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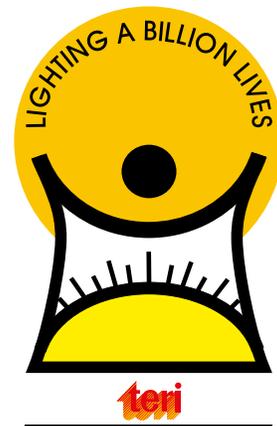
Quarterly Newsletter of the  
Lighting a Billion Lives® Initiative

# Journey Towards a Billion

*Journey Towards a Billion* is a quarterly update on the latest developments of the Lighting a Billion Lives® campaign, the off-grid market and the global energy access scenario. Shared with all member organizations and individuals within the Lighting a Billion Lives® network and with our online readers, *Journey Towards a Billion* is an inclusive newsletter welcoming articles, opinions, and stories of change in energy access and clean lighting from India and the world. For comments, questions, or suggestions, please contact our team at Lighting a Billion Lives® at [labl@teri.res.in](mailto:labl@teri.res.in)



A TERI Publication



Lighting a Billion Lives®

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*Cover Photo : ICIMOD, Nepal*

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Lighting a Billion Lives®

## COMMENTARY

The past three months have been quite busy, internationally, as well as at home in India. The global energy community came together at several key energy forums organized by UNIDO, SE4All, and ADB among others, to bring focus to the central agenda of making sustainable energy access a reality, to advance new development frameworks in this direction and to underline factors, specifically, finance and partnerships in driving and ensuring a sustainable energy future.

It was promising to see that these conversations are backed by action as well. An updated estimate of the number of people living without electricity in the world at 1.1 billion was announced in The World Bank's latest report based on the SE4All Global Tracking Framework. Down from 1.2 billion last year, this 100 million achievement is evidence of ground level initiatives reaching critical masses slowly and steadily. However, this is also an indicator that calls for collaborative and combined efforts towards escalating the rate of interventions going forward and to scale up numbers exponentially to achieve the larger goal of energy access by 2030.

In this context, over the last quarter, the Lighting a Billion Lives® initiative has reached an additional 0.4 million lives through household and community level implementations supported by CSR, the government, and partnerships with leading private and public sector organizations in the country. I am also happy to report that the DFID-TERI Clean Energy Partnership came to a successful and satisfactory conclusion this quarter, recording an overachievement of targets in the dissemination and adoption of both clean cookstoves and clean lighting. Going forward, the activities under Lighting a Billion Lives® will also diversify to include more complex and 'smarter' solar energy systems that serve communities for basic as well as productive use, support institutional development and have a more inclusive and holistic approach to energy provisioning.

In closing, I would like to second the global consensus on 2015 being the year of renewable energy, and with the sort of impetus we have gained so far, as well as with the upcoming declaration of the Sustainable Development Goals (SDGs), it is evident how central the roles of renewable energy and energy access are to the achievement of those goals. I wish all our partners, collaborators, and stakeholders the very best in their endeavours and efforts towards this end and look forward to forging new partnerships and associations in the near future.



**Ibrahim Hafeezur Rehman**, PhD  
Director, Social Transformation Division, TERI



# LaBL PROGRAMME UPDATE

A quarterly update on the cumulative progress of the Lighting a Billion Lives® campaign as of 31st August 2015. The percentage change is indicated in comparison to the last update shared, as on 31st May 2015.



