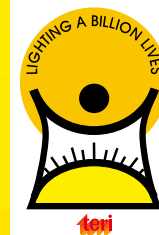


Journey towards a Billion

– A quarterly newsletter of the Lighting a Billion Lives^{®a} Initiative

Volume 3 • Issue 3 • July 2011



Commentary

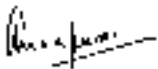
TERI's commitment towards creating innovative solutions for a better tomorrow is wholly embedded in its 'Lighting a Billion Lives (LaBL)' campaign, which reaches out to the 1.4 billion people in the world who lack access to electricity. While TERI diligently maps out and identifies the villages, builds capacity among the villagers and the NGO community, and helps provide the solar lanterns and its know-how, the campaign draws together a multitude of partners in this endeavour.

In a short span of time, this extraordinary model directing attention to the problems of poverty and deprivation with a simple, but significant impact on the livelihoods of people has struck a chord with policy-makers to celluloid celebrities; advertising professionals to media houses; institutions to ordinary citizens; the youth and the very young, both within India and overseas.

While TERI has embarked on this mission with the support of diverse stakeholders, the success of this campaign is largely dependent on the corporate sector, the key determinants of development. Interestingly, for the corporate sector the 'Lighting a Billion Lives' campaign not only invokes their social conscience, but also provides a strategic approach for their corporate involvement. All set to reach out to over 160,000 of the 275,000 beneficiaries of the initiative, the corporate sector has unquestionably been the forerunner in this campaign.

The corporate sector has the potential to lead the transformation process. To take forward and sustain this momentum, it needs to constructively engage itself with the LaBL campaign to ensure that we leave a better tomorrow for our future generations.




Annapurna Vancheswaran
Director, TERI

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A TERI Publication

READER'S COMMENTS

Our responsibility programme is just about as old as we are in the market. But we believe that you don't need to be old and established to start making a difference. We have ensured that our initiatives are always rooted in the business we are in and are always focussed on empowerment. This is essential for sustainability. We today join a campaign that both TERI and Dr Pachauri are passionate about and we are proud to step in with our effort.

Mr Rajiv Bawa

Executive Vice-President, Corporate Affairs, Unitech Wireless Ltd.

TERI, under the LaBL initiative is doing a creditable job by introducing a renewable energy source. I feel it is important to adopt renewable energy in our day-to-day lives, be it in rural or urban areas. It isn't necessary for renewable green energy to be generated in bulk and supplied through state electricity boards. To light up a single lamp, a pair of solar panels can be installed on rooftops, without the need for major funds or approvals.

To provide a village with a green source of energy, a large set up where there is land has to be acquired; a large number of solar panels or a large number of fans to generate wind energy is to be installed; and electrical panels and transformers have to be erected to transmit the energy collected to a distribution point or grid. The process has to wait for big plants and need governments permission and funds, that our government considers a burden.

A K Mathur

Uttar Pradesh, India
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It is quite refreshing to read about the expanding frontiers of the solar PV programme across different nations.

Dr Suneel Deambi

Consultant, TERI
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I am very happy to be a part of this campaign which is supporting a good cause. Thanks, it's really great.

Sreekanth Kuruba

Student, Bangalore, India
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WRITE TO US

Send us your comments/suggestions about the newsletter and the initiative by filling out and sending the feedback form below to smarcus@teri.res.in.

Name:

Organization:

Country:

Email:



*580 unlit villages, plunged in darkness,
Can now the potential of the sun harness*

*Laltini thanks the efforts marathon,
Of all who supported the 2011 Greenathon*

With thanks to all our patrons for their contributions!

-The LaBL Team

LaBL Team

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For more information visit our website:

