec	23
Maximum surface load capacity, Pascals	5400

PV modules: RenewSys, DESERV 3M6- 325



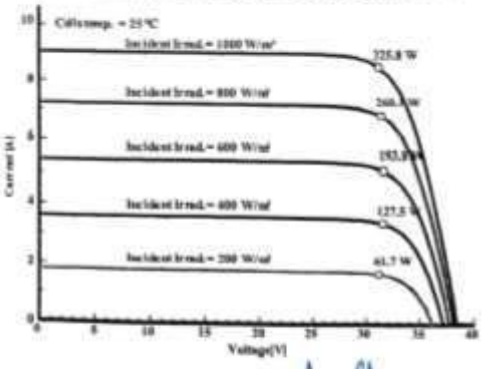
Cell Temperature Coefficients

Open circuit voltage	- 0.30 % / °C
Short circuit current	+ 0.05 % / °C
Nominal power	- 0.40 % / °C

Physical Parameters

No. of cells	72
Module dimensions (mm)	1957 X 990
Module thickness (mm)	40
Approximate weight (kg)	21.5

PV modules: RenewSys, DESERV 3M6- 325



Mechanical Characteristics

Cable	NO. 12 AWG, 4mm² (1 m standard, 1.2 m available on request)
Pv connectors	MC4/MC4 (Compatible)/TYCO
Frame	Anodized Aluminum Alloy
Junction box	IP67 Junction Box With 4 Rail
Glass	3.2mm Thick Low Iron Tempered (2mm available on request)

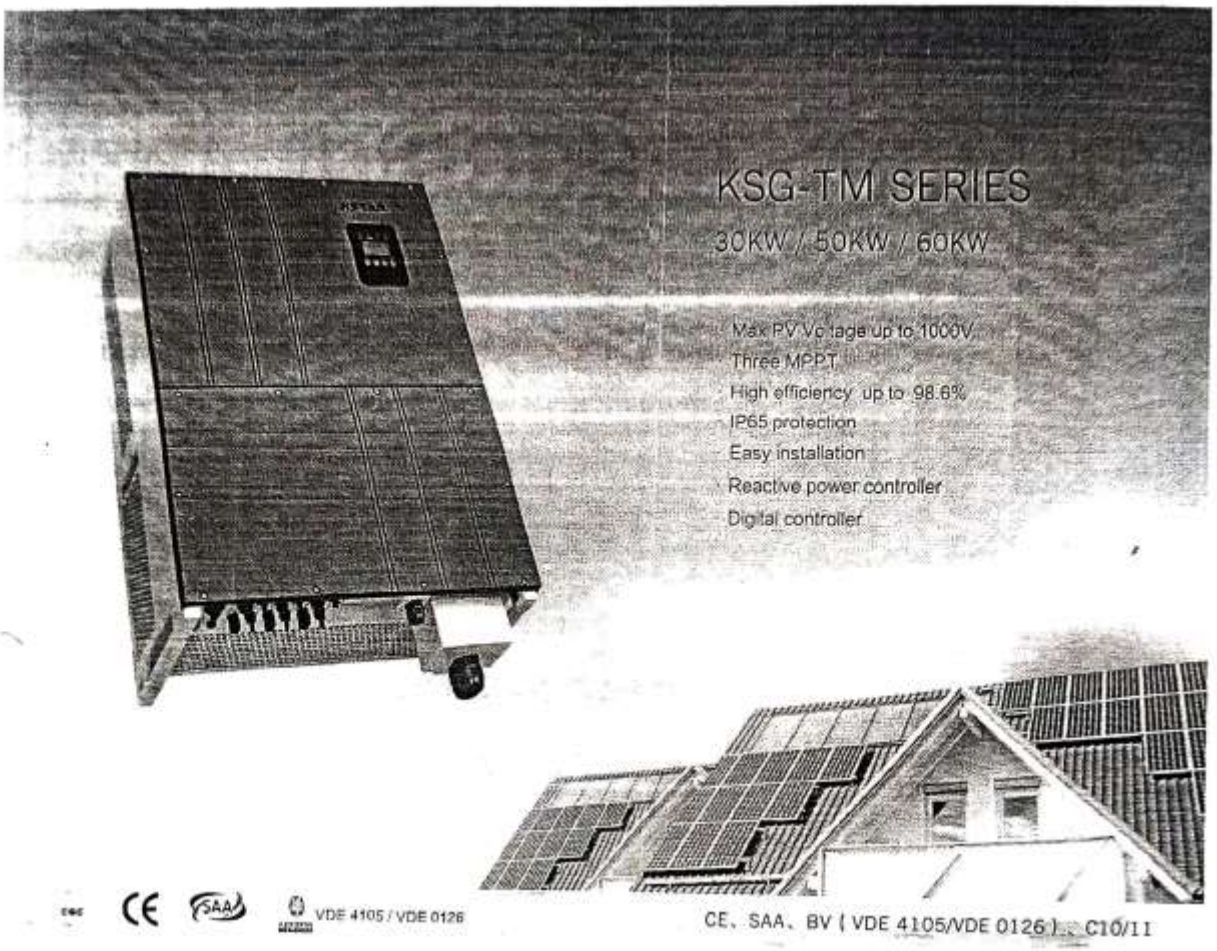
Registered Office
98, Jolly Maker Chambers No.2, 225 Nariman Point, Mumbai - 400 021, Maharashtra, India
Tel.: + 91 22 30040500

Factory
Plot No 6, Survey # 114/P, Srinagar Village, Maheshwaram Mandal, Dist-Rangareddy, Hyderabad - 501 359, Telangana, India.
Tel.: + 91 40 67303000 Fax: + 91 40 67303003

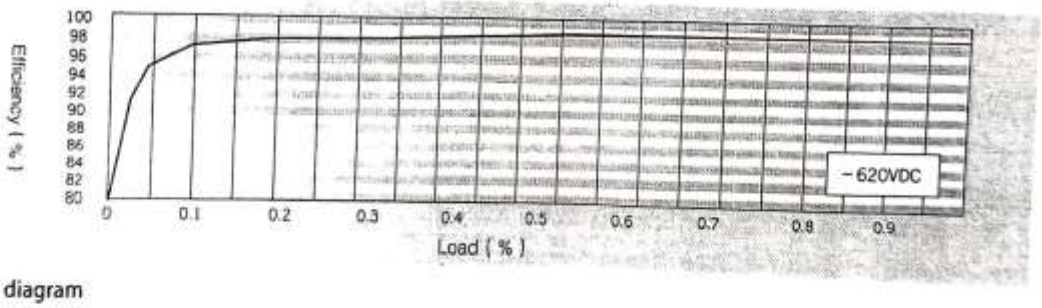
renewsys@renewsysindia.com ❖ marketing@renewsysindia.com ❖ www.renewsysworld.com

Module image for representation purpose only. Due to continuous improvement product specification may change without notice.

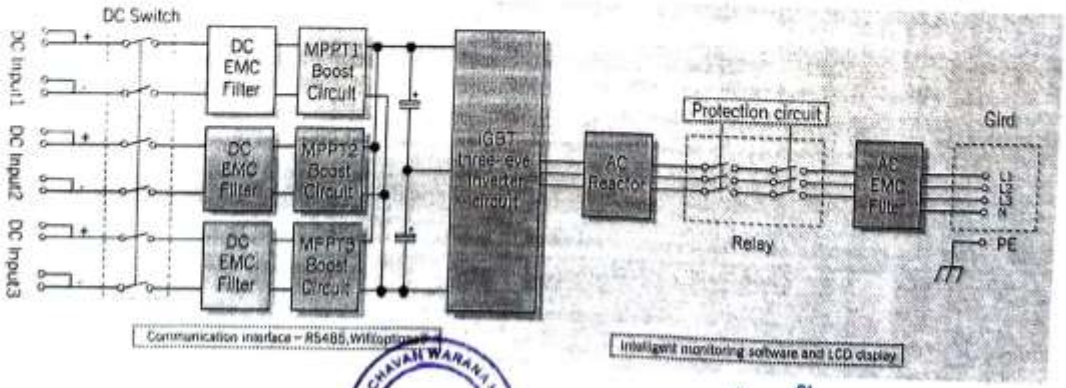
PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur



Efficiency curve



Circuit diagram



YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

KSG-TM Series Technical Specifications

Model Specifications	KSG-30K	KSG-50K	KSG-60K
Input(DC)			
Max. DC power	39KW	65KW	78KW
Max. DC voltage	1000Vdc		
MPPT voltage range	250~950Vdc		
Full load MPPT voltage range	400~800Vdc	480~800Vdc	500~800Vdc
Norminal DC voltage	620Vdc		
Min. start DC voltage	200 / 250Vdc		
Number of MPP trackers	3		
Strings per MPP tracker	2	4	
Max. input current per MPP tracker	26A / 26A / 26A	36A / 36A / 36A	40A / 40A / 40A
Output (AC)			
Norminal AC output Power	30KW	50KW	60KW
Max. AC output Power	33KW	55KW	66KW
Norminal AC voltage	400Vac		
AC voltage range	400Vac±20%		
Norminal AC grid frequency	50 / 60Hz		
AC grid frequency range	50 / 60Hz(±5Hz)		
Rated output current	44A	72A	87A
Max. output current	48A	80A	95A
Power factor (cos φ)	0.8leading-0.8lagging		
THDI	<3%		
AC connection	3W+N+PE/3W+PE		
Topology	Transformer less		
Efficiency			
Max. efficiency	98.3%	98.6%	
Euro efficiency	98.0%	98.2%	
Protection devices			
AC leakage current fault monitoring	DC overvoltage protection	DC surge protection/AC surge protection	
Ground fault monitoring	Low Voltage Ride Through/ZVRT	Anti-islanding protection	
Mechanism Data			
Dimensions (W / L / D) in mm	636 / 958 / 260		
Weight	61Kg	68Kg	70Kg
Environment Data			
Operating temperature range	-25℃~+60℃		
Noise emission (typical)	≤40dB	≤60dB	
Cooling concept	Natural cooling	fans	
Protection rating	IP65		
Features			
LCD display	Yes		
Interfaces	RS485		

Specifications subject to change without prior notice.

