



सत्यमेव जयते

Ministry of Education  
Government of India



## Success Stories Template

Name of Regional Coordinating Institution	TNAU, Coimbatore
AISHE Code	U-0436
Name of Coordinator	Dr.S.Kanagaraj

### Success Stories

Title	Cost-effective Standalone Solar Smart Light for Village Roads
Location	Kaliyapuram, Thirumalayampalayam Panchayat, Coimbatore District
Brief Summary of the Initiative	<p>As part of UBA project the PI (Participating institution) Amrita Vishwa Vidyapeetham had done base line survey and PRA (Participatory Rural Appraisal) in Kaliyapuram village, Thirumalayampalayam panchayat. Mostly underprivileged Scheduled Caste people live in the village. One of the important findings through PRA was absence of street light facility due to which school and college children have difficulty especially the girls.</p> <p>Problem statement identified from PRA were:</p> <ul style="list-style-type: none"> <li>• Low road visibility - <i>Night travel, early morning travel.</i></li> <li>• The village is near the foot hills of Western Ghats, needs road visibility and thus safety for the villages from animals and reptiles.</li> <li>• Unethical practices such as eve-teasing are reported in this area during the night-time.</li> <li>• Students pursuing higher education and working women, who require to spend extended time in the city, are unable to do so.</li> </ul>
Objective /Purpose	<p>The project objective is primarily a social objective, translated into a technical objective</p> <p><b>Social Objective:</b> The societal objective is to ensure visibility for the villagers during night hours and early morning hours for travel and</p>

	<p>thereby:</p> <ul style="list-style-type: none"> <li>• Support education of especially students pursuing higher education, who require to spend extended time in the city.</li> <li>• Support the villagers employed in the city who return back late.</li> <li>• Ensure safe walk from/to the village with good visibility- safety from both unethical practices and harmful animals</li> <li>• Ensure visibility even during power outages at night.</li> </ul> <p>From social objective, technical objectives were formulated.</p> <p><b>Technical Objective:</b> The technical objective is to provide a customized technological solution in the village context to ensure visibility for the villagers during night hours and early morning hours for travel. The customized technology which when compared to conventional method has:</p> <ul style="list-style-type: none"> <li>• Low capital cost</li> <li>• Low system size</li> <li>• High Energy Efficient</li> <li>• Uses Clean Energy</li> <li>• Ease of operation and maintenance</li> <li>• Long Lifespan</li> </ul> <p>For the technical objective, a customized technology suitable for the village is selected.</p>
Number of Faculty Involved	3
Number of Students Involved	5
External Partners/Stakeholders (if any)	NA
Number of Beneficiaries Impacted	1417
Description of Activities/Programs Implemented	<p><b>Inaugural programme of Solar street light project</b></p> <p>As part of UBA (Unnat Bharat Abhiyan), Amrita Vishwa Vidyapeetham (Deemed to be University) (AISHE Code: U-0436) completed Solar street light project called “Cost-effective Standalone Solar Smart Light for Village Roads” at Kaliyapuram village, Thirumalayampalayam panchayat, Madukkarai block, Coimbatore district. It was inaugurated by Dr.E.Somasundaram, Director - ABD &amp; Nodal officer (UBA), TNAU, Coimbatore on 21.12.2023 in the presence of Mrs.Manimekalai, Ward councillor, Mr. Anu G Kumar (Principal investigator), Dept. of EEE, Dr.Mohanrajan S.R (Co – Prinicpal Investigator) Dept. of EEE and Dr.S.Kanagaraj, Department of Social Work, (Co –</p>