↑  
33%

767,941  
Households  
**Illuminated**



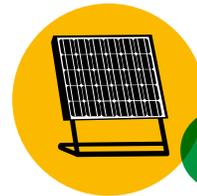
↑  
12%

122,248  
Solar Lanterns  
**Disseminated**



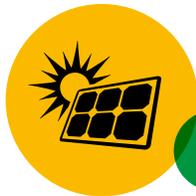
↑  
100%

15,593  
Integrated Domestic  
Energy Systems  
**Installed**



↑  
20%

15,390  
Solar Micro Grid  
Connections  
**Provided**



↑  
5%

7,444  
Solar Home  
Lighting  
Systems **Installed**



↑  
16%

57,792  
Improved  
Cook Stoves  
**Disseminated**



↑  
9%

2,989  
Villages  
**Lit Up**



↑  
11%

3.9 Million  
Lives  
**Impacted**



24  
States  
**Covered**



13 Countries  
Across  
**Africa & Asia**

## NEWS & NOTEWORTHY

### PGCIL CSR Project: Disseminations to school children in Bihar, Jharkhand, and Odisha



Supported by the Power Grid Corporation of India Limited (PGCIL) under its CSR initiative for sustainable development, TERI is facilitating the provision of stand-alone solar lanterns to 10,000+ school children enrolled with government-run primary schools in identified districts of Bihar, Jharkhand, and Odisha. Since children were chosen as primary recipients of these solar lantern and panel sets, to make the intervention more engaging and meaningful for them, and to promote awareness about the benefits of this clean lighting source, a set of four info-comic cum colour book editions were also developed and given to each child. To this end, 40,000 such info-comics will be distributed with the solar lanterns.

Disseminations under the project began in the month of July 2015, and a first set of 3,000+ lanterns were distributed to



children from schools in the Khunti and Ranchi districts of Jharkhand. Mr George Deni, AGM, PGCIL graced the event. In August 2015, disseminations commenced in Purnea, Bihar



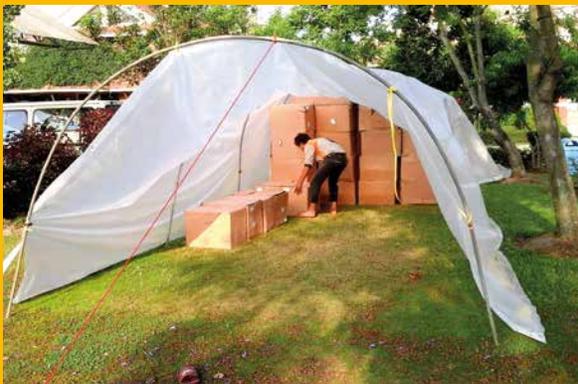
and solar lanterns with info-comics were distributed to another 3,000+ students in Lalganj and Fariyani. The info-comics were very well received and it was a delight to see the children transform them into vibrant colorful forms. Mr Md Mansoor Alam, the District Education Officer of Purnea presided as chief guest and Mr. Bhubaneshwar Jha, Manager of PGCIL's Purnea Sub Station represented his organization.

The stand-alone solar lanterns for this project were sourced from Avni Energy Solutions Pvt. Ltd, an ISO: 9001-2008 certified company that has been a long standing technology partner of the Lighting a Billion Lives® initiative.

This year in April, Nepal was hit by a devastating earthquake, which killed thousands and rendered many homeless across Nepal and India. To aid relief efforts, lend security and a level of comfort in this time of distress TERI collaborated with ICIMOD, Nepal, to disseminate 1,000 stand-alone solar lanterns to earthquake affected communities and families as part of the Lighting a Billion Lives® campaign. The solar lanterns were provided at a special rate by technology partner Avni Energy Solutions Pvt. Ltd and transported to Nepal by road. So far, ICIMOD, has successfully identified and disseminated solar lanterns to 200 beneficiaries. We are happy to share a brief of the dissemination progress as provided by Prakash Bhawe, ICIMOD.



We are pleased to report a very successful distribution of 200 solar lanterns in the Sindhuli District of Nepal, which was severely impacted by the earthquakes. The following summary was prepared by ICIMOD colleagues who administered this distribution: Santosh Nepal, Harshana Shrestha, and Nilhari Neupane. The event was also reported by a local newspaper, Sindhuli Saugat.



A total of 200 solar lamps were distributed in three Water Use Master Plan (WUMP) Village Development Committees (VDCs) of the Sindhuli district: Bhimeswor, Baseshwor, and Ratanchura. Prior coordination with Chief District Officer (CDO) and VDC officials were made through our local partner CPAP, Sindhuli. Earthquake-affected, non-electrified, women-headed, Dalit, and poor households were given higher priority while distributing the lanterns.