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Annexure-E-

Tatyaaheb Kore Institute of Engineering and Technology, Warananagar

Department of Electrical Engineering

		No of Solar panels	Each panel Wattage (wp)	Inverter Capacity (KW)	Total Generation (KW)
Main Bldg	Inverter-I	194	310	60.14	239.94
	Inverter-II	194	310	60.14	
	Inverter-III	193	310	59.83	
	Inverter-IV	193	310	59.83	
	Total panels	**774**			
Civil Bldg	Inverter-V	194	310	60.14	60.14
	Total panels	**194**			
YC Bldg	Inverter-VI	161	310	49.91	150.04
	Inverter-VII	161	310	49.91	
	Inverter-VIII	162	310	50.22	
	Total panels	**484**			
	Grand Total	**1452**			**450.12**

Intnding Person

Electrical Incharge

Administrative officer
S.W.V. S. M, Warananagr

Yashwantrao Chavan Warana Mahavidyalaya
Waranangar, Dist. Kolhapur

Annexure-F-

MAHARSHTRA STATE ELECTRICITY DISTRIBUTION CO LTD

Ph.02328-224108
Email : sdo6157kodoli@gmail.com

MHAVITRAN
CN:U40109MH2005SGC153645

Dy. Executive Engineer
M.S.E.D.C.L, Kodoli s/Dn.
Borpadale Kodoli Road,
Tal- Pnnhala,
Dist – Kolhapur, 416114

DYEE/KSD/TEC/ 215

FORM No T.M.2

Date- 6 FEB 2019

To,
The Executive Engineer,
Testing Division,
M.S.E.D.L, Bapat Camp,
Kolhapur.

Sub: P.S to 450.12KW Solar roof top Con.i/r of M/S Warana Vibhahg Shikshan Mandal Warana Nagar

In Connection with the above please find here with meter details for p.s.to 450.12KW Solar roof top Con.i/r of M/S Warana Vibhahg Shikshan Mandal Warana Nagar meter details are as below:

Name of Consumer : M/S Warana Vibhahg Shikshan Mandal
Consumer No : **262029205021**

1. Date of Replacement :
2. Reason of replacement :
3. Details of **Generation Meter**

i)	Make	:	Secure
ii)	Makers Sr. No.	:	XE454500
iii)	Type	:	DLMS
iv)	Makers Type	:	
v)	Current Rating/Connected	:	-/5A
vi)	Voltage rating	:	3x240V
vii)	M.D. Maximum range	:	
viii)	Scale M.F. for Units	:	1
ix)	Scale M.F. for M.D.	:	
x)	No. of Revolution per unit	:	
xi)	Class	:	0.2s
xii)	Testing No.	:	CM-11255703 Dt-20.12.18
xiii)	No. of Decimals	:	8
xiv)	Year of mfd.	:	07/2018

A) Initial Readings

	KWH	KVA	KVAH	RKVAH Lag	RKVAH Lead
Cuml	1.18	0.08	1.19	0.10	0
A	0	0.00	0.0	0	0
B	1.02	0.08	1.03	0	0
C	0.14	0.00	0.14	0	0
D	0.02	0.00	0.02	0	0

4. Details of **CTPT Cmbine Unit**

i)	Make	:	Prasana Electrical
ii)	Makers Sr. No.	:	566
iii)	Type	:	Cmbine
iv)	Makers Type	:	

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya

v)	Current Rating/Connected	:	1000/5A
vi)	Voltage rating	:	3x240V
vii)	M.D. Maximum range	:	
viii)	Scale M.F. for Units	:	
ix)	Scale M.F. for M.D.	:	
x)	No. of Revolution per unit	:	
xi)	Class	:	0.2s
xii)	Testing No.	:	
xiii)	No. of Decimals	:	
xiv)	Year of mfd.	:	07/2018

5. General Details
   i) Whether meter was tested by Testing Division — Yes
6. Multiplying Factor: $\frac{\text{CT ratio Connected}}{\text{CT ratio of Meter}} \times \frac{\text{PT Ratio Connected}}{\text{PT Ratio of Meter}} \times \text{SMF}$

$$= \frac{1000/5}{5/5} \times \frac{240}{240} \times 1$$

$$= 200$$

7. Any General Remark: NIL

Submitted for your further needful please

Dy Executive Engineer
M.S.E.D.C.L
Sub- Division
Kodoli.

S.W.R.to,
1. The Superintending Engineer, Circle office, Kolhapur
2. The Executive Engineer, Division office, Kolhapur R-1

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar - Kolhapur

MAHARSHTRA STATE ELECTRICITY DISTRIBUTION CO LTD

Ph.02328-224108
Email : sdo6157kodoli@gmail.com

MHAVITRAN
CN:U40109MH2005SGC153645

Dy. Executive Engineer
M.S.E.D.C.L, Kodoli s/Dn.
Borpadale Kodoli Road,
Tal- Pnnhala,
Dist – Kolhapur, 416114

DYEE/KSD/TEC/ 214

FORM No T.M.2

Date- 08 FEB 2019

To,
The Executive Engineer,
Testing Division,
M.S.E.D.L, Bapat Camp,
Kolhapur.

Sub: P.S to 450.12KW Solar roof top Con.i/r of M/S Warana Vibhahg Shikshan Mandal Warana Nagar

In Connection with the above please find here with meter details for p.s.to 450.12KW Solar roof top Con.i/r of M/S Warana Vibhahg Shikshan Mandal Warana Nagar meter details are as below:

Name of Consumer : M/S Warana Vibhahg Shikshan Mandal
Consumer No : **262029205021**
8. Date of Replacement : To be Replaced
9. Reason of replacement : **Net meter For Solar**
10. Details of Net Meter

			Old	New
i)	Make	:	Secure	Secure
ii)	Makers Sr. No.	:	13547028	XE418579
iii)	Type	:	NON- DLMS	DLMS
iv)	Makers Type	:		
v)	Current Rating/Connected	:	-/5A	-/5A
vi)	Voltage rating	:	3 x63.5V,11/110V	3 x63.5V,11/110V
vii)	M.D. Maximum range	:		
viii)	Scale M.F. for Units	:	1	1
ix)	Scale M.F. for M.D.	:		
x)	No. of Revolution per unit	:		
xi)	Class	:	0.5s	0,.5s
xii)	Testing No.	:	TDK/ B-374Dt-17.3.14	TDK/C-464 Dt-31.10.18
xiii)	No. of Decimals	:	8	8
xiv)	Year of mfd.	:	012/2013	07/2018

A) Initial Readings		KWH	KVA	KVAH	RKVAH Lag	RKVAH Lead
	Cuml	1.18	0	0	0	0
	A	0	0.	0	0	0
	B	0	0	0	0	0
	C	0	0	0	0	0
	D	0	0.	0	0	0

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

1. General Details

i) Whether meter was tested by Testing Division — Yes

2. Multiplying Factor:

$$\frac{\text{CT ratio Connected}}{\text{CT ratio of Meter}} \times \frac{\text{PT Ratio Connected}}{\text{PT Ratio of Meter}} \times \text{SMF}$$

$$= \frac{10/5}{5/5} \times \frac{33/110}{11/110} \times 1$$

$$= 6$$

13. Any General Remark: NIL

Submitted for your further needful please

Dy Executive Engineer
M.S.E.D.C.L
Sub- Division
Kodoli.

