



# **BHARATHIYAR**

## **INSTITUTE OF ENGINEERING FOR WOMEN**

**DEVIYAKURICHI, SALEM – 636112.**

### **7.1 Institutional Values and Social Responsibilities**

**7.1.6 Quality audits on environment and energy are regularly undertaken by the institution**

**REPORTS ON ENVIRONMENT AND ENERGY AUDITS**

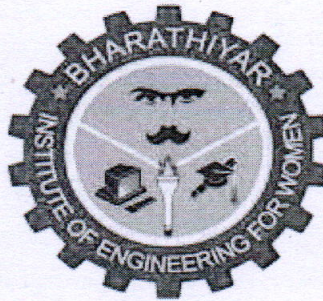


# ENERGY, ENVIRONMENT & GREEN AUDIT - FOLLOW UP AUDIT

## DETAILS OF THE CLIENT

**BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**

**Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India.**



## DATE OF AUDIT

**02 JUNE 2023**

**(Audited and Accounted for the Year 2022-23)**

## AUDIT CONDUCTED BY

**RAM-KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING**

**(Chennai ♦ Coimbatore ♦ Erode)**

**Mobile: +91- 80567 19372, 99420 14544 (Whatsapp) E-mail: ramkalamcect@gmail.com**



**Dr. R. SUNIDHA M.E., Ph.D.**  
**PRINCIPAL**

**BHARATHIYAR INSTITUTE OF  
ENGINEERING FOR WOMEN,**

**DEVIYAKURICHI - 636 112,**

**THALAIVASAL (TK), SALEM (DT).**



# ENERGY, ENVIRONMENT & GREEN AUDIT – FOLLOW UP AUDIT REPORT

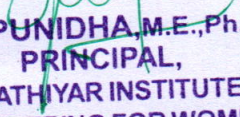
## DETAILS OF THE CLIENT

**BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**

Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India.

## 1. ACKNOWLEDGEMENT

Energy Earns or Simply Burns: Choice is yours....

  
Dr.R.PUNIDHA M.E.,Ph.D.,  
PRINCIPAL,  
BHARATHIYAR INSTITUTE OF  
ENGINEERING FOR WOMEN,  
DEVIYAKURICH! - 636 112,  
THALAIVASAL (TK), SALEM (DT).



**ACKNOWLEDGEMENT**

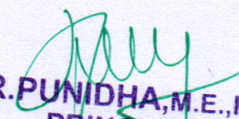
RAM KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING, Coimbatore - 641 062 is thankful to the Management, Principal, Faculty and Technical team members of **M/s. BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**, Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India for providing an opportunity to conduct a detailed **Follow-up Energy, Environment and Green Audit** process in the college premises.

It is our great pleasure which must be recorded here that the Management of **M/s. BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN** extended all possible support and assistance resulting in thorough completion of the audit process. The audit team appreciates the cooperation and guidance extended during the course of site visit and measurements. We are also thankful to all those who gave us the necessary inputs and information to carry out this very vital exercise.

Finally, we offer our sincere thanks to all the members in the college / technical / non-technical divisions and office members who were directly and indirectly involved with us during collection of data and while conducting the field measurements.

<b><u>Management Team Members</u></b>	
<b>Mr. S. ELAYAPPAN., B.Sc</b>	Chairman
<b>Dr. A.K. RAMASAMY</b>	Secretary
<b>Mr. S.R.T. SELVAMANI</b>	Treasurer
<b>Dr. R. PUNIDHA., M.E., Ph.D.,</b>	Principal

<b><u>Audit Team Member</u></b>	
<b>Dr. S.R. SIVARASU, Ph.D.,</b>	<b>BEE Certified Energy Auditor (EA-27299)</b> Lead Auditor-ISO-14001:2015 (EMS), IGBC AP, GRIHA CP, CII CP in SWM Carbon Footprint Auditor & Implementor <b>Mobile: +91- 80567 19372, 99420 29372</b>

  
**Dr.R.PUNIDHA,M.E.,Ph.D.,**  
**PRINCIPAL,**  
**BHARATHIYAR INSTITUTE OF**  
**ENGINEERING FOR WOMEN,**  
**DEVIYAKURICH! - 636 112,**  
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# ENERGY, ENVIRONMENT & GREEN AUDIT – FOLLOW UP AUDIT REPORT

## DETAILS OF THE CLIENT

**BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**

Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India.