Twelve solar lanterns were distributed to *Majhi* (fisherman community) households of Bhimeswor-1, Sindhuli. This community does not have access to electricity and their houses were damaged during the recent earthquake and the affected families are still staying in tents. The recipients mentioned that the solar lanterns will be very useful for them especially for their school-going children.



CPAP, in close coordination with two other VDCs, distributed 100 lanterns in Ratanchura and 88 in Baseshwor. Though there was also demand for solar lanterns in the Jalkanya VDC (the 4th WUMP VDC in Sindhuli district), none were distributed there because CPAP considered it as relatively wealthy and less impacted by the earthquakes in comparison to the other VDCs.

Contributed by: Prakash Bhawe, ICIMOD, Nepal

## EE Technical Training, Guwahati

A technical training workshop for energy entrepreneurs (EEs) in north east-India was organized in Guwahati in the month of July 2015. The objective of the workshop was to meet the EEs and provide updated technical knowledge on solar products and equipment, and help them respond to and resolve day to day issues and operational faults more effectively. The training specifically emphasized on sourcing quality products and also dwelled on building linkages with technology partners. Entrepreneurs were made aware of several technology partners including Punam Energy Pvt. Ltd; Avni Energy Solutions Pvt. Ltd; and Soya Solar, who with plans to move into the manufacturing of solar PV modules presented a good opportunity to diversify equipment from the same technology provider. A technical expert from Soya Solar was also invited to conduct a training module on SPV technology. The expert took the EEs through the SPV manufacturing process in detail, which is the most critical part of a solar energy product. This helped the EEs understand the anatomy of the SPV better and the implications of selling a low quality product as against a good quality product.

## SE4All Capacity Building Hub: Modules Disseminated



The SE4All capacity building hub, STEER (Specialized Training, Education and Experiential Resources), was launched by TERI and the TERI University during the first annual

SE4All Forum in 2014 at New York. Initiated as a special-purpose vehicle to facilitate awareness generation, sensitization, knowledge assimilation and dissemination, and the design and delivery of tailored programmes, STEER's activities go beyond conventional training, and undertake a demand-driven approach towards positive sustainable development and change.

In the last quarter, training modules developed with support from the DFID-TERI Clean Energy Partnership on clean cooking, solar lighting, corporate social responsibility and awareness generation were disseminated to energy enterprises and partner NGOs in 23 states across India and to school principals and teachers of 50 schools in rural Bihar, Odisha, and Jharkhand. The course modules were also shared with:

- Participants of the Sustainable Energy Leadership Programme (SELP), a two-week workshop jointly organized by the United Nations Industrial Development Organization (UNIDO), The Energy and Resources Institute (TERI) and the TERI University.
- Participants of the Indian Technical & Economic Cooperation Programme (ITEC).
- Speakers from UN-ESCWA, ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), East African Centre for Renewable Energy and Energy Efficiency (EACREEE), National Renewable Energy Laboratory (NREL) and Renewable Energy and Energy Efficiency (REEEP) at the Vienna Energy Forum.

## #OffGridSummit Workshop for EEs: 'Energizing Start-ups for Impact Investments'

Following the #OffGridSummit organized by The Climate Group in August 2015, was a one day workshop on 'Energizing Start-ups for Impact Investments'. Hosted by the U.S. - India Promoting Energy Access through Clean Energy (PEACE) Initiative and the Global Lighting and Energy Access Partnership (Global LEAP) Initiative, the workshop was a golden opportunity for energy entrepreneurs (EEs) from across India to present their business models to investment bankers and gather feedback and key insights from sector specialists.



Narendra Kumar Ram, Sharada Enterprises, Odisha presents approach, status, and challenges in operating and managing his energy enterprise.

