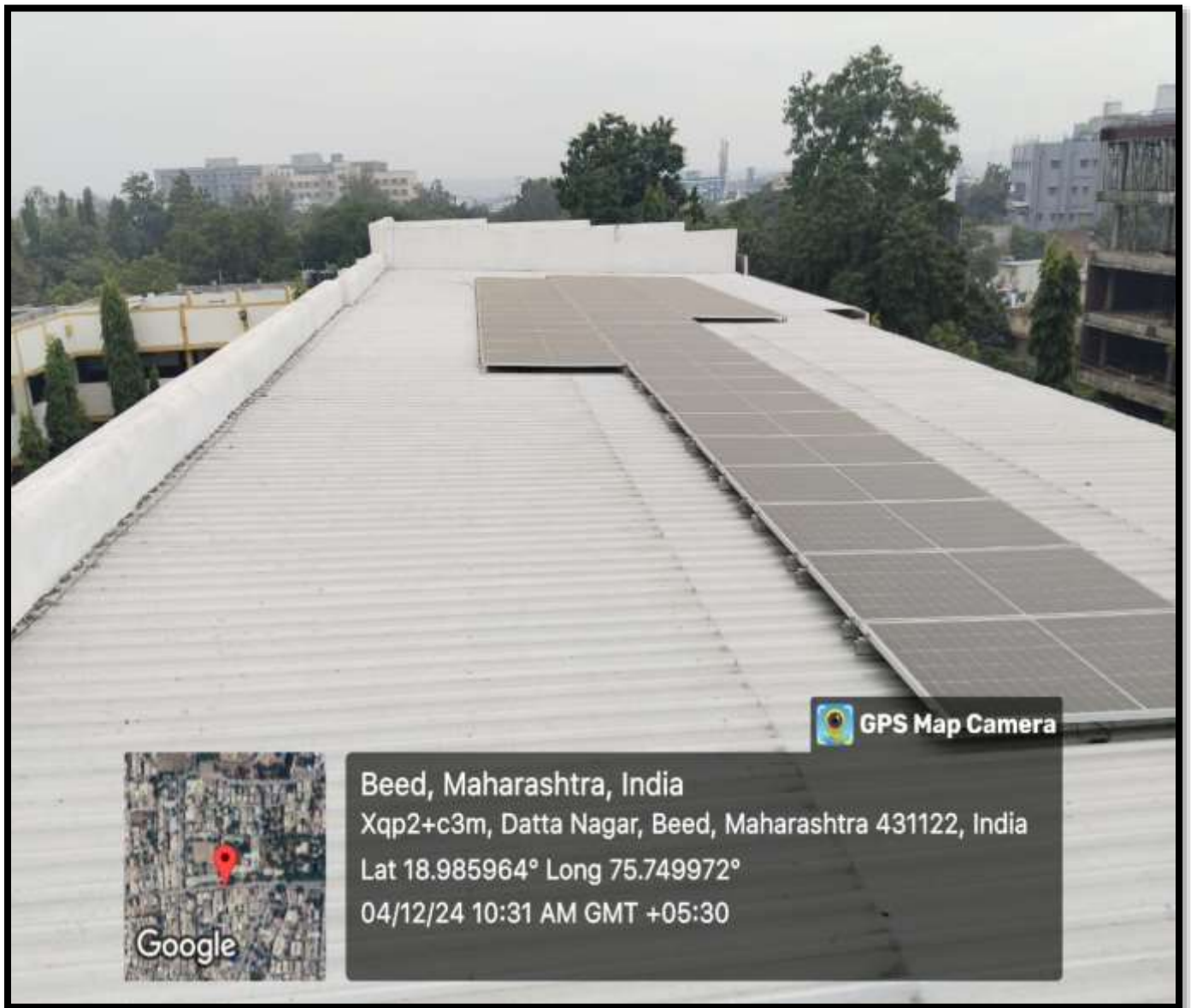


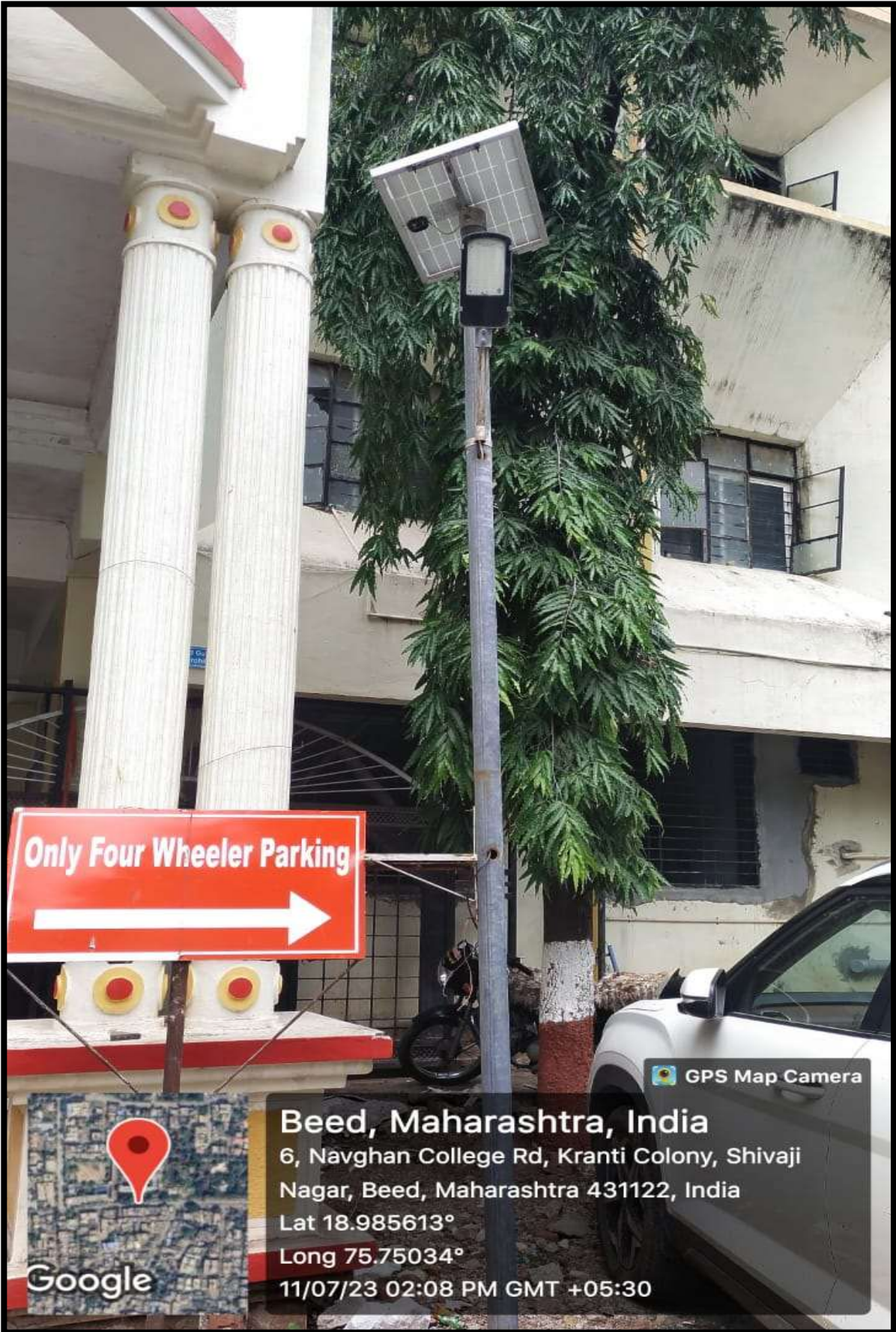
## Geotagged photographs of Alternate sources of energy

Solar energy panel of 20KW capacity is installed on roof top of the college. Purchase value is around 20 lakhs.



**Solar Water Heaters in girls' hostel in college premises:**





Only Four Wheeler Parking



GPS Map Camera



**Beed, Maharashtra, India**

6, Navghan College Rd, Kranti Colony, Shivaji  
Nagar, Beed, Maharashtra 431122, India