<http://labl.teriin.org>

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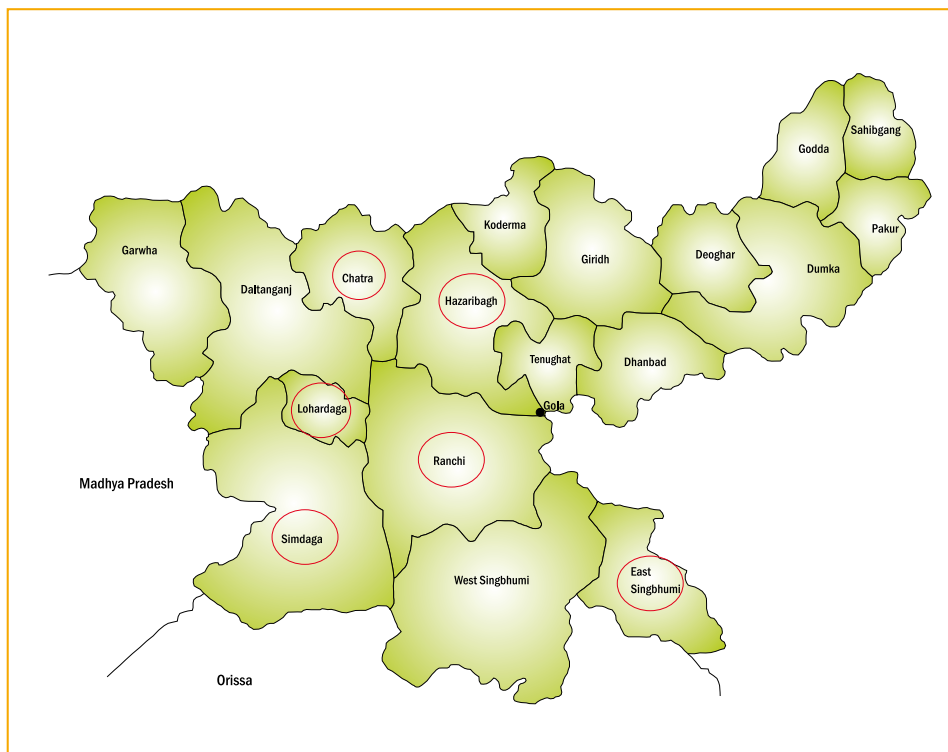
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TURNING LOCAL WOMEN INTO TECHNICAL ENTREPRENEURS

Along with lighting, the Lighting a Billion Lives initiative aims to address similar other significant issues, which are impediments to development, recognizing that there is a need to go beyond just lighting up homes, to lighting up lives. It is heartening to know that lighting could lead to a variety of associated impacts. Lack of access to energy in general, and to lighting in particular, stands in the way of progress and sometimes, even a small intervention, such as a solar lantern acts as an agent of change, catalysing enormous shifts in socio-economic development. Making a conscious decision to bridge the gender divide, TERI encourages women to come forward as entrepreneurs to run the solar charging stations in order to achieve inclusive growth. In response to the effort, women have come forward in large numbers to be the 'changemakers' in their villages. This has ensured that the focus is on lighting related needs of women. Apart from enhancing their security and mobility the lanterns also enable women to get a chance to gain exposure outside their homes and voice their concerns and needs...

One state where there here is tremendous scope for development in rural infrastructure is Jharkhand. More than 50% of the villages in the state are unelectrified. Social stratification further limits access to basic infrastructure, of which tribals are often the worst afflicted. The tribal women are left with the least choice. Most of these villages do not have toilets in the houses, and the women prefer relieving themselves in the field only after it's dark. Mobility is thus a significant issue.



Districts covered by LaBL in Jharkhand

Through its ambitious Lighting a Billion Lives^{®a} (LaBL) initiative, TERI, has taken up a project, with financial support from UNEP and grassroots support from the Society for Rural Industrialization (SRI) and its network NGOs, for enterprise development among twenty women from across six districts in the state. The project aims to train these women to be entrepreneurs who also rectify basic faults when needed.

The selection of villages and entrepreneurs as part of the project is done through district level NGOs and local partner NGOs and Self-Help Groups (SHGs) that are well-positioned to identify enterprising women. In addition, these NGOs are already working on various issues related to gender and women and are also headed by women.

Operational model

In keeping with LaBL's operational procedure the twenty villages identified are spread across the six districts of East Singhbhum, Ranchi, Hazaribagh, Chatra, Simdega, and Lohardaga.

The entrepreneurs are responsible for managing the charging stations by themselves, but to ensure that the beneficiary community too holds a stake in the project each user contributes a one-time deposit of ₹200.

This amount is used to generate a corpus which goes towards resource maintenance to ensure the model's sustainability beyond the project's support period. The nominal daily rent of ₹2 collected from users also adds to this amount. Entrepreneurs are trained to maintain meticulous logs of the lamps

they rent out and re-charge. Each lamp in the charging station has a number and is assigned to a specific household. A household's lamp(s) is deposited with the entrepreneur for regular re-charging, even if the users are travelling.