Of the 20 EEs who were selected based on their business cases and invited for the workshop, 10 were those who had been established and supported under the TERI-DFID partnership for clean energy access and came from various parts of Uttar Pradesh, Odisha and Bihar.

The EEs also received key insights and inputs from leading clean energy entrepreneurs including Neha Juneja, Co-founder & CEO of Greenway Appliances; Paul Needham, Chairman & CEO, Simpa Networks; Thomas Pullenkav, Advisor, SELCO Foundation; Vinay Jaju, Co-founder & COO, ONergy; and Sameer Nair, Director, Gram Oorja.

## GAIA Initiative CSR Project: Completion of Clean Lighting Implementations in 5 Villages in Jharkhand



The GAIA Initiative partnered with Lighting a Billion Lives® in 2010 and has provided continued support to the campaign in taking forward its mandate towards creating innovative solutions for clean lighting access. A non-profit organization, the GAIA Initiative gathers support and raises funds from organizations in Japan to support Lighting a Billion Lives® in implementing village level clean lighting solutions on an ongoing project to project basis.

As part of this collaboration, in 2015, GAIA garnered the support of **Toshiba Plant Systems & Services Corporation**, who sponsored the installation of solar charging stations in 5 villages in the Pankur and Gumla districts of Jharkhand, namely, Sonadhuni, Bishnupur, Kasira, Kating and Kasigora. Serving an average of 100 households per village, each solar charging station supports 50



solar lanterns which are rented out on a daily basis, and managed by a village level entrepreneur. Implementations in these villages was successfully completed in the months of May and July 2015.

We are thankful to Toshiba Plant Systems & Services Corporation for lending their support in making these implementations possible and to the GAIA Initiative for being a proactive and dedicated partner in enabling the extension of this support to an additional two villages in Jharkhand, going forward.

# RESEARCH

## “Analysis of the Electrification Programme in India Using the Energy Plus Framework and Key Lessons” – A GNESD–TERI Report



With support from, and in collaboration with, the Global Network on Energy for Sustainable Development (GNESD), TERI analysed the rural electrification programme in India through the lens of UNDP’s Energy Plus approach, with a special focus on the co-benefits and productive usage of electricity. The exercise also attempted to identify key factors that contribute towards the success of or limit India’s rural electrification policies and programmes, and their implementation in enhancing electricity access to create economic and income generation opportunities to improve local income levels and alleviate poverty.

The report will be officially released at a half-day workshop hosted by TERI and GNESD at New Delhi in October, 2015 and the following is an overview of the findings of this analysis.

India is a predominantly rural country with approximately 73 per cent of its total population living in villages. There is a consensus that ‘expanded access to affordable, reliable, and socially acceptable energy services’ is a prerequisite for achieving the Millennium Development Goals (MDGs) as well as for the overall socio-economic development of any rural area. Thus, in order to contribute to India’s overall development, the village economy must have access to modern energy and cleaner fuel sources. Over the years, a number of federal government programmes as well as state level initiatives have attempted to enhance energy access either as a part of overall rural development or by targeting rural electrification. Specifically, the Rajiv Gandhi Grameen

Vidyutikaran Yojana (RGGVY) was launched in 2005 under the aegis of ‘Bharat Nirman’ (Build India), which was a time-bound national development plan focused on rural areas. The objective of the programme was not only to provide lighting to rural households, but also to attempt to create opportunities for productive use and other co-benefits of electricity in rural areas. The Ministry of New and Renewable Energy (MNRE) had also tried to enhance electricity access through decentralized renewable energy technologies, wherever grid extension was not techno-economically feasible. In addition to domestic lighting, the MNRE’s programme also endeavoured to provide energy services for community facilities, pumping for drinking water supply or irrigation, and for other economic and income-generating activities in the village. However, the progress of these programmes has largely been documented from the perspectives of physical connections, village coverage and financial and institutional delivery mechanisms; with a relatively lesser focus on the outcomes from the household’s electricity demand perspective and also its contribution to the local rural economy.