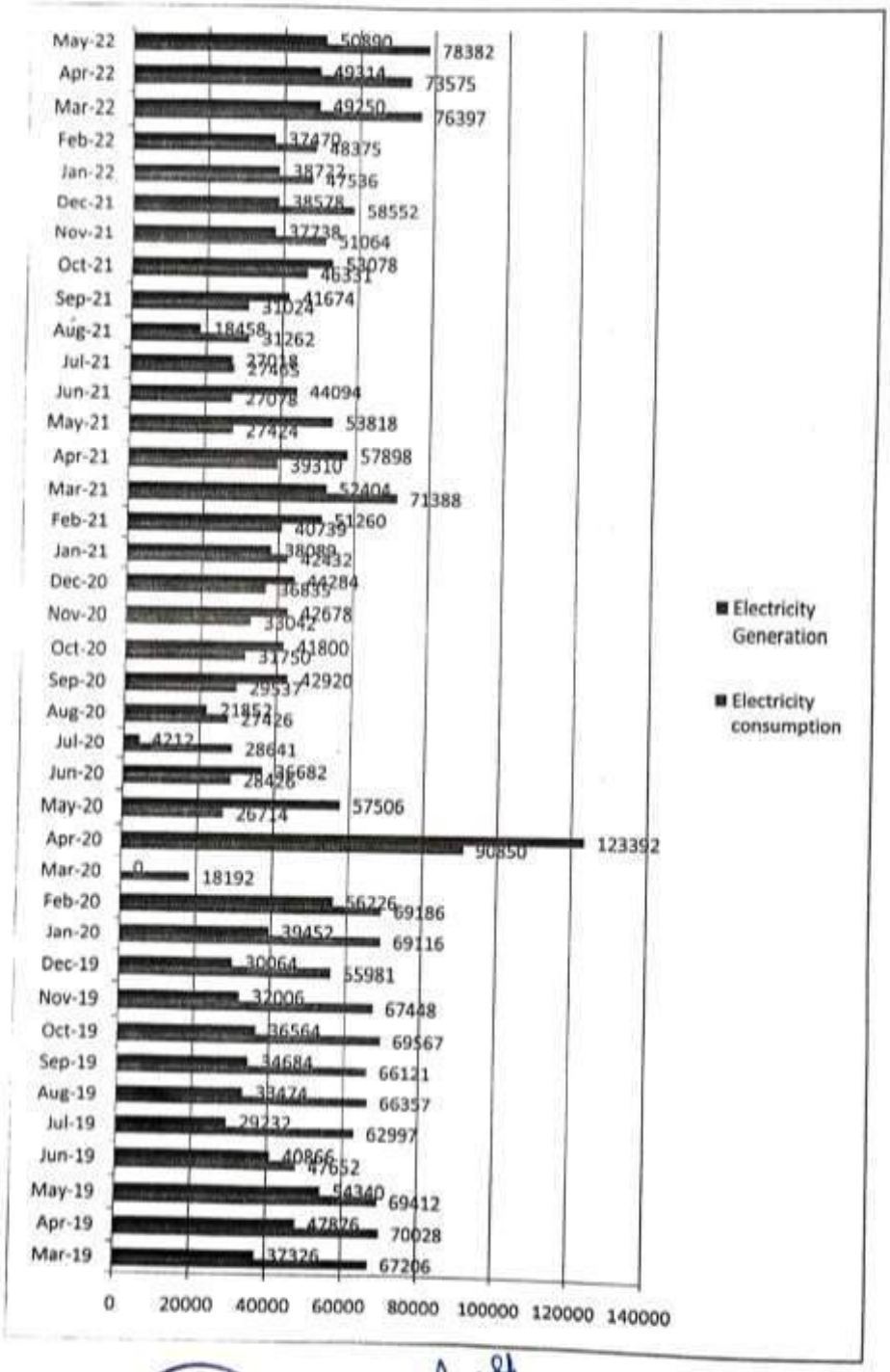
S.W.R.to,
1. The Superintending Engineer, Circle office, Kolhapur
2. The Executive Engineer, Division office, Kolhapur R-1

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Annexure-G-

S.W.V.S.M's
Tatyasaheb Kore Institute of Engineering and Technology, Warananagar
Department of Electrical Engineering
450.12 KWP Solar Power plant Generation Details



PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

INCHARGE
Department of Electrical
Engg. & Maintenance
T.K.I.E.T Warananagar,416113

S.W.V.S.M's					
Tatyasaheb Kore Institute of Engineering and Technology, Warananagar					
Department of Electrical Engineering					
450.12 KWP Solar Power plant Generation Details					
Sr. No	**Month**	**Electricity consumption**	**Electricity Generation**	**Import**	**Bank**
1	Mar-19	67206	37326	29880	
2	Apr-19	70028	47876	22152	
3	May-19	69412	54340	15072	
4	Jun-19	47652	40866	6786	
5	Jul-19	62997	29232	33765	
6	Aug-19	66357	33474	32883	
7	Sep-19	66121	34684	31437	
8	Oct-19	69567	36564	33003	
9	Nov-19	67448	32006	35442	
10	Dec-19	55981	30064	25917	
11	Jan-20	69116	39452	29664	
12	Feb-20	69186	56226	12960	
13	Mar-20	18192	0	18192	
14	Apr-20	90850	123392		32542
15	May-20	26714	57506		30792
16	Jun-20	28426	36682		8256
17	Jul-20	28641	4212	24429	
18	Aug-20	27426	21852	5574	
19	Sep-20	29537	42920		13383
20	Oct-20	31750	41800		10050
21	Nov-20	33042	42678		9636
22	Dec-20	36835	44284		7449
23	Jan-21	42432	38089	4343	
24	Feb-21	40739	51260		10521
25	Mar-21	71388	52404	18984	
26	Apr-21	39310	57898		18588
27	May-21	27424	53818		26394
28	Jun-21	27078	44094		17016
29	Jul-21	27465	27018	447	
30	Aug-21	31262	18458	24210	
31	Sep-21	31024	41674		11406
32	Oct-21	46331	53078		10650
33	Nov-21	51064	37738	13326	6747
34	Dec-21	58552	38578	19974	
35	Jan-22	47536	38722	8814	
36	Feb-22	48375	37470	10905	
37	Mar-22	76397	49250	27147	
38	Apr-22	73575	49314	24261	
39	May-22	78382	50890	27492	
40	Jun-22				
41	Jul-22				
42	Aug-22				
43	Sep-22				
44	Oct-22				
45	Nov-22				
46	Dec-22				

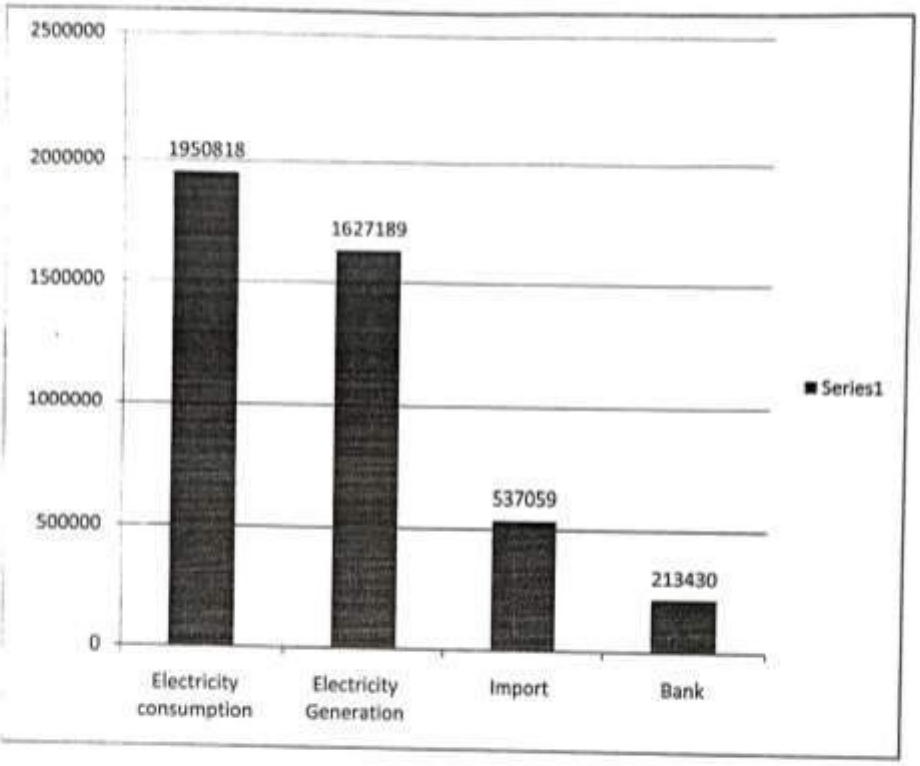
	Electricity consumption	Electricity Generation	Import	Bank
Total	1950818	1627189	537059	213430

PLF	0.83

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya

INCHARGE
Department of Electrical
Engg. & Maintenance
T.K.I.E.T Warananagar

S.W.V.S.M's
Tatyasaheb Kore Institute of Engineering and Technology, Warananagar
Department of Electrical Engineering
450.12 KWP Solar Power plant Generation Details



INCHARGE
Department of Electrical
Engg. & Maintenance
T.K.I.E.T Warananagar,416113

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Annexure-H-

MAHAVITARAN

Maharashtra State Electricity Distribution Co. Ltd.