Training of women entrepreneurs

A month long techno-commercial residential training for the 20 selected women entrepreneurs was conducted by SRI.

They are trained to assemble up to 50 lanterns on their own, maintain the charging station, identify and rectify minor faults and have been given spare parts for replacement. Repairs



include replacing fuses, soldering loose connections. In addition, a refresher was undertaken just before installation.

For problems beyond their expertise, entrepreneurs approach local NGOs that get lanterns rectified from technical personnel at SRI. This was the first time the trainees were exposed to a technical learning, but they proved to be quick learners, assuring the team that the project was headed in the right direction.

Innovations in design

In order to take the technology to the masses and to turn local women into entrepreneurs, simplification of the technology was of prime importance. Under the LaBL initiative, solar PV

systems without electronic circuitry were designed for the first time. The system, working on 12V and 6V batteries, is electrically safe even for the children to handle. All components of the system, except the moulded housing are available in the smallest of towns and, hence, replacement is easy.

Conclusion

The LaBL model has proved that a hamlet is an adequate and appropriate market from the point of view of social coherence, economic viability, and management ability of the entrepreneur. LaBL's approach is to go through the women's self-help group established within the villages. The group has to understand the system, accept the responsibility, identify the entrepreneur from among themselves, and decide on the tariff.

Six months after the implementation of the project, women entrepreneurs agree that there have been positive changes in their status of their village. They are more confident in voicing their opinion during village meetings, now that they have gained visibility and respect among their communities.

TERI develops India's first renewable energy based Smart Mini-Grid

TERI, with support from the Ministry of New and Renewable Energy (MNRE) and its local implementation partners, designed, developed, and recently commissioned India's first-of-its-kind renewable energy based Smart Mini-Grid (SMG) system by using advanced digital and control techniques. The innovative system was commissioned by Dr Farooq Abdullah, Union Minister for New and Renewable Energy, in the presence of Mr Sushil Kumar Shinde, Union Minister for Power, and Dr R K Pachauri, Director-General, TERI, at the RETREAT, in Gual Pahari, Gurgaon on 1 July 2011.

A SMG is an intelligent electricity distribution network, operating at or below 11 kV, to provide electricity to a community. SMGs use advanced sensing, communication, and control technologies to generate, manage, distribute and utilize electricity at the local distribution levels more intelligently and effectively. The electricity is supplied by a diverse range of Distributed Energy Resources (DERs) and typically include a range of renewable generators, such as solar PV, micro-hydropower plants, wind turbines, biomass, and/or small conventional generators, such as diesel gensets.

The research, design, and construction of the SMG was undertaken by TERI, with inputs from experts. The system is uniquely placed to strengthen the country's electricity sector by creating a platform to use distributed power optimally, while enhancing the performance of rural electricity supply systems



simultaneously. It can be incorporated as part of the Government of India's flagship programmes—the Jawaharlal Nehru National Solar Mission (JNNSM) and the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), a scheme for rural electricity infrastructure and household electrification.

TERI and Union Bank of India to extend clean lighting to 100 villages

In a major development, the Union Bank of India (UBI), one of India's premier and the largest state-owned banks, signed a MoU with TERI to bring clean lighting to a 100 villages across rural India, under the aegis of the Lighting a Billion Lives (LaBL) initiative. The Union Bank Social Foundation took up the project as part of its Corporate Social Responsibility, under which it seeks to support organizations that offer solutions for improvements in rural infrastructure and facilitate rural entrepreneurial development for large sections of India's populace. Towards this end, UBI has adopted 103 villages across the country called Union Adarsh Grams (model villages).

The bank has supported the setting up of a 100 solar charging stations (with 50 LED lanterns each) and pledged its support, through the Greenathon 3 platform, to provision clean lighting and initiate entrepreneurial activity in the vicinity of the villages.

UN Habitat and TERI to bring light to Africa's urban poor

The UN-Habitat and TERI signed an agreement of cooperation to pilot solar charging stations, to provide alternative lighting solutions to the urban poor across the African cities of Nairobi (Kenya), Lilongwe (Malawi), Douala (Cameroon), Bangui (Central Africa Republic), and Free Town (Sierra Leone). The project is being undertaken as a collaborative effort between the UN-Habitat's Clean Energy Centres (CECs) and the LaBL initiative.