This study therefore attempted to analyse the rural electrification programme in India and its achievement, keeping a specific focus on the co-benefits and productive usage of electricity in line with the ‘Energy Plus’ approach. The study also attempted to identify key factors that aid the success or limit rural electrification policies and programmes; and the implementation of these policies in enhancing electricity access and creating income generation opportunities for the rural poor, for overall income enhancement and poverty alleviation.

More specifically, the objectives of the study were:

- To evaluate the rural electrification programmes using the “energy plus” framework to understand and examine how the Indian electricity access programmes have addressed these issues.



- To assess the overall impact of rural electrification on local economies, such as on their contribution to sustainable livelihoods, income, newly-developed micro-industries, living standards, and poverty reduction.
- To identify key factors that contributed to the success and/or failure of rural electrification policies.
- To analyse relevant issues and suggest recommendations to strengthen the rural electrification programme for sustainable electrification in the context of “energy plus” approach, in order to enhance electricity access and contribute to the SEFA goal of universal energy access by 2030.

## Study Findings

Results from the primary survey revealed that income increased with electricity access, which also corroborated existing literature that supports this view. Incidentally, income increased even for unelectrified households and enterprises. Based on the cases of livelihood clusters from the states of Andhra Pradesh and Madhya Pradesh in India, the study found that strong institutions fostered the channelizing of resources, including electricity, for productive use. The study concluded that institutions aided in the incorporation of both energy and non-energy inputs (such as access to social infrastructure, skills training, capacity building, and market value chain creation) to catalyse productive activities and led to sustainable electricity access for all.

Some key findings from the study are as follows:

- The average income of an electrified household was higher than that of an unelectrified household for both grid and off-grid areas. Further, electrification resulted in an increase in income for both electrified and unelectrified households in both grid and off-grid areas.
- Electrified households in grid connected areas reaped more benefits over time (change in income is higher) compared to unelectrified households. Thus, grid supply probably generates better livelihood for electrified households compared to households connected with off-grid systems.
- Income change was higher for electrified households with business as a primary source of earning compared to electrified households with other sources of income. Thus, the use of electricity in productive / income generating activities helped households have better income opportunities.
- Institutions were fundamental non-energy inputs that could ensure sustained non-energy inputs to households and enterprises.
- Institutionally channelized non-energy inputs to households or enterprises can trigger productive use of electricity and create income augmentation.
- Households with access to electricity and receiving non-energy inputs had higher income and consumption than households with relatively lower non-energy inputs.
- Electrical appliances were seen as potential livelihood generation assets by households receiving relatively higher non-energy inputs.
- Access to channelized sustained non-energy inputs develops the risk taking potential of enterprising households.
- Institutions, affordable and timely finance, continuous impetus on training, market linkage, and supply of quality raw materials are significant non-energy inputs essential for enterprises.

### Key recommendations based on the findings of the study:

- Challenges in poverty eradication and livelihood generation can be eliminated by packaging a rural electrification programme with the sustained impetus of non-energy inputs channelized through local institutions.
- Policies that focus on rural electrification and productive use of electricity should focus on developing last mile community based organizations such as SHGs and energy committees; these are fundamental to link the village economy and rural electrification.
- Access to affordable start-up finance, continuous skill building, market linkages, good quality raw material channelized through community-based organizations, in partnership with public and private players will trigger entrepreneurship and provide a platform for graduating towards productive use of electricity.
- States with recent rural electrification programme implementation or in the process of saturation of rural electrification should emphasize on entrepreneurship and productive usage of electricity through institutionally channelized non-energy inputs.
- States with good coverage of rural electrification should initiate policies to develop institutions which can channelize non-energy inputs and drive village economy through productive use of electricity.