## 2. INTRODUCTION TO ENERGY-ENVIRONMENT-GREEN AUDIT PROCESS



*[Signature]*  
Dr R. PUNIDHA, M.E., Ph.D.,  
PRINCIPAL,  
BHARATHIYAR INSTITUTE OF  
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DEVIYAKURICH! - 636 112.  
THALAIVASAL (TK), SALEM (OT).



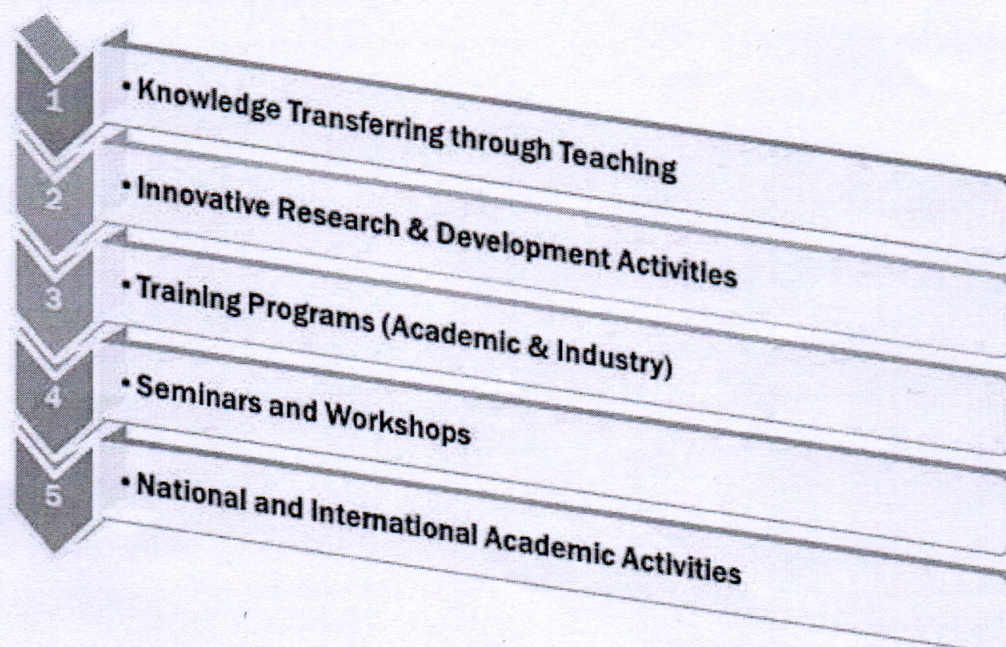
### 2.1: Vision:

- To achieve the dream of Tamil Poet Mahakavi Bharathiyar "Kanavu Meipada Vendum", we committed to serve the State and the Nation by grooming Professionally Educated, broadly talented Women Engineering Graduates, developing innovative technologies through high quality Research and empowering Women Students to meet the challenges in the Society.

### 2.2: Mission:

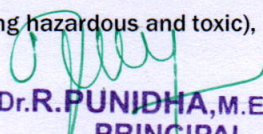
- To prepare our students by imparting knowledge with focuses on academic competence, Social skills and moral values.
- To empower our students as capable Engineers with inventiveness and truthfulness to meet the Technological challenges in their career.
- To create our students having strong bond between the Institute and Industry for Technology Updation.
- To develop our students as Intellectual leaders to emerge in their Professions.