In line with its mandate to promote sustainable urbanization around the globe through the achievement of MDGs in urban areas, the CECs (established under the organization's programme

on renewable energy), aim to provide modern, clean, and reliable urban energy services. The CECs will provision decentralized energy generation facilities and enhance water, clean energy, and sanitation services in selected African cities and secondary towns. The Centres employ a combination of renewable energy sources—solar, biogas, and wind—to facilitate lighting and recharging; community cooking, internet, telecom and media applications; and security lighting.

This collaboration will specifically enable urban slums to access improved, clean, and affordable lighting; facilitate recharging of the solar lanterns; and provide training and hand-holding support to ensure sustainable operations and maintenance of the charging stations. A revolving fund system is also planned to be set up as part of the project, to enable more people to have access to the solar lanterns and create additional income generation opportunities in the surrounding communities.

Celebrating the journey towards lighting up lives in Madhya Pradesh

TERI and the Madhya Pradesh Urja Vikaas Nigam (MPUVN) jointly organized a special event—'Enhancing Access to Clean Energy in Madhya Pradesh'—commemorating the completion of 100 villages lit up across Madhya Pradesh under the LaBL initiative in Bhopal on 30 June 2011. The event also focused on the future prospects of addressing the lighting needs of the state.

Dr R K Pachauri, Director-General, TERI delivered a special address on the occasion, on 'Enhancing Access to Clean Energy in Madhya Pradesh', followed by addresses by dignitaries like Mr Ajay Vishnoi, Minister, New and Renewable Energy, Madhya Pradesh, and Mr Vijendra Singh Sisodiya, Chairman, MPUVN. The event was attended by LaBL's stakeholders, besides the new civil services recruits undergoing training at the Administrative Academy.

GREENATHON—GREENING THE HORIZONS GLOBALLY

On 6 February 2008, NDTV, the country's leading news channel, televised a 24-hour show on the environment—the Greenathon—for the first time. The show hasn't looked back since. In 2011, Greenathon was aired live in five countries apart from India, through green hubs set up in Los Angeles, London, Toronto, Sydney, and Tokyo, from 4–5 June on the occasion of World Environment Day. Though initially conceived of as a platform to raise funds and promote awareness about the cause of clean lighting in rural India, as a movement Greenathon goes beyond these and has helped generate awareness on the issue of sustainable development on a mass scale, which has hitherto proven difficult. A strong need to disseminate information and further public understanding on sustainable development was felt in order to enable the citizens to fully grasp its urgency. Greenathon furthers this mission by bringing together citizens that can connect with each other and get involved with action on the ground to make a substantial difference. The movement is a significant push in the right direction—a portal through which environmental causes can seek to meet their objective.

In the last three years, the viewership of the show has increased exponentially, together with the fund-raising benchmarks that TERI's flagship initiative—Lighting a Billion Lives[®] (LaBL) has attained. Greenathon has supported the cause of LaBL through the remarkable sensitization of citizens across the world about the initiative and its societal and environmental benefits,

much beyond just enabling financial support.

The show has served as a visible platform for corporates, celebrities, and individuals from diverse fields to join hands to light up countless unlit lives. As a result, the fund-raising tally went up from ₹1.7 crore in 2008 to as much as ₹11.8 crore in its third year. The amount includes support from committed envirozens from about 30 different countries. The event's success also highlights the role that a greener media can play by being a catalyst of change.

One of the most interesting aspects of the show lies in its efforts to involve stakeholders at every level of the process of implementing solar lighting in villages. The process ranges from the activities undertaken by TERI and NDTV to raise funds during the show, to the actual lighting up of poorly electrified villages through the night. As part of the show, NDTV and TERI also took donors to the villages that had been lit up under

LaBL, using their funds, maintaining a fine balance between the value of doing so and taking care of the logistics of the visit. The show stands out in being the only initiative on such a massive scale that attempts to offer such opportunities to sponsors.

Greenathon 3 (G3) was inaugurated by the symbolic lighting of solar lanterns in Mawi village, by Dr R K Pachauri, Director-General, TERI, and opened with screening of the visits of acclaimed cine-stars like Vivek Oberoi, Rahul Bose, and Priyanka Chopra visiting the villages they had sponsored. This year's show saw tremendous support from across various sectors of the global environmentally-conscious community, to make it the most successful of the Greenathon events so far.

"I have been overwhelmed by the amazing response this year (2011). NDTV's Greenathon seems to have caught the imagination of people across India, especially the youth. It's really very warm and encouraging,"





said Dr Prannoy Roy, Chairman, NDTV Group.