## PARTNER CASE STUDY: POSOCO

### Lighting Up Lives in God's Own Garden

Trailing up 30 minutes from a deserted road near the Bangladesh border is a cluster of homes in Kongwang, a village so remote that it looks like it is in the middle of nowhere. With an approach that is narrow and traversable only by foot, the village is an pristine and untouched spot in the East Khasi and Jaintia Hills of Meghalaya with breathtaking views all around. But all was not rosy in Konwang. With no access to reliable electricity, for the people of Konwang, having light meant smoky homes and inhaling fumes from kerosene lamps. Simple activities like cooking, washing, and binding betel leaves were impossible to perform after sunset as evenings were lit up only with the dim glimmers of candle lights, kerosene lamps, and intermittent bulbs run on dry-cell or rechargeable car batteries.

While all these means of lighting were insufficient to do any productive work, they were also merely enough to safely navigate inside and around the house, making the villagers feel extremely unsafe, insecure, and immobile after dark. The car batteries did provide a better level of lighting, but recharging them was a major challenge, not only because of their hefty weight, which made it difficult to transport them, but also due to the unreliability of the quality of charging services that were sparsely available. Kongwang was identified as one of the first villages for the installation of a solar charging station (SCS) and for the implementation of stand-alone integrated domestic

energy systems (IDES) under the TERI-POSOCO CSR Partnership in 2012-13. Following this, community lighting service became a reality for the people of Kongwang and they experienced the positive benefits of a secure livelihood opportunity, overall security, and improved conditions to aid children's education.

### Impact of the Project

- Households saved an average of INR 500 per month by transitioning to clean energy alternatives. The money was earlier spent on procuring 5 litre of kerosene every month.
- Monthly incomes increased by nearly INR 8,000 on an average for households who operated and managed solar charging stations and rented out 35 lanterns daily.
- Women also earned more as they were able to work extra hours in the evenings to bind betel leaves and sell higher volumes in the local market.
- Men were able to use the lanterns after dark to collect betel nuts and fire wood in the forest, increasing their productive use of time even after sunset.
- Children's grades improved considerably as they were able to study in the evenings.
- It became much safer and easier to navigate through the village at night and mobility was significantly enhanced.
- Members of the community had better opportunities to





interact and congregate by the lamp lights in the evening, a social opportunity that was highly restricted due to poor light sources.

The success of the project has also been possible due to the 'sustainability' approach that was kept in mind during implementations, and covered the following considerations:

- No operating cost towards feedstock
- No carbon dioxide emissions



- Replacement of a highly subsidized albeit non-renewable fuel such as kerosene
- Fee for service delivery model, which offered a simple and affordable renting arrangement

Due credit goes to the enterprising and enthusiastic Iashahlang Kongwang who is the village level entrepreneur (VLE) that operates and manages the solar charging station and his daughter Balanrika, who is the Secretary of the villages cooperative society and a teacher at the village school. Their vision and positive message garnered the support of the whole village in trusting the implementation process and in their adoption and transition to clean energy options.

The overall impact of this project was also key to scaling up POSOCO's interest in identifying and transforming other villages in the region. In the third consecutive year of its partnership with Lighting a Billion Lives®, it enabled the provision of clean lighting and cooking solutions to an additional 315 households in the villages of Ri-Bhoi district in Meghalaya. POSOCO's support in providing the means for not just clean but also sustainable light for all round rural development has led to positive transformations in the region and marked improvements in standards of living.

Contributed by: Ajay Sharma, Intern

# EVENTS

## 2nd Annual Sustainable Energy for All Forum, New York

The 2nd Annual Sustainable Energy for All Forum took place at New York from 18–21 May 2015. Themed “Financing Sustainable Energy for All”, the forum was attended by over 1,500 delegates from government, business, international organizations and civil societies across the globe.