### 2.3: Major Activities in the Institution:



### 2.4: Scope of the Audit Process:

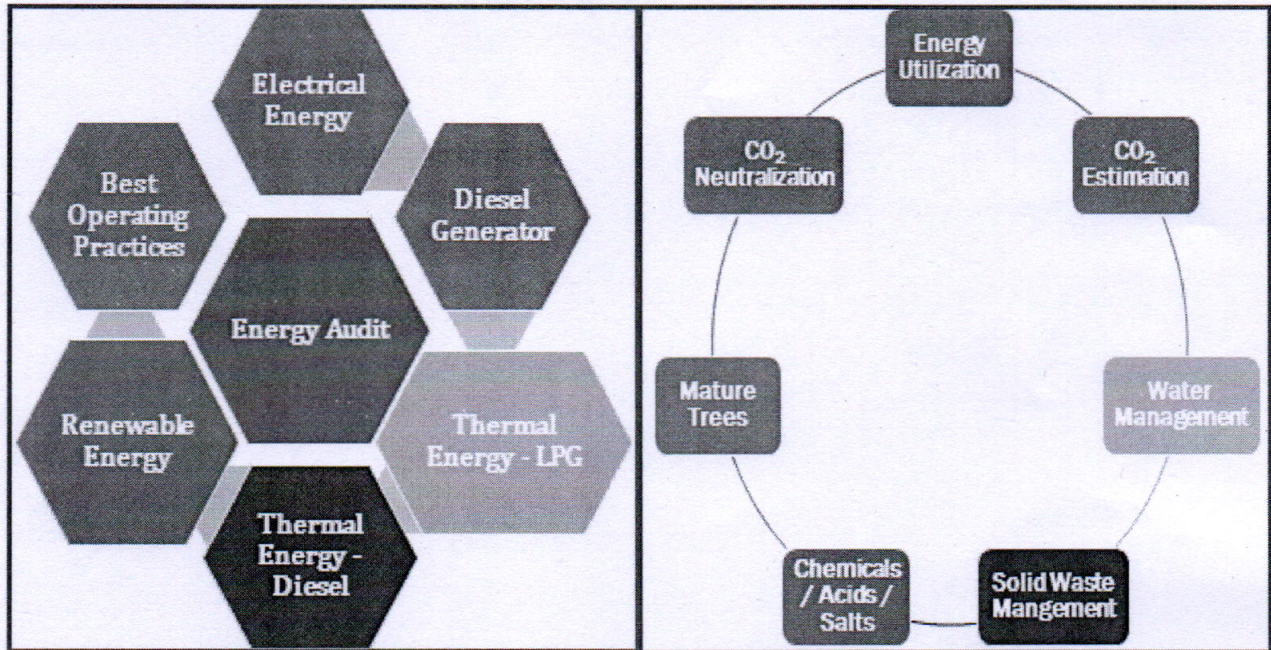
- ☞ **Energy Audit:** Conduct a detailed energy audit in the college campus with a main focus to identify judicious usage of electrical and thermal energy (where, when, why and how energy is being utilized).
- ☞ To ascertain the best practices to be followed in energy conservation, energy management, recommended safety measures and continuous energy monitoring system.
- ☞ **Environmental & Green Audit:** Identification of history of activities, present environmental practices followed, monitoring records and known sources of environmental issues inside the college.
- ☞ Adoption of natural resources as input (such as energy and water), processing and utilization and generation of wastes (including hazardous and toxic),

  
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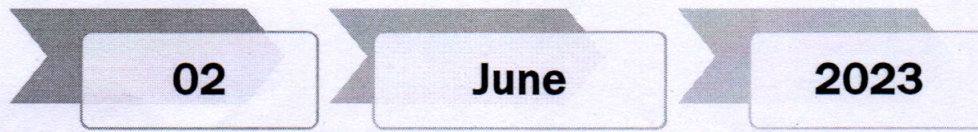


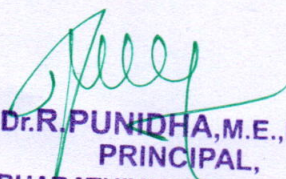
- ☞ Handling and storage of all types of wastes (Solid, liquid and grousers), transportation of waste from source to yard, reuse and recycling possibilities, storage mechanism and effective disposal.
- ☞ Measurement of effectives of pollution control (air, water and soil pollution), maintenance logs, emission test reports and routine analytical reports.
- ☞ Providing constant awareness to all stakeholders on Environment impacts, risk analysis and Ecology.