Some of the major donors (during the 24-hours the show was telecast) included the Power Finance Corporation (PFC), which sponsored 169 villages, Uninor (130 villages), Union Bank of India (100 villages), ICICI (50 villages), and the Rural Electrification Corporation (45 villages). Among top individual donors were cine-celebrity Shahrukh Khan who adopted 11 villages and Priyanka Chopra, Karan Johar, and

Shahid Kapoor who committed their support for five villages each. These, together with numerous other individual donors took G3's funding tally to its current position.

TERI has already installed solar charging stations in almost 200 villages with support from the previous two Greenathons, while another 580 villages are to be lit up by the end of this year with the help of G3. TERI aims to successfully light up almost 1,700 villages under the umbrella of the LaBL initiative by December 2011.

Initiatives like the NDTV Greenathon have the potential to spur revolutions across different parts of the world and to make LaBL achieve its ambitious goal of reaching out to a billion unlit lives through the humble solar lantern.

TERI extends its gratitude to all its sponsors and to NDTV for this commendable effort, which has made Lighting a Billion Lives a mission not only for TERI, but for everyone committed to development without putting the environment at risk.

IN CONVERSATION WITH VIKRAM CHANDRA, CEO, NDTV GROUP

1. Why and how did NDTV first envisage a 24-hour environment initiative like the Greenathon?

We felt it was time to use the influence we had as India's most respected news broadcaster to be a force for change. The environment needs our interventions, so this became a key area of focus.

2. Why did you decide on the current format of the show?

Right at the start we felt that a 24-hour show that combined entertainment with a public message would be the best way to spread the message. People may or may not watch a show that only speaks about the environment; but the mix of top celebrities, entertainment, music and a great social cause works wonders.

3. What are your thoughts on the response to Greenathon? Is the show meeting its goals?

Absolutely, we have been stunned by the response. Just look at the statistics—56 villages and ₹1.7 crore in the first year and 155 village; ₹2.6 crore in the second year, and 580 villages and ₹11.8 crore in its third year.

4. What encouraged NDTV to team up with TERI's LaBL initiative?

Dr Pachauri was among the first people to have spoken about the possibility of doing a show like this - it was a natural fit.

5. You've visited villages impacted by the LaBL initiative. What are your thoughts on the initiative as it evolves from where it is today to where it's going in the future?

It was a very moving experience to see the change that is possible [through LaBL]. It made me feel both humbled and proud that we could make a difference.

6. Please share the moment that inspired you the most through your association with Greenathon I, II, and III.

Without a doubt, the visit to village Manavas, where we saw the difference the Greenathon campaign could make to people's lives.

AN UNDERSTANDING OF BATTERIES FOR SOLAR LIGHTING APPLICATIONS

Batteries serve the function of converting chemical energy into electric energy through an electro-chemical process. They are categorized as primary batteries, which are disposable and secondary batteries which can be charged and discharged several times depending on their life-cycle. Secondary batteries are available in different designs based on the chemicals that constitute the battery and are optimal for solar photovoltaic applications. Battery performance depends upon usage and environmental factors like the rate of charging or discharging, temperature and depth of discharge among others. It has been observed that the capacity of lead-acid batteries falls by about 1 per cent per degree of temperature below about 20 °C. High temperatures, however, are not ideal for batteries either because they accelerate ageing, lead to self-discharge and use up the battery's electrolyte. Similarly, the lifetime of a battery also depends strongly on its depth of discharge (DoD) which is generally referred to in terms of cycle number. In deep-cycle lead-acid batteries, cycle number may be more than 1000 even at 50% DoD.

Table 1 summarizes various parameters and criterion important for battery selection. It also presents a comparison of various battery technologies used for different applications, with their pros and cons.

Batteries are critical and inherent components of the solar lanterns set up under the Lighting a Billion Lives@a (LaBL). Batteries commonly fail because of reasons like ineffective packaging, transportation and usage practice. Manufacturers recommend that a battery be charged for at least two to three days before it is used. But operating instructions often remain undelivered to the end-user, that lead the battery to be in a condition of deep-discharge. Several solar lighting projects have failed because of malpractices in usage pattern and lack of effective information dissemination. With large-scale implementation and a wide range of lighting products, the LaBL initiative has faced similar problems. In solar lighting systems, batteries are operated through circuits called 'charge controllers', which consume very low amounts of current (<1A), even when manufacturers transport them to end sites. Moreover, batteries lose charge even when they are not connected to a circuit and such loss is called 'self-discharge' of the battery.