**On Day 1**, as part of the Forum’s multi-stakeholder sessions, TERI conducted a session titled “SE4All Capacity Building Hub” in collaboration with SE4All and DFID, to initiate dialogue on global challenges and opportunities in capacity building for achieving SE4All goals. Moderated by Dr I H Rehman, Director, TERI, the discussion was enriched by an expert panel that included:

- Dr Sarah Wykes, Lead Analyst, Climate and Energy, CAFOD
- Ms Sangeeta Gupta, Director, TERI
- Mr Edu Willemsse, External Relations Manager, SNV
- Dr Harish Hande, Managing Director, SELCO Solar
- Mr Venkata Ramana Putti, Senior Energy Specialist, The World Bank

**On Day 2**, TERI co-organized a session with Project Surya, The Gold Standard Foundation, The Global Alliance for

Clean Cookstoves, Nexleaf Analytics, and DFID to launch a first-of-its-kind monitoring methodology that quantifies and monitors emission reductions from black carbon and other co-emitted species. Developed by Project Surya and the Gold Standard Foundation, the methodology aims to help bring new finance for the introduction of only advanced improved stoves. Moderated by Dr I H Rehman, Director, TERI, the panel deliberated on how this methodology was a game-changing approach for climate change mitigation and sustainable development, and included:

- Dr Veerbhadran Ramanathan, UNESCO Chair Professor on Climate Science and Policy; Distinguished Professor at the Scripps Institution of Oceanography, UCSD; Professor at TERI University, New Delhi
- Mr Ajay Narayanan, Head of Sustainability, IFC
- Mr John Mitchell, Environmental Protection Agency
- Dr Nithya Ramanathan, CEO, Nexleaf Analytics
- Ms Radha Muthiah, CEO, Global Alliance for Clean Cookstoves
- Ms Lisa Hodes Rosen, General Counsel and Director of US Markets, The Gold Standard
- Ms Romina Piccolotti, President, Center for Human Rights and Environment (CEDHA); Former Secretary for the Environment, Argentina

With a focus on achieving its three main objectives for energy access, efficiency, and availability, SE4All also invited its global partners to provide an update on their achievements and submit specific commitments to lead future action. TERI also submitted its commitment at the event.

### TERI’s SE4All Commitment

As a pioneer in the conceptualization, design, and implementation of key initiatives in clean energy access, energy efficiency, and sustainable energy, TERI commits to:

- Re-affirm its 2012 commitment of facilitating access to clean energy solutions to 10 million lives by 2018. As of 2014, TERI has already reached 30% of its committed target and will continue to work towards its overall achievement by 2018.
- Foster a cumulative 75 million square meters of built up space for new buildings to be resource efficient through the GRIHA platform; and 25 million square meters for existing buildings through the LEED platform by 2020.
  - Build capacities of stakeholders across the energy service value chain impacting one million lives globally by 2020.

## Vienna Energy Forum 2015, Vienna

A month later, the three-day Vienna Energy Forum kicked off at Hofburg Palace, Vienna. Jointly organized by the UN Industrial Development Organization (UNIDO), the Austrian

Federal Ministry for European and International Affairs, the International Institute for Applied Systems Analysis (IIASA), the SE4All Initiative and the Austrian Development Agency (ADA), the Forum was conducted on the theme “Sustainable Energy for Inclusive Development”.

### Sustainable Energy for Productive Capacities

Dr Leena Srivastava, Acting Director-General, TERI was invited to participate in the Forum’s opening high-level panel to discuss “Sustainable Energy for Productive Capacities”. The session explored the policy framework required to establish a foundation for developing countries in transition, to facilitate the development of productive capacities of their economies. With productive capacities at the core of development, panelists discussed new and innovative partnerships as a means of achieving this.



Addressing productive capacities in the context of inclusive development, Dr Srivastava pointed out that good quality, reliable, and affordable energy had still not been supplied to the “bottom of the pyramid.” She emphasized on the role of sustainable energy in job creation and highlighted the need for institutional mechanisms, capacity building, the right framework conditions around availability of finance, and access to technologies.