**2.5: Coverage In the Environment & Green Audit Process:**



**2.6: Date of Audit:**



  
**Dr. R. PUNDHA, M.E., Ph.D.,**  
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**BHARATHIYAR INSTITUTE OF**  
**ENGINEERING FOR WOMEN,**  
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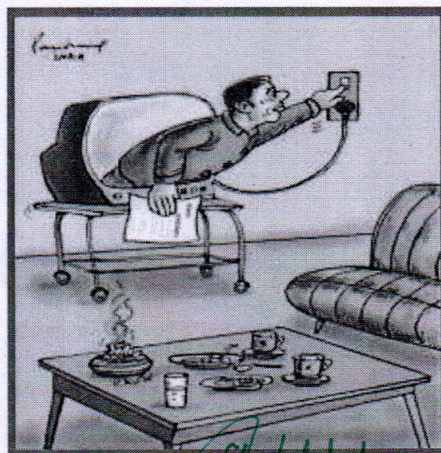
# ENERGY, ENVIRONMENT & GREEN AUDIT – FOLLOW UP AUDIT REPORT

## DETAILS OF THE CLIENT

**BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**

Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India.

## 3. ESTIMATION OF CO<sub>2</sub> EMISSION & NEUTRALIZATION (CO<sub>2</sub> BALANCE SHEET)



*[Signature]*  
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### 3.1: Assessment of Annual Energy Usage:

Table-1 shows the types of energy carriers used for their regular operation in the college campus along with application area and their source.

**Table-1: Energy Carriers, Application area and their sources used for College Operation**

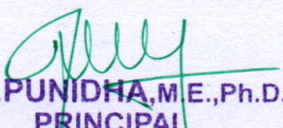
S. No.	Type of Energy Carrier	Application Area	Source of Procurement
1.	Electricity (LT Consumer)	Powering to all class room/laboratory equipment's/Lightings/Fans/HVAC & Allied System/Motors / Pumps	TANGEDCO
2.	Diesel	Transport vehicles and Diesel Generator (Captive Generation)	Authorised distributor
3.	Liquified Petroleum Gas (LPG)	Used for cooking application	
4.	Mature Trees, Shrubs & Flowering Bushes	Nearly <b>1,246 Nos</b> of different varieties with nearly <b>10 years</b> old.	
		Lush greenery covered with higher number of Shrubs, Flowering Bushes & Maintaining the water bodies (existing)	

**Table-2: Analysis of Annual Energy Consumption of all types of Fuels**

S. No.	Month	Electricity Consumption, Generation (kWh)		LPG Consumption (kg)	Diesel Consumption (L)	
		EB	DG		DG	Transport
1.	June-22	5,527	29	361	9	424
2.	July-22	5,932	23	285	7	552
3.	Aug-22	5,996	75	475	24	546
4.	Sep-22	7,892	36	266	11	523
5.	Oct-22	7,658	34	285	11	623
6.	Nov-22	8,939	114	285	36	388
7.	Dec-22	8,169	81	285	25	602
8.	Jan-23	6,976	29	380	9	574
9.	Feb-23	5,112	63	266	20	599
10.	Mar-23	5,030	74	380	23	569
11.	Apr-23	3,275	26	361	8	750
12.	May-23	3,534	75	380	23	7,711
<b>Total</b>		<b>74,040</b>	<b>659</b>	<b>4,009</b>	<b>205</b>	<b>13,861</b>

→ The average cost of the Electricity is Rs. 16.40/kWh

→ The average cost of LPG is Rs.100.0/kg

  
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THALAIVASAL (TK), SALEM (DT).



**3.2: Environmental System: CO<sub>2</sub> Balance Sheet:**

The following tables provide the balance sheet indicating various energy carriers associated with the regular activities and their CO<sub>2</sub> mapping.