BILL OF SUPPLY FOR THE MONTH OF MAY-2022 202206360066818

GSTIN:27AAECM2933K1ZB Website:www.mahadiscom.in HSN CODE:27160000

KOLHAPUR CIRCLE - 500 KOLHAPUR R-I - 504 KODOLI SUB DIVISION - 037 1

Consumer No. : 262029205021

Consumer Name : M/S WARANA VIBHAG SHIKSHAN PRA MANDAL

Address : AT & POST WARANANAGAR
TAL PANHALA DIST KOLHAPUR

Village: WARANAGAR Pin Code : 416113

BILL DATE	04/06/2022	
DUE DATE	18/06/2022	4,97,350.00
IF PAID UPTO	10/06/2022	4,93,270.00
IF PAID AFTER	18/06/2022	5,03,560.00

Last Receipt No./Date: 0000011909 / 12-05-2022
Last Month Payment : 1,22,190.00
Scale / Sector : Small Scale /

Email : ***atilonline@gmail.com

Mobile No. : 83******20	Meter No : 055-XE418579	Seasonal :	Load Shed Ind : INDUST
Sanctioned Load (KW): 566	Connected Load (KW) : 566.00	Urban/Rural : Rural	Express Feeder : Yes
Contract Demand (KVA) :500.00	65% of Con. Demand (KVA) : 325.00	Feeder Voltage (KV) : 33	LIS Indicator :
Tariff : 147, HT-VIII B	old trf HT-VIII B		

Date of Connection : 31/10/1970	Category : PUBL. SERVICES OTH	GSTIN :	
Supply at : HT	Elec. Duty : 06 PART B	PAN : AADTS0996E	
Prev. Highest (Mth) : MAR	Prev. Highest Bill Demand (KVA) : 167		
S.D. Held Rs. : 19,35,185.00	Addl. S.D. Demanded Rs. : 0.00		
Bank Guarantee Rs. : 0	S.D. Arrears Rs. : 0.00		

BILLING HISTORY

Bill Month	Units	Bill Demand(KVA)	Bill Amount
APR-22	25,272	325	4,53,466
MAR-22	11,490	300	2,95,392
FEB-22	7,894	300	2,49,527
JAN-22	8,059	300	2,52,002
DEC-21	10,002	300	2,75,069
NOV-21	8,971	300	2,63,657
OCT-21	8,737	300	2,59,355
SEP-21	6,319	300	2,30,638
AUG-21	5,989	300	2,25,792
JUL-21	5,727	300	2,22,757
JUN-21	5,676	300	2,35,811
MAY-21	6,049	300	2,25,757

CUSTOMER CARE Toll Free No. 1912, 1800-233-3435, 1800-102-3435

IGRC: The Exe.Engg(IGRF),VIDYUT BHAVAN Tarabai Park kolhapur, Phone - 0231-2650581

In case of non-redressal of grievance here, consumer may make his representation to below forum

CGRF: The Exe.Engg.(cgrf),VIDYUT BHAVAN Tarabai Park Kolhapur., Phone - 0231-2666001

For making Energy Bill payment through RTGS/NEFT mode, use following details
- Beneficiary Name: MSEDCL
- Beneficiary Account Number: MSEDHT01262029205021
- IFS Code: SBIN0008965 (fifth,sixth and seventh charactar is zero)
- Name of Bank: SBI Bank
- Name of Branch: IFB, BKC Branch-MSEDCL

Disclaimer: Please use above bank details only for payment against consumer number mentioned in beneficiary account number.

- Tariff Revised w.e.f. 01.04.2022. Tariff Order is available at Mahavitaran Portal.
- Physical Bills are not served. You can view and pay bill online at portal https://wss.mahadiscom.in/wss/wss
- Consumer can pay bill through portal using various online modes.
- As per Income Tax provision vide section 269 ST cash receipt of Rs. 2.00 lakhs and above will not be accepted by MSEDCL against any type of payment.
- As per MERC order dt. 24/02/2021, monthly energy bill payment in cash is limited Rs.5000/- w.e.f. 01/11/2021.
- As per GoM Notification dtd. 14.08.2020, rate of Electricity Duty for Part-F industrial is revised from 9.3% to 7.5% from billing month Aug-20
- Activity: CHARITABLE EDUCATION INSTITUTION REGISTERED UNDER PUBLIC TRUST ACT 1950

Important Message :
- Consumers can pay online using Net Banking, Credit/Debit cards at https://wss.mahadiscom.in/wss/wss after registration.
- Submit / update your E-mail id and mobile number to Circle office for receiving prompt alerts through SMS.
- Submit / update your PAN and GSTIN to circle office with copies of PAN and GSTIN for verification.
- Special desk is operational for HT Consumers, please contact : htopconsumer@mahadiscom.in for any clarification / query or grievance.
- This Electricity Bill should not be used for the address proof and as a proof of property ownership.
- For any payment to MSEDCL , ENSURE & INSIST for computerized receipt with unique system generated receipt number. Do not accept hand written receipt. Pay online to avoid any inconvenience.

YASHWANTRAO CHAVAN WARANA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar Dist. Kolhapur

Consumer No. : 262029205021

CURRENT CONSUMPTION DETAILS

Reading Date	KWH	KVAH	RKVAH (LAG)	RKVAH (LEAD)	KW (MD)	KVA (MD)
Current 31/05/2022	72034.000		79.500	35908.500	30.480	31.440
Previous 30/04/2022	64624.500		65.000	33145.000		
Difference	7409.500		14.500	2763.500		
Multiplying Factor	6.000		6.000	6.000	6.000	6.000
Consumption	44457.000		87.000	16581.000	182.880	188.640
L.T. Metering	0.000		0.000	0.000	0.000	0.000
Adjustment-Solar	-16965.000		0.000	0.000	0.000	0.000
Assessed Consumption	0.000		0.000	0.000	0.000	0.000
Total Consumption	27492.000	29372.000	87.000	16581.000	183.000	189.000

BILLING DETAILS

Billed Demand (KVA)	325	@ Rs.	454.00
Assessed P.F.		Avg. P.F.	0.936
Billed P.F.	0.936	L.F.	12

Consumption Type	Units	Rate	Charges Rs.
Industrial	26,418	8.96	2,36,705.28
Residential	2,954	5.70	16,837.80
Commercial	0	10.95	0.00

E.D. on (Rs.)	Rate %	Amount Rs.
0.00	0.00	0.00
0.00	16.00	0.00
4,07,349.08	21.00	85,543.31

TOD Zone	Rate	Units	Demand	Charges Rs.
00:00 Hrs-06:00 Hrs & 22:00 Hrs-24:00 Hrs	-1.50	17,141	119.00	-25711.50
06:00Hrs-09:00Hrs & 12:00Hrs-18:00Hrs	0.00	240	179.00	0.00
09:00 Hrs-12:00 Hrs	0.80	0	189.00	0.00
18:00 Hrs-22:00 Hrs	1.10	9,035	126.00	9938.50

Amount In Words: FOUR LAKH NINETY -SEVEN THOUSAND THREE HUNDRED FIFTY ONLY

	Amount in Rs.
Demand Charges	1,47,550.00
Wheeling Charge @ 0.55 Rs/U	16,154.60
Energy Charges	2,53,543.08
TOD Tariff EC	- 15,773.00
FAC @ 20.00 Ps./U	5,874.40
Electricity Duty	85,543.31
Bulk Consumption Rebate	0.00
Tax on Sale @ 18.00 Ps./U	4,450.86
Incremental Consumption Rebate	0.00
Charges For Excess Demand	0.00
Tax Collection at Source	0.00
Debit Bill Adjustment	0.00
TOTAL CURRENT BILL	4,97,343.25
Current Interest 01/06/2022	0.00
Principal Arrears	3.35
Interest Arrears	0.00
Total Bill Amount (Rounded) Rs.	**4,97,350.00**
Delay Payment Charges Rs.	6,216.79
Amount Payable After 18/06/2022 (Amount Rounded to Nearest Rs. 10/-)	**5,03,560**

Total Solar Generation Units : 50890;Rooftop Solar Units Export : 16965, Import : 44457, Adjusted : 16965, Bank : 0;Rooftop Solar (NetMetering) Capacity : 450.12 KW; Rooftop Solar Installation Month : Mar-19;
**** PROMPT DISCOUNT Rs. 4073 IF PAID ON OR BEFORE 10-JUN-22

CONDITIONS

1. The total bill amount of the bill may be remitted by a Crossed Demand Draft/Cheque drawn in favor of "Maharashtra State Electricity Distribution Co. Ltd." Whenever Security Deposit is demanded separate Cheque/Bank Draft should be sent.
2. The current bill is payable within fifteen days from the date of issue of the bill. Even if there is any discrepency in the bill or any other clarification needed, consumers are requested to pay the billed amount in full provisionally or under protest subject to review and subsequent adjustment, so that payment of delayed payment charges is avoided.
3. This bill is issued subject to the provision of the "Conditions and Miscellaneous charges for supply of Electrical Energy" of the MSEDCL.
4. Please quote the Consumer Number on the back of the Cheque. The payment of this bill should be made at Company's office only.
5. If the cheque is sent by post, the same should be posted three clear days in advance of the due date.
6. In case of payment made through RTGS/NEFT/Cheque/DD/Pay Order, the date of amount credited to MSEDCL's account will be treated as receipt date.