Lat 18.985613°

Long 75.75034°

11/07/23 02:08 PM GMT +05:30



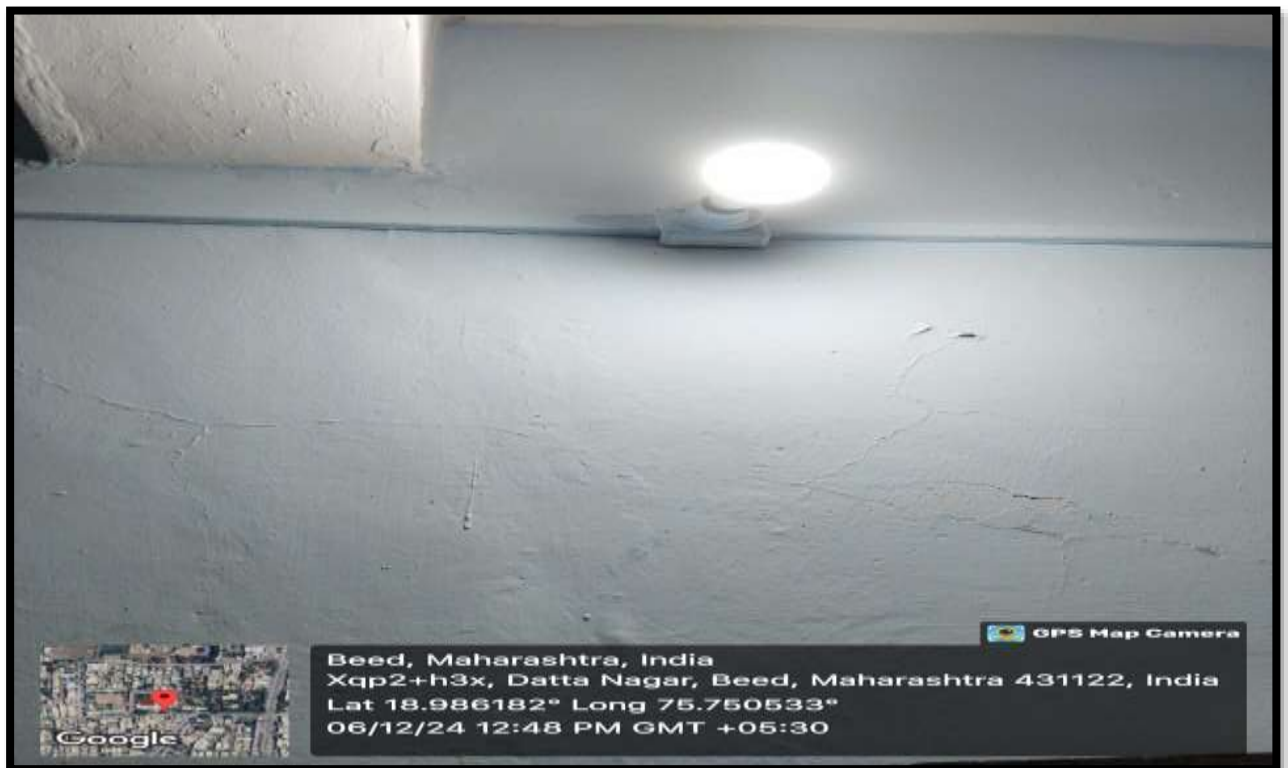
**Solar Light Panels in the college campus:**