TERI has continuously conducted several types of tests on batteries in its RETREAT campus in Haryana to assess battery performance under the LaBL initiative. This included tests on self-discharge, charge retention, efficiency, capacity and internal resistance tests. These provide vital information while selecting the appropriate battery



Various types of batteries

technology for a solar lighting systems. An evaluation carried out on lead-acid batteries (rated at 6V/4.5A) revealed that batteries should not be kept idle for more than 30 days. If this time-frame exceeds a month, which often happens during transit, the battery may even get completely deep-discharged before reaching the end user. Although this is observed to happen most commonly with smaller solar lighting systems such as solar lanterns, home lighting systems, and so on, such failures can also occur in large-scale systems

Lead-acid batteries are available in the market at affordable price ranges but their adverse environmental impact pose huge challenges. There is a need to completely replace lead-acid batteries with environment-friendly battery technologies. Li-ion and NiMH technologies are currently considered to be favourable options for incorporation into small-scale solar lighting systems but parallel research is required to lower the price of batteries based on these technologies to improve and establish their viability.

Table 1				
Parameters	Lead-acid	Nicd	NiMH	Li-ion
Nominal cell voltage (V)	2	1.2	1.2	3.6
Energy density (Wh/kg)	30-40	40-60	30-80	150-160
Efficiency (%)	70-92%	70%-90%	66%	99.9%
Self discharge rate(%/month)	5%	20%	20%	3%-5%
Life cycles	500-800	1500	1000	1200
Operating temperature range (°C)	-20 -+60°C	-20-+60°C	-0-+60°C	-40-+60°C
Advantages	Inexpensive and simple to manufacture Low maintenance requirements	Can tolerate deep discharge for long periods	Capable of delivering high discharge currents	Much lighter than other energy equivalent secondary batteries
Disadvantages	Transportation restrictions on flooded lead-acid battery	Cadmium is an environmental hazard and highly toxic	Needs regular full discharge to prevent crystalline formation	Batteries can rupture, ignite, or explode at high temperatures

SOLAR ENERGY (EM)POWERS LIVES

“*Saanp keedon se ho savdhani, jab ghar mein aaye hamare roshni,*” sums up Suresh Pal Singh, a farmer in Uttar Pradesh’s Phulpur village, lyrically. (The light helps protect us from snakes and insects). Phulpur is electrified only for a few hours in the day, with the nights heralding a host of problems for its populace. From pests in the fields and respiratory problems caused by kerosene lamps’ fumes, to the complete lack of enthusiasm in the children to study among evenings, the lives of villagers here are steeped in despair.

“*Hum logo ki phasal pahle kam hoti thi kyunki aadhi to janwar aur keede khatam kar dete the, par lalten aane se bach jaati hai,*” Suresh Pal Singh observes. (Our crop yields have almost doubled since the animals and insects stopped eating them after we got the lanterns.)

The village’s farmers breaking under the burden of the intense manual labour needed in their jobs, with little infrastructure to help them, are grateful for the rise in their incomes.

“*Hum logon ka parivar pahle bahut mehnat karke ₹50,000 kamata tha, lekin ab ₹60,000 tak ho jata hai,*” he says. (Our family would work very hard to generate ₹50,000, which has turned into ₹60,000 now.)

The incomes of some other residents too have transformed completely.

“*Hum logon ko to vishwas hi nahi hota ki hamare ghar ki aamdani ₹10,000 se ₹15,000 tak badh gayi hai,*” says Kasma, a 14-year-old girl who sells embroidered saris in a fine weave. (We can’t believe that our incomes have gone up from ₹10,000 to ₹15,000.)

Unable to work for longer durations earlier, the solar light has ushered in



a new era of hope and much higher living standards.

“*Mere ghar mein sab log bunai karte hain aur hum logo ki to zindagi badal gayi hai,*” she confesses. (Everyone in our house weaves and our lives have undergone a complete transformation.)

According to Rajender Pal Singh, the entrepreneur of the Phulpur charging station, the range of transformations in the village is most evident in the schoolchildren, whose happy faces can light up the nights by themselves, lanterns apart.