Collection Hours : 10-30 to 16-00 Hours (Except on Bank Holidays, Sundays, 2nd and 4th Saturdays)

YASHWANTRAO CHAVAN WARANA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Consumer No. : [illegible]

Export / Generation Meter Readings

Meter Type	Current Reading		MF	Consumption	SLOTWISE UNITS	
Meter Serial Number	Previous Reading			Adjustment	Slot 1	Slot 3
	Difference			Total Consumption	Slot 2	Slot 4
TOD EXPORT METER	31/05/22	57636.00	6.00	16965.00		
555-XE418579	30/04/22	54808.50		0.00	0.00	6591.00
		2827.50		16965	10374.00	0.00
TOD SOLAR GENERATION METER	31/05/22	8158.34	200.00	50890.00		
055-XE454500	30/04/22	7903.89		0.00	0.00	17996.00
		254.45		50890	32556.00	338.00

YASHWANTRAO CHAVAN WARANA MAHAVIDYALAYA WARANANAGAR (KOLHAPUR)

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Consumer No. : 262029205021

Adjustment Details		
Adjustment Type	Debit Amount (Incl in Bill)	Credit Amount (Incl in Arrears)
PROMPT PAYMENT DISCOUNT	0.00	3,715.00

PRINCIPAL
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar, Dist. Kolhapur

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Fire and Safety Audit Report

in

Academic Year- 2022

Prepared by-

Mr.Vilas.S.Patil - Coordinator
Fire and Safety Audit Committee (2021-22)
Assistant Professor, Department of Physics,

Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Yashwantrao Chavan Warna Mahavidyalaya,Warananagar.

A/P: Warananagar, Tal: Panhala, Dist: Kolhapur

(Maharashtra)

ISBN:

Published by: Dr. A. M. Shaikh.
M.Sc., Ph. D.
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Yashwantrao Chavan Warna Mahavidyalaya,Warananagar.
A/P : Warananagar, Tal: Panhala, Dist: Kolhapur
(Maharashtra)
Phone (O)-02328-224041
(R)
Mob:7588248845
Fax: amshaikh7@gmail.com
e-mail-

Mr. Vilas S. Patil.

Coordinator,
Fire and Safety audit Committee- (2016 to 2021-22),
Assistant Professor,
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Yashwantrao Chavan Warana Mahavidyalaya, Warananagar.

Fire and Safety Audit Report

in Year 2022.

Fire and Safety Audit Committee (2021-22)

- **Mr.Vilas S. Patil - Coordinator, Fire and Safety Audit Committee.**

Fire and Safety Audit Committee (2021-22)

Dr. S.S.Khot,	-Member	Dr.R.P.Kavane.	-Member
Prof. M.N.Patil.	-Member	Prof. A.K.Ladgaonkar.	-Member

Prof. Miss. P. A. Mitari-Member

Year- 2022

Chief Editor

Mr. Vilas S. Patil.

Coordinator,
Fire and Safety Audit Committee.

Editorial Team

Dr.R.P.Kavane.
Prof. M.N. Patil.
Prof. A.K.Ladgaonkar.
Prof. Miss. P. A. Motari.

Field Team

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Prof.S.M.Arde
Prof.C.R.Jadhav
Prof.U.G.Jambhore
Prof. N.R.Chopade
Pfor. S.R.Ghodake
Shree Subhash B. Shirgave

Special Assistance:- M/S. Sandeep Fire Services, Manufacturer and Suppliers for Fire and Safety Equipment, ISO 9001-2015 Company, Authorized License agency of Maharashtra Govt. Fire Services

Photo Assistance Shubham K. Kumbhar (Alumni)

Hon. Principal, Dr. A.M. Shaikh.
Y.C. W. M. Warananagar.

Acknowledgement

In order to organize conscious, planned and determined efforts, in order to improve fire prevention, life safety and fire protection measures in the premises of Yashwantrao Chavan Warana Mahavidyalaya, Warnanagar, under the able leadership of Hon'ble Dr.Vinayravgi Kore (Savkarsaheb), Chairman, Shree. Warana Vibhg Shikshan Mandal, Warananagar, Who took a significant decision for Fire and life Safety auditing of YCWM campus, was one step ahead for strengthening the fire-safety of premises.

The fire and life safety audit report are to document the facility of fire protection and life safety necessities in the building campus. This report would serve as a useful reference to fire safety stakeholders of the institute.

The auditing team will investigate the fire safety situation of the required selected YCM campus thorough safety audit regarding the Fire prevention control system, Electrical systems, emergency preparedness, evacuation system and safety management etc.

I am thankful to the team of M/S. Sandeep Fire Services, Manufacturer and suppliers for fire and safety equipment, ISO 9001-2015 company, which is authorized license agency of Maharashtra fire services giving for valuable inputs that have added immense value to the contents of this report.

I also thankful to Mr. Vilas S. Patil and all the members of the fire and Safety committee of our college for taking hard efforts and working according to inputs and guidance of the M/S. Sandeep Lalasaheb Khatmode.

I express my sincere gratitude to all the members of the fire and Safety committee, the team of the M/S. Sandeep Fire Services, all HOD, teaching faculties and non- teaching staff of college for spearheading this initiative and making Hon'ble chairman's vision of life prevention and safety into a reality

I am happy to acknowledge the support and cooperation extended by Honorable Prof. Dr. Rasam Madam. Administrative Officer of our institute for completion of this audit and publication of this report.

Hon. Principal, Dr. A.M. Shaikh.
Y.C. W. M. Warananagar.

Mr. Vilas Shamrao Patil.
Coordinator, Fire and Safety Audit Committee,
Assistant Professor,
Department of Physics, Y.C.W.M. Warananagar.

Foreword

According to directions issued in the committee meeting on 2 July there necessary, to undertake the Fire and Life Safety Audits of our college premises. In compliance to this audit. A Safety Audit Committee was constituted by Central Electricity Authority vide Office Order under the provision fire prevention and life safety measure Act 2006 and abatement of 2007 we appoint M/S. Sandeep Fire Services, Manufacturer and suppliers for fire and safety equipment, ISO 9001-2015 company, which is authorized license agency of Maharashtra fire services in July 2022.

Physical Safety Audit of premises was carried out during the months of August 2022 to November 2022. The detailed Safety Audit Reports with emergency plan was shared to the stake holders of college through website publication. It is worth mentioning that Committee has carried out the Fire and life safety audit task within the time frame prescribed by Hon'ble Principal.

I wish to express my appreciation to all the members of the Committee for sparing their valuable time & sharing their experience and making valuable contribution in bringing out this report.

Further, I thank to the of Hon'ble Dr.Vinayravgi Kore (Savkarsaheb), Chairman, and Honorable Prof. Dr. Rasam Madam. Administrative Officer, of Warana Vibhg Shikshan Mandal, Warananagar, Hon'ble Principal, Dr. A. M. Shaikh of our college, for taking this Fire and Life safety audit in positive spirit and extending all the cooperation to the Committee members during the audit.

I express our sincere thanks to the Teaching, administrative staff and Non- teaching staff for their co-operation help, without which this Fire and Life Safety Audit could not have been possible.

Mr.Vilas Shamrao Patil.

Coordinator, Fire and Safety Audit Committee,
Assistant Professor,
Department of Physics, Y.C.W.M. Warananagar

SANDEEP
FIRE SERVICES
Fire safety on, accidents gone

SANDEEP FIRE SERVICES

Manufacturer and suppliers for fire extinguisher and safety equipment
ISO 9001-2015 / Maharashtra fire services authorised licence agency

Date: - 02/04/2023

FORM-B

(As per section 3 (3) and rule 4 (2)

"Six monthly certificates to be given to be every January and July by the owner or the occupier for compliance Of the Fire Prevention and Life Safety Measures"

CERTIFICATE

Certified that we have carried out inspection of the fire prevention and life safety Measures installed in the following building premises.

Yashwantrao Chavan Warana Mahavidhyalay
Warananagar
Tal. Panhala Dist . Kolhapur

We further certify that these installations in the above mentioned buildings Are maintained in good repair efficient conditions during the period **01/07/2022 to 31/12/2022**, as required under the provision of the Maharashtra fire prevention & Life Safety measure Act 2006 (Mah III of 2007).