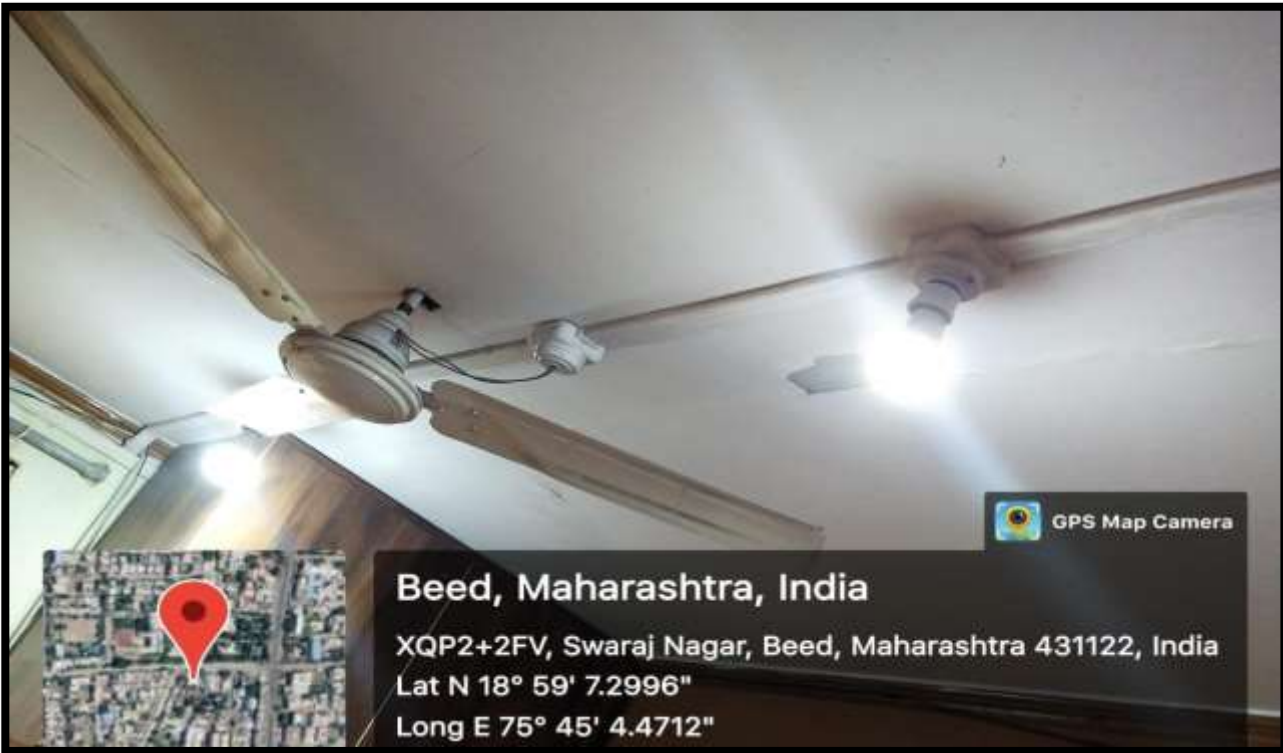




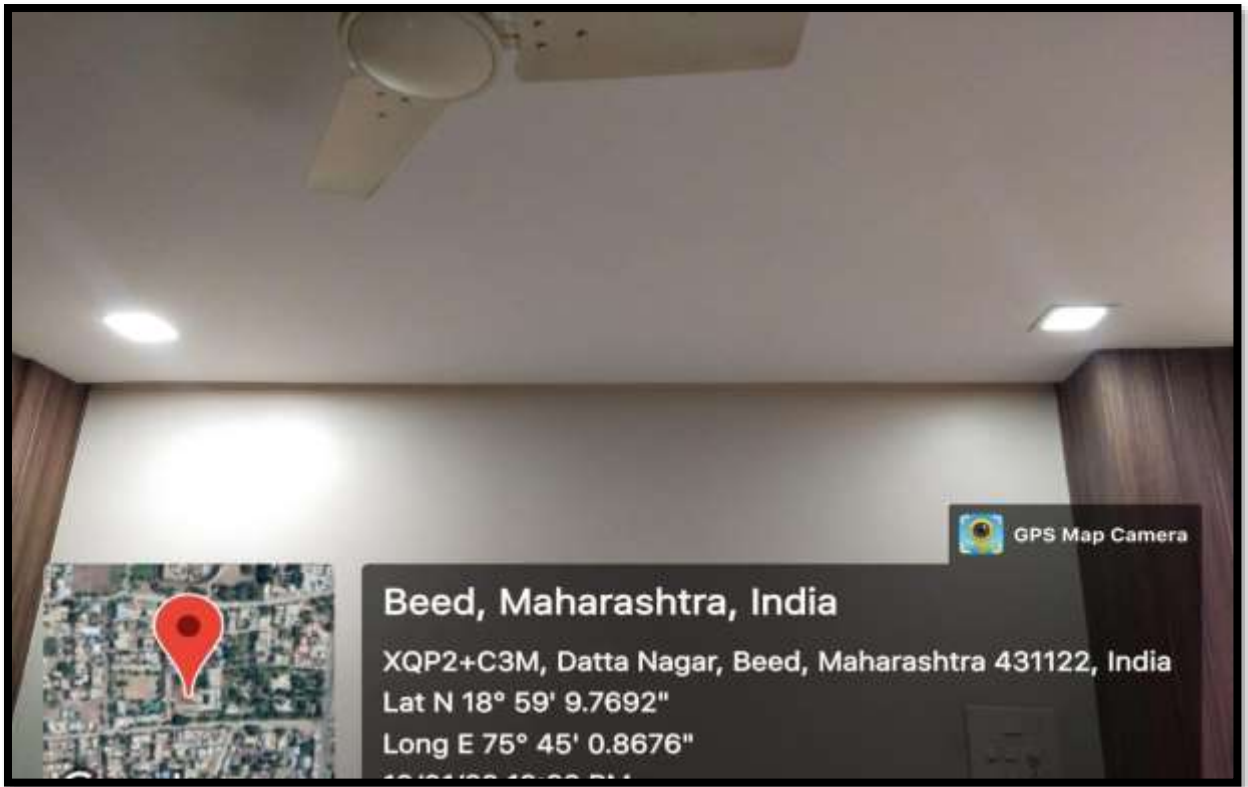


**\* All the traditional bulbs have been replaced by LED Bulbs:**





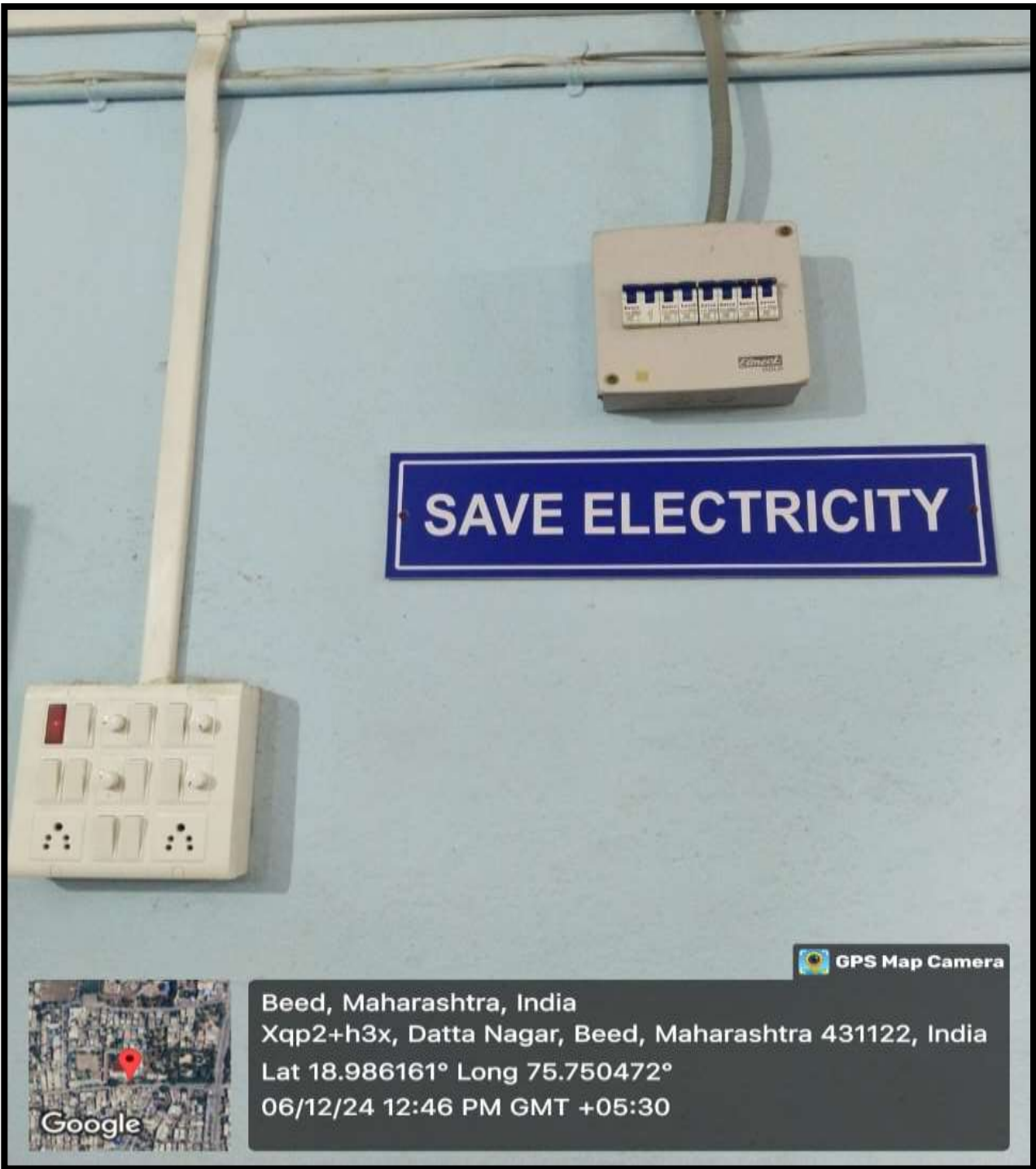




Save energy display boards have been displayed all over the campus







**SAVE ELECTRICITY**

GPS Map Camera



Beed, Maharashtra, India  
Xqp2+h3x, Datta Nagar, Beed, Maharashtra 431122, India  
Lat 18.986161° Long 75.750472°  
06/12/24 12:46 PM GMT +05:30