**Table-3: Environmental System: CO<sub>2</sub> Balance Sheet (for the year 2022-2023)**

S. No.	Annual Energy Consumption & CO <sub>2</sub> Emission			Annual CO <sub>2</sub> Neutralization		
	Description	Annual Usage	CO <sub>2</sub> Emission (Tons)	Description	Annual Usage	CO <sub>2</sub> Neutralized (Tons)
1.	Electricity	74,040 kWh	60.7	Trees	1,246 Nos	27.2
2.	Diesel	14,067 Litres	37.1			
3.	LPG	4,009 kg	12.0			
Total Emission			109.9	Total-Neutralized		27.2
<b>Balance CO<sub>2</sub> to be Neutralized = 82.7 Tons/Annum.</b>						

**3.3: Calculation Table:**

For Electricity = $\left[ \text{kWh} \times \frac{0.82 \text{ kg of CO}_2 \text{ emission}}{\text{kWh}} \right]$
For Diesel = $\left[ \text{Diesel Consumption (Litre)} \times \frac{2.64 \text{ kg of CO}_2 \text{ emission}}{\text{Litre of Fuel Consumption}} \right]$
For LPG = $\left[ \text{LPG Consumption (kg)} \times \frac{3.0 \text{ kg of CO}_2 \text{ emission}}{\text{kg of LPG Consumption}} \right]$
For Wood = $\left[ \text{Wood Consumption (kg)} \times 1.9 \text{ kg of CO}_2 \text{ Emission} \right]$
A mature tree is able to absorb nearly CO <sub>2</sub> at a rate of 21.8 kg/annum; $\frac{(21.8 \times 1,246)}{1,000} = 27.2 \frac{\text{Tons}}{\text{Annum}}$

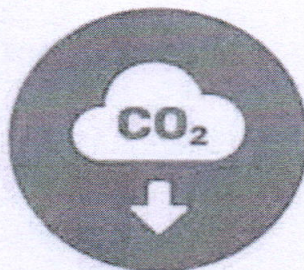
**3.4: References:**

<sup>1</sup> <https://ecoscore.be/en/info/ecoscore/co2>

<sup>3</sup> <http://www.tenmilliontrees.org/trees/#:~:text=A%20mature%20tree%20absorbs%20carbon,the%20average%20car's%20annual%20mileage>



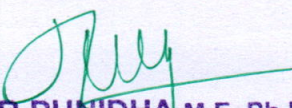
**CO<sub>2</sub> Emission:**  
109.9 Tons/Annum



**CO<sub>2</sub> Reduction**  
27.2 Tons/Annum



**CO<sub>2</sub> to be Neutralized**  
82.7 Tons/Annum

  
**Dr. R. PUNIDHA, M.E., Ph.D.,**  
**PRINCIPAL,**  
**BHARATHIYAR INSTITUTE OF**  
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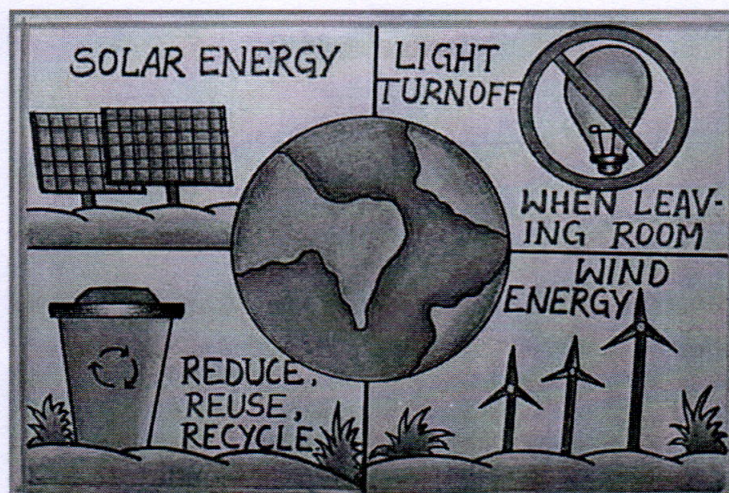
# ENERGY, ENVIRONMENT & GREEN AUDIT – FOLLOW UP AUDIT REPORT

## Details of the Client

**BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**

Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India.

## 4. ACTIVITIES COMPLETED & RECOMMENDATIONS



*Ruby*  
Dr.R.PUNIDHA.M.E.,Ph.D.,  
PRINCIPAL,  
BHARATHIYAR INSTITUTE OF  
ENGINEERING FOR WOMEN,  
DEVIYAKURICHI - 636 112,  
THALAIVASAL:(TK), SALEM (DT).