“*Main entrepreneur banane ke pahle gaon mein padhata tha aur bacche padhai se bachne ke hazaron bahane banate the, lekin ab unka utsah dekhne layak hai,*” he says. “*Ab to unko kerosene ke dhuen se khansi bhi nahi aati.*” (I was a teacher before I became an entrepreneur and I know of the numerous excuses kids would make to avoid studying, but their enthusiasm today is heartening to see. They aren’t coughing due to the fumes from the kerosene anymore either.)

Rajender Pal Singh is the most highly educated individual in Phulpur,

having earned his Master’s in Economics and has a special interest in continuing to promote education and health in his village, among children especially, but even among adults.

“*Hamare charging station mein se roz saare lalten istmaal ho jaate hain,*” Rajender Pal Singh concludes. (We rent out all the lanterns at our charging station daily.)

In addition to the tangible benefits, the lanterns have also done their bit in helping village women discover new pride in their existence, with the lanterns enabling them to step out of the confines of their homes securely. “*Aadmi log jis tarah se baat karte the humse, wo to ab kaafi badal gaya hai*” says Suhana, a female resident. “*Ab zyada samman dene lage hain auraton ko.*” (The way the men talk to the women has undergone quite a change. They’re more respectful towards us now.)

With the lanterns bringing relief and opening new avenues for the villagers, and its populace filled with hope, the face of Phulpur has changed forever.

LIGHTING A BILLION LIVES— A MEASURABLE INITIATIVE

In the early 90's, when the term corporate social responsibility (CSR) became a part of corporate India's lexicon, most Indian companies looked at it as a new term for an old practice—making donations to good causes or support communities around their factories. At the same time knowledge institutions like The Energy and Resources Institute (TERI) were of the view that CSR is multilayered, and there are activities beyond the normal that could be pursued by companies. That was perhaps one of the earliest calls in India to advocate CSR as an integral business principle.

Since then TERI's remit has included providing advice to companies on sustainability and sustainable development—technologies and the approaches that they should adopt to improve their profitability, competitiveness, and market share—without compromising resources for future generations and also to meet the challenges of climate change, which is bound to have a toll if steps are not taken in advance. In 2000, we set up the TERI Business Council for Sustainable Development India, an independent platform for corporate leaders to address issues related to sustainable development, which has now evolved into a strong industry body of over 100 members coming from diverse sectors including PSUs, MNCs, and private sector companies across India. The focus—to guide the Indian corporate diaspora and encouraging businesses to develop a vision of a sustainable company, translate that vision into a management action plan and turn sustainability into a competitive advantage, hence changing the way companies see CSR as a new wine in

the old community-development-and-corporate-philanthropy.

In the year 2007, while conducting its own research and study on socio-economic conditions and technological opportunities, TERI realized that 400 million people in India today have no access to electricity, and the global population was 1.4 billion worldwide. Tragically, it is very unlikely that the current generation among these deprived 1.4 billion would ever receive electricity in their homes. Against this background the initiative "Lighting a Billion Lives" was launched. This is based on the use of solar lanterns specially designed and manufactured on a decentralized basis. Typically, this activity is centered around one person in a village, usually a woman, who is able to charge a number of solar lanterns using a solar panel during the day and rents them out to all the villagers at night. The entire village benefits from clean, pollution-free lighting, which enhances their incomes and wellbeing. Over the last two years, the initiative has succeeded in illuminating around 35,000 households or 175,000 lives spread over 640 villages across 16 states in India.

Today, Lighting a Billion Lives is a unique and measurable sustainability initiative that effectively demonstrates how Public-Private-People partnerships easily support rural schemes mooted by the government, particularly in the areas of health, education, environment, women's empowerment as well as rural development. The campaign has support from PSU's and corporates, among its various partners to aid the execution of the programme at the

scale at which it exists today, while providing the corporates with CSRs and other strategic benefits.