3 APR 2023

For SANDEEP FIRE SERVICES.

sandlp lalasaheb khatmode

Digitally signed by sandlp lalasaheb khatmode
Date: 2023.04.02 14:32:22 +05'30'

Sandeep L Khatmode.
(Fire & Safety Engg)
Auth. sign

Licence No MFS-LA/RF-88/RD -83

Head Ofc-S.R. No. 84/2, Saidapur, Sambhaji Nagar, Medha Road, Post kondave, Tal- Dist - Satara 415002
+91-9923236015 / 8208543278 sandip_fire@ymail.com www.sandeepfireservices.com

SANDEEP
FIRE SERVICES
Fire safety on accidents gone

SANDEEP FIRE SERVICES
Manufacturer and suppliers for fire extinguisher and safety equipment
ISO 9001-2015 / Maharashtra fire services authorised licence agency

Date: - 02/04/2023

MEASUREMENT SHEET & TEST REPORT

To,
Yashwantrao Chavan Waran Mahavidhyalay
Warananagar
Tal. Panhala Dist . Kolhapur

Subject:- Maintenance of existing Fixed Fire Protection System

Side :- Warananagar Tal. Panhala Dist Kolhapur

Sr. No	Description	Quantity	Unit	Testing	Remark
1	Pump 3 HP	01	NOS	Yes	OK
2	Fire Hydrant Valve Dia 63 IS 5290	01	NOS	Yes	OK
3	Hose Reel Hose Dia 20mm.30 mtr long ISI Mark	06	NOS	Yes	OK
4	Single Door Hose Box	01	NOS	Yes	OK
5	Hose Pipe. 63 Mm Dai 15 Mtr Long	01	JOB	Yes	OK
6	Branch Pipe SS	01	NOS	Yes	OK
7	Starter	01	NOS	Yes	OK
8	Fire Inlet Two Way C.I Body IS 903	01	NOS	Yes	OK
9	Fire Alarm Panel Two Zone	01	NOS	Yes	OK
10	MCP	04	NOS	Yes	OK
11	Hooter	04	NOS	Yes	OK
12	Smoke Detector	30	NOS	Yes	OK
13	Fire Extinguisher Refilling Co2 4.5 Kg	02	NOS	Yes	OK
14	Fire Extinguisher Refilling ABC 4 Kg	04	NOS	Yes	OK

The above Fire Systems applied & providing & fixing and maintained by
As per Indian Standard Code of Practice and they are now in perfect working condition.
Thank you,
Yours Faithfully,

For SANDEEP FIRE SERVICES.
sandlp lalasaheb khatmode
Digitally signed by sandlp lalasaheb khatmode
Date: 2023.04.02 14:31:44 +05'30'
Sandeep L Khatmode.
(Fire & Safety Engg)
Auth. sign
Licence No MFS-LA/RF-88/RD -83

Head Ofc-S.R. No. 84/2, Saidapur, Sambhaji Nagar, Medha Road, Post kondave, Tal- Dist - Satara 415002
+91-9923236015 / 8208543278 sandip_fire@ymail.com www.sandeepfireservices.com

Govt. of Maharashtra
Directorate of Maharashtra Fire Service
Vidyanagri, Hans Bhugra Marg, Santacruz (East),
Mumbai – 400 098, Tel-022-26677555, Fax-022-26677666
www.mahafireservice.gov.in

FORM N
[(See section 9 (3) and rule 14]
License to act as a License Agency for the purpose of Fire Prevention and Life Safety Measure

License No. MFS / LA / RF-88 / RD-83 Date: 11.02.2023

License is hereby renewed under the provisions of sub-section (3) of section 9 of the Maharashtra Fire Prevention and Life Safety Measure Act, 2006 (Mah. III of 2007) to **M/s. Sandeep Fire Services** having their registration office at **M No. 322, Saidapur Post, Kondave Satara 415002** and their contact details are Office Number: 9923236015 and Email ID: sandip_fire@ymail.com with PAN registration No. BVPPK1324Q and GST No. 27BVPPK1324Q1ZO to act as a License Agency for the purpose of the said Act for execution of the fire prevention and life safety measures in relation to

1. **Fire Fighting and Sprinkler System:** **Class D**
2. **Detection and Fire Suppression System:** **Class D**

M/s. Sandeep Fire Services shall not issue Form A or Form B under sub-section (3) of section 3 regarding the compliance of the fire prevention and life safety measures or maintenance thereof in good repair and efficient condition, without there being actual such compliance or maintenance failing which license granted / renewed shall be suspended or cancelled as per sub section (4) of section 9 and shall be liable for penalty under section 36 of the Act.

Subject to the provision of sub section (4) of section 9 of the said Act and rule 14 of the Maharashtra Fire Prevention and Life Safety Measures Rules, 2009, the license will be valid for a period from **11.02.2023 to 10.02.2024**

Hatyal Kiran
Digitally signed by Hatyal Kiran
Date: 2023.02.21 09:56:34 +05'30'
Asst Director

SANTOSH SHRIDHAR WARICK
Digitally signed by SANTOSH SHRIDHAR WARICK
Date: 2023.02.21 15:20:14 +05'30'
(S S Warick)
Director
Maharashtra Fire Service

sandip lalasaheb khatmode
Digitally signed by sandip lalasaheb khatmode
Date: 2023.02.20 21:57:41 +05'30'

Digital Signature of Authorized Person to sign Form A or Form B

Note:
* in absence of digital sign of license holder (responsible to issue Form A or Form B) the license will be treated as invalid.

CONTENTS

PART-1 SUMMARY.

EXECUTIVE SUMMARY

1.1 Positive areas:

- Material kept below staircase was cleared immediately
- Some par of terrace was seen clean
- At some place cable trays are made for electric wiring
- Instructions are displayed as required.
- At chemical lab. and stores are displayed.
- Maintenance of firefighting arrangement should be done regularly.
- Dependingon the hazards they available in every room.
- Safe access ladders are present.
- While working in chemical Lab. staff and students wear apron.
- Ventilation safety is majorly implemented
- First aid box is maintained at required places.

1.2 Areas of Improvement:

- Reduction in fire load is required to be done by removing non – required item
- Newer equipment such as vacuum cleaner may be used for cleaning
- Dangling wires, unclean panel room, open main switches, access behind main panel are the electrical problem. Allproblems needs improvement
- Maintenance of earthing, checking its resistance is neglected insure periodically.
- combustible fire hazards are lying in every area of college, regular removal is a must.
- Wherever necessary refrigerator may be used for chemicalstorage.
- Safety during working at height is neglected everywhere, including certain area of terrace.
- Use suitable bird repellant to stop these birds entering in college premises
- Total emergency plan needs to be prepared
- Safe access should be provided to every work place.
- All aspects of safe chemical storage in laboratory must be implemented.
- Gas cylinder safety – teach concerned person and implement.
- Safety in canteen is totally neglected.
- Safety of all instruments should be ensured.
- Avoid corrosion everywhere. It may create bad accident.

1.3 Safety management-

- There should a separate safety department
- All concerned must be given safety training on various areas of safety suitable to college
- Immediately start accident / fire reporting system/ mechanism.
- Regular safety Inspection is required
- Safety in storage, handling, use and disposal of chemical must be ensured
- On site emergency plan should be prepared and mocks are drilled periodically.
- Safety in laboratory must be studied and implemented.

Mr. Vilas S. Patil
Coordinator
Fire and Safety
Audit Committee

Dr. S. S. Khot.
Coordinator IQAC

Dr.S.Y. Jadhav
NAAC Cr. VII

Dr. A. M. Shaikh.
Principal,
Y.C.W.M. Warananagar

Forwarded with best compliment for certification.

The Fire and Safety Audit Summary of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist- Kolhapur (Maharashtra State) is Verified Certified by :

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India
- EIA Coordinator, was accredited by NABET, Quality Council of India

PART 2: GENERAL

2.1 Institution History:

Warananagar is a classic illustration of integrated rural development through co-operative movement. It is a well planned township throbbing with industrial and educational activities. It is a place named after the river Warana which originates at Prachitgad in Satara district and merges in the river Krishna at Haripur near Sangli. The length of the river Warana is 80 Km. The river Warana forms the boundary line between Sangli and Kolhapur districts. Warananagar is situated on the banks of river Warana at the foot of Panhala and Jyotiba hill ranges, at 10 Km. westwards from Kini-Wathar on National Highway No. 4. Warananagar, where Yashwantrao Chavan Warana Mahavidyalaya is situated, is a hilly and rural area, called Warana. It comprises of near about 60 townships, villages and some remote settlements. During the Freedom Movement this place provided shelter to many freedom fighters and today it is remarkably known as a successful industrial and educational center. Just six decades ago, this area was a barren tract of land, notorious for day-light robbery. Life was difficult and full of hardship. The main occupation of the people was agriculture and fortune of the farmers was tied to climatic changes, scarcity of rain and volatile market prices. People were downtrodden and ignorant. With the establishment of a co-operative sugar factory, this area has been totally transformed. The credit for this socio-economic transformation goes to late Hon'ble Vishwanath Anna alias Tatyasaheb Kore, a visionary man with foresight, rare organizational skills and dedication. Late Hon'ble Tatyasaheb Kore was fully aware of the fact that along with the material prosperity, the cultural development and enlightenment is equally important and necessitated the creation of educational facilities. He wanted to provide work to the empty hands and made them strong and self-reliant.

Warana co-operative sugar factory is established in 1960 and proved to be a turning point which brought about socio-economic and consequently educational changes in the life of the people of this area. The development of sugar factory changed the socio-economical standard and living standard of poor farmers in Warana valley. But economic enrichment was not his

only goal. His mission was to bring in the total transformation of rural youth and create a New Man who will be well educated, self-reliant, culturally rich and morally upright. He knew that along with the material prosperity, cultural development and moral enlightenment are equally important. He realized that creation of educational facilities, particularly facility of higher education was the prior need of this area.