#### **4.1: ACTIVITIES COMPLETED:**

The audit team appreciates that the management of M/s. BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN has taken several measures to save energy and to protect the environment inside the college campus. The followings are the activities completed accounted for the last one year.

#### **A: Tree Plantation Drive:**

- On 27<sup>th</sup> September 2023, a tree plantation event was organized by our Principal Dr.R.Punidha to celebrate the birthday of our Secretary Dr.A.K.Ramasamy. The event was held from 10 A.M to 11 A.M. More than twenty NSS volunteers were participated in this event with great enthusiasm. The aim of the event was to plant more plant saplings of various native species in order to raise awareness about the importance of trees for the environment and the society.
- In this tree plantation drive nearly 60 nos of varies variety of country sapling are planted through NSS volunteers. In this event nearly 50 students and faculty members from all department are participated.



*Dr. R. Punidha*  
Dr. R. PUNIDHA, M.E., Ph.D.,  
PRINCIPAL,  
BHARATHIYAR INSTITUTE OF  
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DEVIAKURICH! - 636 112,  
THALAIVASAL (TK), SALEM (DT).



#### **4.2: RECOMMENDATIONS:**

- Prepare a schedule to clean the air filters of AC indoor units at regular intervals
- Measure the earth resistance at regular interval and maintain within the standard.
- Voltage drop at the load end can be improved by load end capacitors compensation
- Battery voltage of each UPS must be measured and monitored.
- Prepare and adhere a cleaning schedule for UPS
- Conduct awareness programmes on Energy Conservation to all the stake holders.
- Foot valve of all the submersible and open well pipes must be cleaned at regular intervals and this ensure  
i) free flow of water and ii) reduced power consumption.

**Audit Conducted and Verified by,**

*S.R. Sivarasu*

**Dr. S.R. SIVARASU**

**BEE Certified Energy Auditor (EA-27299)**

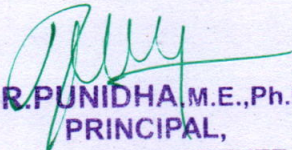
**Lead Auditor – ISO 14001: EMS; IGBC AP, GRIHA CP**

**CII Certified Professional in SWM**

**ISO-14064: Implementor & Auditor - Carbon Footprint Management**

## **COMPLETION OF THE REPORT**

This report is prepared as a part of the **Follow-Up Energy, Environment and Green Audit** process conducted at **BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN**, Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India by **RAM KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING**, Coimbatore – 641 062.

  
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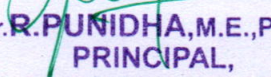
**ENERGY, ENVIRONMENT &  
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**DETAILS OF THE CLIENT**

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Deviyakurichi, Thalaivasal, Attur, Tamil Nadu 636 112, India.

**ANNEXURE:  
AUTHORISED CERTIFICATES OF THE AUDITOR**

  
Dr. R. PUNIDHA, M.E., Ph.D.,  
PRINCIPAL,  
BHARATHIYAR INSTITUTE OF  
ENGINEERING FOR WOMEN,  
DEVIYAKURICH! - 636 112,  
THALAIVASAL (TK), SALEM (DT).



ZERTIFIKAT ♦ CERTIFICATE ♦ 認証証書 ♦ CERTIFICADO ♦ CERTIFICAT



# CERTIFICATE

The Certification Body  
of TÜV SÜD South Asia Private Limited  
certifies that



**M/S RAMKALAM CENTRE FOR ENERGY  
CONSULTANCY & TRAINING**  
No.8, VPK Garden, Velanaipatti, Coimbatore – 641 062, India

has implemented Quality Management System  
in accordance with ISO 9001:2015  
for the scope of