Some of the key projects that have been taken up by the PSU's and Corporates towards Lighting a Billion Lives are:

1. Lighting up a KGBV establishment under Sarva Shiksha Abhiyan: Setting example of public-private partnership for a social cause, the Lighting a Billion Lives campaign commissioned a Solar Charging Station in a residential school at Podi Uproda village in the Korba district of Chattisgarh, under the sponsorship support of NTPC. The residential school has been set up by the government under the Kasturba Gandhi Balika Vidyalaya (KGBV) scheme. The objective of KGBV is to ensure access and quality education to the girls of disadvantaged groups of society by setting up residential schools with boarding facilities at elementary level. KGBV tries to target the significant gaps in the enrolment of girls at the elementary level reaching out to the most excluded groups of children. The provisioning of solar lanterns at the residential schools established specifically under KGBV scheme of GoI has ensured availability of safe and environment friendly source of light (in the form of solar lanterns) after dusk. This has also helped in eliminating the dependence of these young girls on kerosene lit lamps which pose a threat to their safety and health. The solar lanterns have also helped the tribal students in overcoming the impediments to learning and gaining knowledge that these

young girls have to face due to non-availability or erratic supply of electricity after dusk.

2. Promoting innovative financing of solar charging stations: Lighting a Billion Lives entered into strategic partnership with YES Bank Limited to expand the reach of the campaign. As part of the collaboration, YES Bank shall work with TERI towards promotion of the campaign in two specific areas of partnership, namely design and implementing a scaleable semi-commercial business model for financing solar charging stations and developing fundraising programmes/products at YES Bank for grant support to initiative. To begin with, the semi-commercial business model, being developed by TERI and YES Bank, will be piloted across 2–3 villages with divergent socio-economic conditions. Going ahead, YES Bank shall provide financing for at least 50 solar charging stations during the year and market the financing product to other financial institutions to support scaling up of the campaign in India. Earlier last month, Rashtriya Gramin Vikas Nidhi (RGVN) also announced its interest to draw synergies between its various livelihood programmes and Lighting a Billion Lives.

3. Jagmag Desh Mera: In a bid to connect common people to the Lighting a Billion Lives initiative, Voltas partnered with the programme. As part of this partnership, Voltas created a welfare fund called 'Jagmag Desh Mera Fund'. Anyone can participate in this movement and contribute by bringing home an energy-efficient Voltas Star Rated AC. Contribution could also be made from the savings

in electricity bills. The funds collected were used to bring light to many villages.

4. Strategic Partnerships: Armed with the twin objectives of providing access to clean energy and enhancing the rural livelihood potential, Lighting a Billion Lives entered into a strategic partnership with leading sugar producer Mawana Sugars Ltd. and its sister concern Usha International Ltd. As part of this collaboration, stitching and sewing training would be extended to rural women at the Lighting a Billion Lives solar charging stations, in addition to the provision of solar lanterns. Two pilot villages have already been implemented in the Kaul village, which is around 2 km from the Mawana Sugars Complex in Nanglamal (Meerut, Uttar Pradesh). While TERI is coordinating and monitoring the pilots at the central level, Mawana Sugars and Usha International are supervising the project at the village level.

Similarly, leading photocopier company, Ricoh India joined hands with Lighting a Billion Lives to further channelize efforts in extending clean lighting to rural areas of India. The collaboration formalizes sponsorship of at least four villages through an innovative scheme of exchanging old Ricoh photocopiers against new ones. The old photocopiers would be recycled by government approved recyclers and if possible, would be refurbished and donated to needy organizations by Ricoh. For each trade, Ricoh would light up a family under the Lighting a Billion Lives initiative.

India Chapter of the International Advertising Association (IAA) chipped in along with media to create awareness

about Lighting a Billion Lives and mobilize funds for the cause. Early last year in January, Water Consulting, a division of Mudra, was given the Creative Lantern award and was commissioned by the International Advertising Association to develop a print and TV campaign for the release. The response to this largest ever public service campaign attempted by the advertising industry helped in lighting up six villages thereby benefiting about 2,000 lives.

The above are just a few of the numerous successful examples where one campaign has through enormous support from PSU's and corporates impacted thousands of lives. While corporates and PSU's may have utilized their CSR funds for the same, TERI is ensuring that the campaign, for long-term sustainability, has a high level ownership, with the ultimate aim of empowering communities to be informed, self-reliant, and able to manage their resources independently, which lead them to become agents of change for their own development. TERI not only has been successful in mobilizing resources for villagers, it created market based solutions in these villages, hence breaking the myth that CSR is just an 'investment strategy' devised to build an image, cultivate stakeholders and eventually push business. TERI's Lighting a Billion Lives programme today is a pioneering model which showcases that strategy for developing a partnership. Advocacy with the business sector must be carried out by evoking compassion, consideration and commitment as a good corporate citizen.

By *Rajiv Chhibber*, Manager, Corporate Communications, TERI (The article was printed in *Financial Express*, December 2010)

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