Before the establishment of the aforesaid educational facilities, the students of this area were deprived of higher education and only a few well-to-do could afford to go to Kolhapur, the nearest city, for pursuing higher education. Having realised this, the leadership decided to create these facilities for the youth of this area for their total transformation. This led to the establishment of Shree Warana Vibhag Shikshan Mandal (Education Society) and subsequently, Shree Warana Mahavidyalaya, Warananagar in 1964. The college was renamed as Yashwantrao Chavan Warana Mahavidyalaya, in 1992. Since 1964. our education society is striving towards the fulfillment of the above mentioned objectives. Establishment of our college, the first step in higher education, was followed by setting up of Primary and Secondary Schools, Engineering College, English Medium School, Military Academy and other educational institutes. All these institutes have more than adequate infrastructural facilities like imposing buildings, beautiful premises, spacious playgrounds. well qualified staff, rich libraries and laboratories. Each institute has proved to be a step ahead towards the achievement of our mission of 'Creating A New Man'.

2.2 Mission:-

"We stand united and determined for the total transformation of rural youth of Warana region towards self reliance, confidence and enlightment through higher education".

2.3. Vision:-

"To become an Academy of excellence in higher education and human resource development in rural area".

2.4. Introduction

The Principal of Yashwantro Chavan Warana Mahavidyalaya, Wananagar form the committee and shouldered the responsibility of performing the complete Fire and Safety Audit of college, the committee was leaded by Mr. Vilas S. Patil as co-ordinator and Dr. R.P.Kavane, Prof. M.N. Patil, Prof. A.K.Ladgaonkar an Prof. Miss. P. A. Mitari are as the committee members. In committee meeting on 2 July 2022 decided to make the Fire and Safety Audit of college buildings should under the provision fire prevention and life safety measure Act 2006 and abatement of 2007. For this committee starts the searching of government registered vendors, consultant, authorized NGOs and authorized fire and safety engineers for auditing. After long discussion and visiting the college site for N- times the management can offer this work to M/S. Sandeep Fire Services, Manufacturer and suppliers for fire and safety equipment was the ISO 9001-2015 company, which is authorized licence agency of Maharashtra fire services. The working team of M/S. Sandeep Fire Services was visited periodically in between August 2022 to September 2022 and install the equipment's like, Pump 3 HP,Fir.e Hydrant Valve,Hose Reel Hose Diameter 20mm having 30 meter long ISI Mark, Single Door Hose Box Hose Pipe. 63 Mm Diameter 15 Meter Long, Branch Pipe SS, Starter, Fire Inlet Two Way C.I Body Fire Alarm Panel Two Zone, MCP, Hooter, Smoke Detector, Fire Extinguisher Refilling Co2 4.5 Kg, Fire Extinguisher Refilling etc, by the plan. Mean while they conduct the Fire and Safety Audit was conducted and certify accordance to provision fire prevention and life safety measures of Maharashtra State Govt.

2.5. Objectives

The objectives of the fire and safety audit are as follows:

1)Examine the existing fire and safety measures, procedures, system for controlling measures.

2)Identify potential hazards which have caused or are likely to causepersonal injury, property damage or loss of time.

3)Recommend on the basis of identified hazards, changes (if any) to improve upon the existing system and procedure of work.

2.6 Methodology

The following methodology has been adopted to achieve the objectives.

1)Actually visiting every room of college.

2)Visiting every nook and corner of the college.

3)Collecting all the existing fire load and safety deficiencies and positivesafety areas

4)Preparing report based on actual finding

5)Presenting the same to the dignitaries in the college on a conveniently suitable day and presenting draft report.

6)Getting suggestions. Based on the suggestions received prepare a final report and submit to the management.

2.7 Observations and recommendations-

The Safety Audit was conducted by actual field visit to see the actual hazards at site in terms fire and safety of requirements and accordingly recommendations and / or suggestions wherever applicable are given against each finding.

Since the audit is based on sample inspection, recommendation given in a particular case will be the same for any uncovered area where similar situation exists.

PART 3: PHYSICAL HAZARD

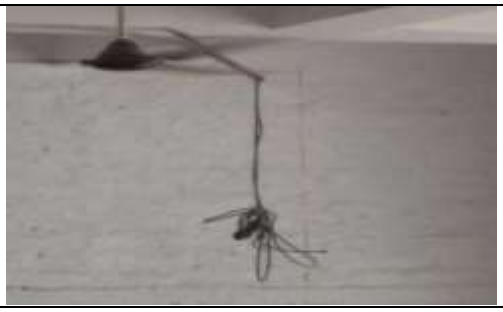
No.	OBSERVATIONS	RECOMMONDATIONS
3.1	**Fire load**	
	A)Visible items **b)Combustible material** Recorded book items -14786 Office Record- 2 tons (Highly important) Examination Record- (2.5 Tons) Departmental Files, Record, Manuals, Charts- 18 tons Furniture items: wooden plastic etc .-18030 Gas cylinders -13 (including Canteen) Burners – 343	**Visible items** Wherever possible reduce
	b)Electric load Electric items: lights, fans, etc-1396 **c)Computer, printers -230+** d**)Chemical equipment** such as incubator etc – 548	Systematic storage is required and reduce use wherever possible. Regular monitor the switch of drills.
	Chemical stalk in store (from all labs.) e) Flammable liquids in store – 24 nos. f) Toxics – 20 g) irritants – 10 h) oxidizing and reducing agents -13 i)Corrosive – 15	Display safety instructions where is required. Provide skill and trainings for proper safety use.
	Chemical LAB j) Hazardous chemical – Chemistry , Microbiology, Industrial Chemistry, Botany and Zoology labs. Handles grade II Hazardous chemicals. The Laboratory can maintained good records, Accession registers and their stick records.	Maintain and cross monitor the records regularly.

No.	OBSERVATIONS	RECOMMONDATIONS
	Entrance and Internal Road 1) Entrance road width – 5.10 Meter 2) Road width near library and canteen – 4 meter 3)Internal Road - 4 meter 4)West side road – 4.5 meter 5)Staircase in Office Buildings-2 meters 6)Staircase in old building-1.5 meters 7)Passage in both building -2 meters. 8)Four wheeler/ two wheeler parking	Entrance road and leaving roads are so wider. Passage is wider Make separate four wheeler and two wheeler parking design and implement it strictly.
3.2	**Proper Housekeeping**	
		
	Racks are kept on staircase leading to library. They becomestumbling hazard during emergency.	Staircases are not to be blocked any time. Not even for small time.
		
	Combustible material storage below the staircase	Action taken – It is removed.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Unclean electrical room at first	Clean it. While cleaning electrical
		
	Bottle etc. kept on parapet wall. Not cleaned. It may become verybad hazard if it falls down.	Clean it. Do not allow such practices.
	 	
	Keeping anything above the cupboard is unsafe. It may falldown on someone's head.	Do not allow any material to keepabove the cupboards

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Room for Non-Teaching staff – No lockers given for keeping clothes. They have hanged them nearswitch No place for keeping brooms and other cleaning equipment.	Give separate lockers for keeping their clothes etc. Give separate place for keeping all cleaning equipment
		
	Housekeeping inside the cupboardis equally important. All things mixed together. No labelling.	Keep similar things together. Lablethem.
		
	In lab. material kept on cupboards.	Do not allow any material to keep above the cupboards

No.	OBSERVATIONS	RECOMMONDATIONS
		
	–stationary above the cupboard.	Do not allow any material to keep above the cupboards
	 	
	housekeeping inside the cupboard is bad.	Housekeeping inside the cupboard is equally important.
		
	All this is lying on terrace	Remove it.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	This part of terrace is clean	Good
3.3	**Electrical Hazard**	
		
	Dangling wire in canteen. If it is live it may increase fire hazard	Remove and do not allow such thigs to happen
		
	Electrical switches should never be kept open like this. Dirt, dust enters, deposits and increases the resistance, draws more current, increases hazard of fire.	Do not allow such practice of keeping switches open.
		
	See this loose temporary wiring. Increase the chances of fire and electrocution.	Make permanent systematic wiring.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Electrical connection without plug top. It increases sparking in turn fire hazard, and electrocution hazard.	Use of plug top is a must.
		
	Burnt socket is indicator of overdrawing of current. Not investigated.	Investigate why it got burnt. Loose connection or any other reason and take corrective action.
		
	Broken switch	Repair
		
	Loose wiring outside the chemistry lab	Remove it immediately. Do not allow such things to happen.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Broken support to tube light. Room 209	Repair the same
	No protection above these electricwires on terrace.	Put some protection either wooden or flexible hose type, whatever.
3.4	**Combustible fire hazards**	
		
	Collection of dry leaves increase combustible fire hazard.	See that same is cleaned every day.
	Collection of gunny bags etc. increase fire hazard.	It should be in container and regularly removed.
		