Save Electricity

Handle with Care

STANDARD OPERATING PROCEDURE(S)  
COLLECTOR'S

1. Switch on the instrument at least 5 minutes before use to allow it to stabilize.
2. Select the most appropriate filter for the analysis and insert it in the light path of dial if it is with the selector.
3. Place the reagent blank solution (or water) in the cuvette and zero the instrument.
4. Make sure the clear faces of the cuvette are in the light path.
5. Place the sample in the colorimeter and read the absorbance of the solution. If the absorbance is "over range" (usually > 2.0) then the sample must be diluted to yield a value within the limits of the instrument.
6. At intervals, recheck the reagent blank to ensure that there is no drift in the zero.



GPS Map Camera



Beed, Maharashtra, India  
Xqp2+h3x, Datta Nagar, Beed, Maharashtra 431122, India  
Lat 18.986158° Long 75.75047°  
06/12/24 12:52 PM GMT +05:30

Main switch buttons for various sections to switch off total electricity supply for the section



t



 GPS Map Camera



## Beed, Maharashtra, India

Shivrajya Heights, Driving School St, opposite to R.P. College, Datta Nagar, Beed, Maharashtra 431122, India

Lat N 18° 59' 9.5748"




Long E 75° 45' 1.6344"

The College constituted **Light Committee**, which works for minimization of electricity consumption.

Navgan Shikshan Sanstha Rajuri (N)

**Mrs.Kesharbai Sonajirao Kshirsagar Alias Kaku**  
**Arts, Science & Commerce college, Beed-431122.**

Principal-Dr.D.B.Kshirsagar

NAAC reaccredited -A ,Grade [ 3.18 CGPA as per New RAF]    ISO- 9001:2015    Green audit

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Website-kskcollegebeed.com E-mail-kskbeed123@rediffmail.com Ph.(02442)222641 Fax-02442)230197

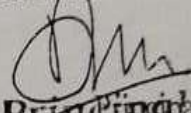
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Ref : kskcb/2020-2021/ Date 14 /09/ 2020

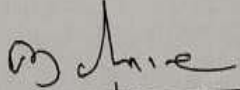

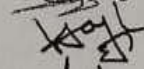
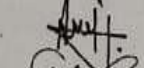


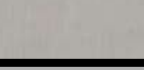
**OFFICIAL ORDER**

Shri. Salunke P.A. Jr.Lect.in Physics this is to inform you that you are appointed as the Chairman of **Light Committee** from the academic year 2020-2021 .The following members are appointed to assist you. You are supposed to fulfill your assigned tasks with the help of appointed members of the committee. You are expected to update and report the status time to time to the office.

It is your responsibility to take the charge along with the previous record from the former Chairman. Copy of this document should be provided to the members.

  
**Principal.**  
Mrs. K.S.K. Art's, Sci.Comm  
College. Beed-431122

**Light Committee**

Shri.Salunke P.A.	Chairman	
Shri.Gonde J.D.	Member	
Dr.Sanap B.M.	Member	
Shri.Wanjare V.S	Member	
Shri.Jadhav A.D.	Member	
Shri.Gange A.H.	Lab.Att.	
Shri. Yadav G.B.	Lab.Att.	



The college has done its energy audit by an accredited certifying external auditing agency.