	<p>Principal Investigator), School children, villagers, UBA volunteers.</p> <p>The project was highly appreciated by the villagers as it solving the issue of street light. Mostly underprivileged Scheduled Caste people in the village. The street lighting installation is completed in association with Kaliyapuram panchayat which will ensure the sustainability and maintenance of the project. The street lighting infrastructure will help Night travel, early morning travel.</p>
Technologies or Innovations Deployed	<p><b>(a) Achievement of the project (In details):</b> The major achievement of the project includes</p> <ul style="list-style-type: none"> <li>▪ <b>Reduced Size-</b> Battery &amp; Solar PV size is significantly reduced by around 80% – with occupancy sensor integration</li> <li>▪ <b>Reduced Capital Cost</b> – because of significantly reduced size and in-house development</li> <li>▪ <b>Reduced Operating Time</b> - because of reduced ON time with twilight based ON/OFF control and occupancy based On/OFF control. This would enhance the life of the lamp, however switching may reduce the life of the lamp.</li> <li>▪ <b>Reduced Electricity Consumption-</b> With reduced operating time, energy consumption is reduced.</li> <li>▪ <b>Improved Energy Efficiency.</b> Energy Efficiency of the system is the highest because LED lights are more Energy efficient. As DC sytem with PV- Battery- LED lamps are used, energy conversions (AC/DC) losses are also minimum.</li> <li>▪ <b>Sensorless Illumination Control-</b> In absence of solar PV power output, LED turns on automatically, thus no need for illumination sensor.</li> <li>▪ <b>Single Assembly-</b> PV-Battery-LED- Occupancy Sensor</li> <li>▪ <b>Improved Lifetime.</b> Life of solar PV is 25 years. Lifetime of LED lamp is around 12 years considering 12 hours of daily use.</li> <li>▪ Replication potential in any Indian village.</li> <li>▪ Improved visibility for vehicles in the road.</li> <li>▪ In house fabrication of poles, resulting in reduced cost.</li> <li>▪ Moral upliftment for the underprivileged Scheduled Caste people live in the village.</li> </ul> <p>Scalability potential In India – Local to National: The project has significant scalability potential in areas such as:</p> <ul style="list-style-type: none"> <li>▪ Remote roads without electricity.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Flood/Disaster prone areas.</li> <li>▪ Villages with frequent power outages</li> <li>▪ University /Schools/Educational institutions/Industries</li> <li>▪ Residential Villas /Apartments</li> </ul>
<p><b>Impact Achieved/Long-term Impact</b></p>	<p>Mostly underprivileged Scheduled Caste people in the village. The street lighting installation would be done in association with Kaliyapuram panchayat which will ensure the sustainability and maintenance of the project. The street lighting infrastructure will help Night travel, early morning travel.</p> <ul style="list-style-type: none"> <li>▪ School children studying in the city can attend after-school self-development sessions in the city.</li> <li>▪ Working women can extend their working hours in the city.</li> <li>▪ As the village is near the foot hills of Western Ghats, it will ensure visibility and thus safety for the villages from animals and reptiles.</li> <li>▪ With visibility, it will also reduce certain unethical practices such as eve-teasing that are reported in this area during the night-time.</li> <li>▪ Even during a power outage at night, the street lighting system will continue to provide visibility.</li> </ul> <p><b>Number of Families/peoples benefited:</b> All members of the Kaliyapuram village (population of 1417 people) are benefited with visibility and thus safe connectivity with the main roads.</p>
<p><b>Replication/Adoption</b></p>	<p>This model shall be replicated to the areas of absence of electricity. During flood and other disastrous situations.</p>
<p>Key Challenges Faced</p>	<p>The idea is to provide a customised technology solution to meet the needs and constrains of the village. Overcoming technology challenges with right application &amp; Overcoming application challenges with right technology</p>
<p>Strategies or Solutions Implemented to Overcome Challenges</p>	<ul style="list-style-type: none"> <li>▪ <b>Improved Energy Efficiency.</b> Energy Efficiency of the system is the highest because LED lights are more Energy efficient. As DC sytem with PV- Battery- LED lamps are used, energy conversions (AC/DC) losses are also minimum.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ <b>Sensorless Illumination Control-</b> In absence of solar PV power output, LED turns on automatically, thus no need for illumination sensor.</li> </ul>
Feedback from Participants/Beneficiaries	<p>“My name is Subiksha, I am studying in 11<sup>th</sup> standard. I am coming from my school in Kaliapuram. From 6<sup>th</sup> standard onwards, in this manner we walk to school and walk back. We were finding very difficult without lights. From UBA project, we got help. It’s of great help, these solar lights. We request that these light can be extended till Ettimadai (till highway). Thanks to UBA project team and Amrita University”.</p> <p>Elderly Villagers also were happy, when we took one of them for a trail test of the lighting system.</p>
Future Plans/Next Steps	To install such street lights for another 3kms to reach out from main road to the village.
<b>Video (Mandatory)</b>	<p><b>Kindly share the drive link :</b>  Village School Students Feedback (Video Link : <a href="#">UBA Project</a>)  Village Elder Trial walk (Video Link : <a href="#">UBA Project</a>)</p>
Media Coverage or Public Recognition	NA
Photographs	