	Paper scrap outside in lab ,office and in store.	Do allow to collect such material. Dispose it off immediately.

No.	OBSERVATIONS	RECOMMONDATIONS
	 	
	These dry leaves increase fire Hazard In botanical garden/ garden in front	Remove them regularly and monitor periodically.
		
	 	
	These dry leaves increase fire Hazard In botanical garden/ garden in front	Remove them regularly and monitor periodically.

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Storage of combustible hazard below the tables in lab.	Remove it. And monitor periodically.
	Old removed pipes of burners.	Dispose them off
		
	Heap of papers kept on wooden Racks in store	Dispose them off use steel store case.
		
	Plastic paper kept on in rainy season in physics lab. itself is a fire hazard	Use non-combustible material cover Provide edge protection for the tables.

No.	OBSERVATIONS	RECOMMONDATIONS
	 	
	In store room and on some places at library such combustible material present	Remove as urgently aspossible Keep fire extinguisher extra in library and in store.
3.5	**Fire fighting**	
		
	This cracked glass may create a big hazard during fire.	Replace it immediately or use the glass if nacessory

No.	**OBSERVATIONS**	RECOMMONDATIONS
		
	Well is available. Separate waterstorage tank for emergency can be built for fighting fire.	Some water storage tank for fighting fire are available.
	The fire extinguisher was seen in Everywhere at required places in infrastructure.	But Foam type fire extinguisher are recommended.
		
	Fire extinguisher is kept on floor in In store.	Good, they should be kept at easily removable height at other all places
	Server room in office: No separate arrangement is madeto fight fire in server room.	Get it designed from specialist and implement the same.
3.6	**Bird hazard**	
		
	Bird are a hazards for electric connection, ventilation ducts	Use suitable bird repellant to stop these birds entering in college premises

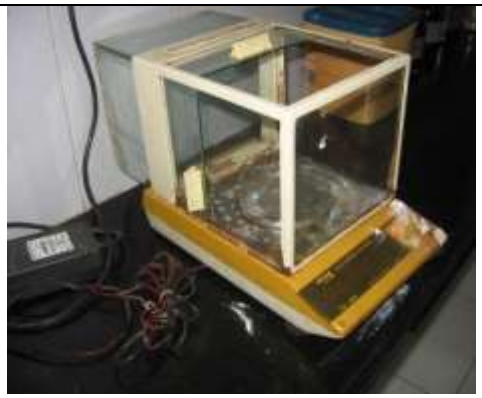
No.	OBSERVATIONS	RECOMMONDATIONS
3.7	**Structural Problems**	
		
	Green vegetation is allowed to increase in structure at two places.	It is dangerous. Remove it and monitor.
3.8	**Emergency Plan**	
		
	No lights on the ground	This ground may be useful for evacuation place during emergency.
	Night	Provide lighting.
3.9	**Apron and hand gloves**	
	A very casual approach to safety was seen among the students while working at practical's.	Not right. Casual approach to safetyis not acceptable use the **Apron and hand gloves**
		

No.	OBSERVATIONS	RECOMMONDATIONS
		
	Burn resistant hand gloves or suitable tongs are not used/ provided	Provide burn resistant hand gloves or tongs.
	No system of hand cleaning with soap in college anywhere.	Provide soap at every hand washing place.
3.10	**Storage of Chemicals**	
		
	Even the basic principle of good labelling is missing.	Labelling is a must in chemical storage.

No.	OBSERVATIONS	RECOMMONDATIONS
3.11	**Gas Cylinder Safety**	
	 	
	Is it the use of gas cylinder?	Do not allow such practices

No.	OBSERVATIONS	RECOMMONDATIONS
3.12	**Canteen safety**	
	  	
	See the storage in canteen. Clothes, utensils, vegetables, grain bags all are stored together in plastic bags,No system for storage.	Separate area for each items. Grain etc. with labels. Use separate Containers for different vegetables. Prohibit use of plastic in canteen.
		

No.	OBSERVATIONS	RECOMMONDATIONS
	Look at the crack on the wall of toilet place inside the canteen. Is it surface or deep.	Repair it immediately.
	 	
		
	No cleaning of burner asdone. Regular check up the burners No changing of rubber piping done.	Clean burner regularly Get connections checkedregularly Regular check up and change of rubber piping isnecessary
		

No.	OBSERVATIONS	RECOMMONDATIONS
	No cover on this rotational ragada mixer machine. Someone may put his hand insidewhile it is running and get injured.	Put cover. Cover should be such that if it is opened ragada rotationl should stop.
		
	These cylinders are placed in a cage inside canteen. Good. But additional things are kept inside.	Do not allow any other storage insidethis gas cylinder cage.
	No training is given to canteen workers about gas cylinder safety.	Impart canteen workers training on gas cylinder safety.
		
	Plastic trays are kept near gas cylinders.	Do any combustible material or flammable liquid near gas cylinder.
3.13	**Instruments**	
		
	So much particles of material is deposited on balance? How will it give correct reading?	Clean regularly

No.	OBSERVATIONS	RECOMMONDATIONS
3.14	**Corrosion**	
		
	Corroded window frames	Change it.
3.15	**First aid box**	
		
	First aid box in passage in front ladies room, office and at different department locations.	First Aid box will be available in conditions.

No.	OBSERVATIONS	RECOMMONDATIONS
3.16	**Library**	
	 	
	So many books and periodicals. All are not required regularly Unnecessary storage increases fire load. Suitable number of fire extinguisherswere not seen in library and at VKCA.	Sort them out in two groups – required and nonrequired. Make separate storage of non-required so that it will reduce hazard of combustible load. Keep water expelling type of extinguishers or fog type.

3.17	**Disable friendly design** 1. Ramps for classroom and Library   	In both arts , Commerce and Science building ramps are erected with minor slope was very easy for the disable persons.

Part 4 : Safety Management

Sr. No.	Observation	Recommendation
4.1	**Safety Department**	
	There is no safety department in college campus or in premises also.	If possible, safety department maybe prepared so that it can take responsibility of safety inspection, organizing safety training, monitor the drills etc. Appoint the in charge of safety department should be minimum B.Sc. – Chemical + Advance Dip. In Industrial Safety (Or fire and safety at organization level in Campus.)
4.2	**Safety Training**	
	Security person do not knowhow to use fire extinguishers	Impart training on use of fire extinguishers to security people
	They Cannot identify firehazards in the college	Impart training on identification offire hazards to security people
	They have only one lathi with them. No training for use of lathi	Impart training on using lathi to security people
	All selected staff not giventraining on use of fire extinguishers	Impart training on Use of fire extinguishers to selected staff
	'Safety in use of gas cylinder' no training given	Safety in use of gas cylinder impart training to concerned person
	No training is imparted in various areas of safety such as1)Accident reporting investigation 2) Safe Storage of chemicals inlaboratory' 3) Machine/ experimental safety or guarding 4) Fire prevention and protection5) Other necessary subjects as and when necessary	Impart training to the concernedstaff as observed
4.3	**Accident/ fire incidence reporting**	
	No system of accident reporting,fire incidence reporting	Start reporting every minor accident, every fire incidence reporting
	Accident/ fire investigation donot exist.	After every report of accident/ fire department do investigation. Find out causes without blame fixing on anybody. Decide remedial measure in orderto prevent reoccurrence of such incident.

Sr. No.	Observation	Recommendation
4.4	**Safety Inspection**	
	Inspection of premises from Safety hazard and fire hazard not done.	Its monitoring should be done regularly by the concerned person.
4.5	**Housekeeping**	
	At present no understanding of housekeeping apart from common understanding.	Teach all concerned way of housekeeping and implement the same in premises.
4.6	**Storage and handling of Material**	
	No knowledge of safety in storage of chemicals.	Impart training and implement prevention of safety.
4.7	**Emergency Plan**	
	There is no emergency plan in college.	Prepare on site emergencyplan. Identify Possibleemergencies . Prepare different teams of students also. Educate them for their duties on table top exercise. Make actual mock drill and monitor. Identify deficiencies. Make improvement in everymock drill.

4.8	**Safety in Laboratory**	
	No study is done so far the safety of different labs.	In charge of safety department must study Safety in Laboratoryand implement in next.
4.9	**Fire protection**	
	Nobody is to look after fire Protection	Safety department has to look after this area too

Mr. Vilas S. Patil
Coordinator
Fire and Safety
Audit Committee

Dr. S. S. Khot.
Coordinator IQAC

Dr.S.Y. Jadhav
NAAC Cr. VII

Dr. A. M. Shaikh.
Principal,
Y.C.W.M. Warananagar

Forwarded with best compliment for certification.

The Fire and Safety Audit Report of Yashwantrao Chavan Warana Mahavidyalaya, Warananagar, Dist- Kolhapur (Maharashtra State) is Verified and Certified by :

Dr. Prashant A. Banne, M.Sc. Ph.D. (Environmental Science)

- CEO & Managing Director, SAITECH Research & Development Organisation
- External Faculty, PCRA, Under petroleum Ministry, Govt. of India

EIA Coordinator, was accredited by NABET, Quality Council of India