Navgan Shikshan Sanstha Rajuri (N)

**Mrs. Kesharbai Sonajirao Kshirsagar**  
**Alias Kaku Art ,Science & Commerce**  
**College Beed -431122**

**Energy Audit Manual**  
**2023-2024**

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- 1. Introduction** 1.
- 2. Committee formation** 2.
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  1. To study present level of Energy Consumption
  2. Analysis of Connected Load in Campus Other Than Motive Power
  3. Analysis of connected load of motive power
  4. Identified Energy saving opportunity
  - 5.
- 4. Methodology**
  1. Study of connected load
  2. Study of Electrical Energy Consumption pattern
  3. Analysis of Connected Load in Campus Other Than Motive Power
  4. Analysis of connected load of motive power
- 5. Suggestion**
  1. To install motion sensor at Principal Office ,Seminar Hall, Sport Hall
  2. Replace Electric pump by Solar pump
- 6. Future plan.**
  1. All light cover by solar light next 5 years
  2. Old light consuming replaced by light efficient appliances
  3. Electric pump replaced by solar pump

## Introduction

Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Art ,Science & Commerce College Beed in Maharashtra state. This college is affiliated with Dr. Babasaheb Ambedkar Marathwada University Aurangabad. This college is established in 1971 which has been imparting higher education up to UG level in Art, science & Commerce faculty. College campus consists of buildings named as Main Bulding- A, Library - B, Sport Hall –C, Hostel- E, Canteen-F in which administrative office , various HOD cabins ,staff rooms , classrooms , various laboratory like Physics, chemistry, botany, micro biology as well as Music and Drama departments are functioning with basic motto to impart quality , employment, entrepreneur and Agro oriented higher education to mostly rural as well as marginal urban student. This college also provides gymkhana facility to student undergoing through various type of physical education. There is also beautiful library building Block- D where student studying in various branches have facility to refer books. The college developed garden & teak wood plantation in campus.

### Electrical Maintains Committee

- |                       |          |
|-----------------------|----------|
| 1. Shri. Gonde G.D.   | Chairman |
| 2. Shri. Vanjare V.S. | Member   |
| 3. Dr. Jamdade Deepak | Member   |
| 4. Shri. Jadhav A.D.  | Member   |
| 5. Shri. Gange A.H.   | Member   |

## **Acknowledgement**

Department of Physics Navgan Shikshan Sanstha Rajuri (N)

Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Art ,Science & Commerce College Beed is very much thankful to Vice President Dr.D.B. Kshirsagar and Principal Dr.S.V. Kshirsagar for motivating us for energy audit

# 1. To study present level of Energy Consumption

Hal 1 No.	Department	CFL/ Panal	Tube	LED Tube	LED Bulb	Fan	Inver ter	Comput er	Print er	Freez	A. C	Xer ox	Focus	Exort	Oven	T.V.	Pump
0	Principal Office	52	4	3		12				1	3					1	
1	Office	2	2		9	6		9	8								
2	Vice Principal	1	3		1	2	3	1						1			
3	Chemistry		1		5	3				1							
4	Chemistry Lab			15	5	7								8			
5	Exam Section		1	3	1	1								1			
6	Inward, outward		1		3	1	1	1	1								
7	Economics Dept				3	2	1	1									
8	Physics Lab		4		1	1											
9	Zoology lab		1	1	2	2											
10	Zoology Dept		2			1		1	1	1							
11	Zoology lab		1	3	3	1									2		
12	Zoology lab		3			1											
13	Physics Lab		3		1	1											
14	Physics Dept.		4		2	2		1	1					1			
15	IQAC		4		3	4	1	1	1					1			
16	Xerox Centre		1	1		1						2					
17	Seminar Hall		8		1	5	1										
18	Reader scribe		2		2	1											
19	Health care		1		2	1											
20	MCVC		1	2		2		2									
21	Computer		4		2	4	1	19	1								
22	Theory Hall		3			1											
23	commerce		1	1		2											
24	commerce Dept		2	3		2	1	10	1								
25	Home sci.		4			2		1									
26	Home sci. Dept		4	2		2		1	1								
27	Microbiology lab		5	1		2									1		
28	Microbiology lab		1	3		2	1	2	1								
29	Botany Dept.		1			2											
30	Botany Lab.	2		5		5		1	1	1							
31	Botany Lab.		4	2		2				1							
32	Microbiology lab			2	4	2									1		
33	English Dept.	1	4			3	1	18		1							
34	Geography	1	1			3											
36	Geography Dept.		2	3		3	1										
37	Mathematics		3		1	2		1	1								
38	Physical Dept.	2	2			1		1									
39	Music Dept.		1	6		3		1	1								
40	Music Dept.																
41	Theory Hall			3													
42	Theory Hall			4		2											
43	Political Science		1	1		1		1									
44	Sociology		1	1	2	1		1									
45	History		1	1	2	1		1									
46	Urdu			2		1		1									
47	Marathi			2		1		1									
48	Hindi			2		1		1									
49	Theory Hall			2		1		1									
50	Theory Hall			2		1											
51	Theory Hall		2			1											
52	Vocational		2	2		2											
53	Theory Hall																
54	Theory Hall		1	3	4	1		1	1								
55	Theory Hall		1	3		1											