**Providing Energy, Environment, Green audits to industry,  
Academic institutions and organizations**

The certificate is valid from **2023-11-22** until **2026-11-21**

Subject to successful completion of annual periodic audits

The present status of this certificate can be obtained through TÜV SÜD website by scanning below QR code and by entering the certificate number (without spaces) on web page. Further clarifications regarding the status & scope of this certificate may be obtained by consulting the certification body at [info.in@tuv-sud.com](mailto:info.in@tuv-sud.com)

Certificate Registration No. **99 100 23573**

Date of Initial certification: **2023-11-22**

Issue Date: **2023-11-22 Rev. 00**

Rahul Kale  
Head of Certification Body  
of TÜV SÜD South Asia Private Limited,  
Mumbai  
Member of TÜV SÜD Group



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**Dr. R. PUNIDHA, M.E., Ph.D.,**  
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**THALAIVASAL (TK), SALEM (DT).**



Reg No.: EA-27299



Certificate No.: 9645/19

**National Productivity Council**  
(National Certifying Agency)  
**PROVISIONAL CERTIFICATE**

This is to certify that Mr./Mrs./Ms. **SIVARASU SULUR RATHINAVELU**  
son / daughter of Mr. **P RATHINAVELU** has passed the National certification  
Examination for Energy Auditors held in September 2018, conducted on behalf of the Bureau of Energy Efficiency,  
Ministry of Power, Government of India. He / She is qualified as **Certified Energy Manager** as well as  
**Certified Energy Auditor**.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment  
of qualifications for Accredited Energy Auditor and issuance of certificate of Accreditation by the Bureau of Energy  
Efficiency under the said Act.

This certificate is valid till the Bureau of Energy Efficiency issues an official certificate.

Place : Chennai, India  
Date : 22nd April, 2019

Digitally Signed by K V R RAJU  
Mon Apr 22 16:22:42 IST 2019  
Controller of Examination, NPC AIP Chennai

Controller of Examination

**TUV NORD**

**ISO 14001:2015 Lead Auditor**  
**(Environmental Management Systems)**  
**Training course**

it is hereby certified that

**Dr. S. R. Sivarasu**

has successfully completed the above mentioned course and examination

08<sup>th</sup> - 12<sup>th</sup> December 2017

Coimbatore, India

Certificate No. 3521 2982 02  
Delegate No. 71968

for TUV NORD CERT GmbH

Essen, 2018-01-11

Course 18125 is certified by CQI/IRCA and meets the training requirements for those seeking certification under the  
IRCA EMS auditor certification scheme.

TUV NORD CERT GmbH

Langemarckstraße 20

45141 Essen

www.tuev-nord-cert.com

CERTIFIED COURSE

APPROVED TRAINING PARTNER

**Dr. R. PUNDHA, M.E., Ph.D.,**  
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**BHARATHIYAR INSTITUTE OF**  
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Confederation of Indian Industry

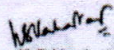
### The Indian Green Building Council

hereby certifies that

**Sivarasu S R**

has successfully demonstrated knowledge on the Green Building Design & Construction, Building Standards & Codes, IGBC Resources & Processes and Green Design Strategies & their impacts, required to be awarded the title of

**IGBC Accredited Professional**

  
**K S Venkatagiri**  
Executive Director  
CII-Godrej GBC

  
**V Suresh**  
Chairman  
Indian Green Building Council

  
**Gurmit Singh Arora**  
Vice-Chairman  
Indian Green Building Council

200239

20 June 2020



## GREEN RATING FOR INTEGRATED HABITAT ASSESSMENT

### GRIHA CERTIFIED PROFESSIONAL CERTIFICATE


This is to certify that

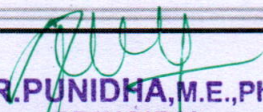
*Sivarasu sr*

has qualified as a **GRIHA Certified Professional For V. 2015**

Date of issue: 18th September 2020

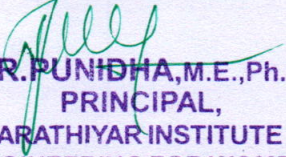
Note : This certification is valid only for GRIHA version 2015.

  
Chief Executive Officer  
GRIHA Council

  
**Dr. R. PUNIDHA, M.E., Ph.D.,**  
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**DEVIYAKURICH! - 636 112,**  
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