## STUDY OF ELECTRICAL ENERGY CONSUMPTION

### Electrical Bill Analysis- 2022-2023

There is Five number of various type of electricity connection being power supplied by MSEDCL. Monthly electricity bill is served by MSEDCL against electricity used & is paid by college

A cost of power is worked out by summing up total KWH of all connections & their amount over the year 2022-2023. By dividing total amount by total KWH works out average cost of power per KWH.

Month	Connection No & Tariff category									
	LT con. No- 576010168766		LT con. No- 576010542943		LT con. No- 576010048302		LT con. No- 576017460276		LT con. No- 576017460268	
	Tariff- LT VII B	Load KVA-1	Tariff- LT II COMM	Load KVA- 1.43	Tariff- LTVII B I	Load KVA-3	Tariff- LT VII B	Load KVA-1	Tariff- LT VII B	Load KVA-1
	KWH	Bill amount Rs	KWH	Bill amount Rs	KWH	Bill amount Rs	KWH	Bill amount Rs	KWH	Bill amount Rs
June-23	267	4050	386	6990	602	4780	163	2250	271	3000
July	267	2460	179	2390	522	4200	45	790	292	2650
Aug	267	2460	533	6080	677	5330	55	870	334	2960
Sep	808	500	366	4360	906	6970	103	1220	375	3270
Oct	202	1960	0	-3590	1099	15420	30	660	311	2750
Nov	202	1970	0	-3180	1897	14130	63	270	340	3010
Dec	202	1980	366	1180	1971	14670	63	920	340	3010
Jan-24	202	1970	366	4360	0	0	63	20	340	3010
<b>Total</b>	<b>2417</b>	<b>17350</b>	<b>18590</b>	<b>18590</b>	<b>7674</b>	<b>65500</b>	<b>585</b>	<b>7000</b>	<b>2603</b>	<b>23660</b>

$$132100 / 15475 = 8.534$$

**Average cost of power per KWH works out to be Rs- 8.54/KWH**

## Analysis of Connected Load in Campus Other Than Motive Power :-

As Viewed from below table, it understands that lighting & fan load has dominance in total load mix & shares more electrical consumption. This load has most potential to identify energy saving opportunity.

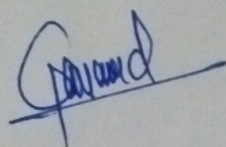
Type	No	Total KW	% Load
Lighting Load	557	11.498	17.91
Fan Load	233	20.430	31.82
Computer Load	113	6.780	10.56
AC & Freeze	9	4.920	7.66
Inverter	15	4.75	7.39
Printer & Xerox	25	8.250	12.85
Oven	4	7.440	11.58
<b>Total</b>	<b>956</b>	<b>64.068</b>	<b>99.77</b>

### Analysis of connected load of motive power

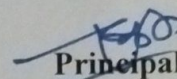
PUMP 5HP	1	746	3750
MOTOR2HP	1	746	1492
MOTOR 1 HP	1	746	746
		<b>Total</b>	<b>5988</b>

**Total power consumed for motive power =5.988 KWH**

- ✦ The College has many facilities for the alternate sources and energy conservation measures-
- ✦ College conduct regularly annual energy audit by external certified agency.
- ✦ Solar panels have become popular alternative source because of its clean energy source, renewable and economically cheap for long time. Solar energy panel of 20KW capacity is installed on roof top of the college, purchase value is around 20 Lakh.
- ✦ College Constituted Electric maintenance committee to minimize electricity and its continuous maintenance
- ✦ Save energy boards have been displayed all over the college campus particularly where there are switch on/off boards.
- ✦ Separate main switch off board is installed for every individual section of the college like hostel, library, administration block and various departments.



**IQAC Coordinator**



**Principal**

**Principal**

N.S.S.R.(N.) Mrs. Kesharbai  
Sonajirao Kshirsagar Alias Kaku  
Arts, Science and Commerce  
College, Beed.