The session was moderated by Mr Li Yong, Director General, UNIDO and included other esteemed panellists:

- Dr Tania H Roediger-Vorwerk, Deputy Director General Directorate 31 — Federal Ministry of Economic Cooperation and Development (BMZ), Germany
- Mr Lamberto Zannier, Secretary General, Organization for Security and Co-operation in Europe
- Ms Anita Marangoly George, Senior Director, Energy and Extractive Industries Global Practice, The World Bank Group

## Post-2015 Development Agenda: The SDG Summit and Beyond



Dr I H Rehman, Director, TERI was part of the high level panel discussion on the post-2015 Development Agenda, chaired by Mr Gyan Chandra Acharya, UN Under-Secretary-General and High Representative for the LDCs, LLDCs, and SIDS. The session focused on the post-2015 Development Agenda to be adopted during the UN General Assembly convening in September this year and specifically discussed the Report of the Open Working Group on Sustainable Development Goals (SDGs), which identified and recommended 17 SDGs.

As the discussion steered towards the achievement of two main SDGs:

sustainable energy (SDG7) and sustainable industrialization (SDG9); the panel shared perspectives on various influencing aspects, such as energy security, investment linkages, access to funding for climate adaptation, and the need for innovation and strong multilateral cooperation initiatives. Dr Rehman

stressed the need to recognize development as the driver of energy choices, with climate being a co-benefit. He also talked about energy provision, bringing into focus service delivery within an enterprise-based approach and emphasized on capacity development as a critical requirement in the process.

## Asia Clean Energy Forum 2015, Manila

The Asia Clean Energy Forum also conducted its 10th anniversary conference at Manila, Philippines from 15–19 June 2015. The conference brought together global participants in the energy sector to network, exchange knowledge and do business. The Forum featured a combination of plenary sessions and panel discussions under thematic tracks like Energy Efficiency, Renewable Energy, Energy Access, Technology, Policy and Regulation, Finance, and the World Energy Leader's Summit.

From TERI, Mr Ripu Bhanjan Singh, Manager, Monitoring & Data Administration, participated in the panel discussion on 'New and Innovative Business Models to Expand Access'. The session was chaired by Ms Maria Athena Ronquillo-Ballesteros, Director, Finance Centre, World Resource Institute and Mr Jiwan Archarya, Senior Climate Change Specialist, Sector Advisory Service Division,

Sustainable Development and climate change department, Asian Development Bank.

With a view on creating enabling environments for the delivery of affordable sustainable electricity services, Mr Singh presented case studies on experiences and learnings from innovative techno-institutional models applied under the Lighting a Billion Lives® campaign. Elaborating on demonstration projects implemented in India by TERI, he shared how mini/micro grids were employed, to provide either AC or DC power, to electrify households and micro enterprises across different geographies using a combination of community and private sector models. Other critical aspects of the project were shared, with an emphasis on relying beyond technology and having a thorough understanding of the socio-economic characteristics of the user community, the maturity of the business model, flexibility in pricing and strengths and weaknesses of local institutions.



# STORIES OF CHANGE

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## An Energy Entrepreneur from Bihar Shares His Story

Ranjit Kumar, Prayas Enterprises, Kanti, Muzaffarpur, Bihar

Ranjit Kumar is a bachelor of Commerce and a trained ITI Electrician. He became an energy entrepreneur in 2013 under the DFID-TERI Clean Energy Project and has developed his enterprise into a strong business operation. Today, Ranjit is independently sourcing equipment from manufacturers and conducting installations without TERI's help or support. He also remains in regular touch with TERI and keeps a look out of any new projects that may be happening in his area of operation. In running Prayas Enterprises, Ranjit has demonstrated a high level of commitment and an enthusiasm that reflects in his growing business.

The following is a reproduction of Ranjit Kumar's first-hand experience record on becoming an energy entrepreneur as shared with Mr P B Singh, Field Manager, TERI.

I bought a solar lantern in March 2013 and liked the service of the solar lantern better than what a kerosene lamp provided. At the time, it was summer season and I thought that the solar lantern would be useful only in the summer, when the sun would be brightest. But soon it was winter season and I discovered that the lamp provided good lighting even in this season. My neighbours and friends also started noticing my solar lantern and soon realized that they too needed and wanted a lantern like this one in their homes. It was around this time that I first heard about TERI and learnt that they were an organization that enabled the provision of such solar powered lights and cooking solutions. I was very happy to know that such an organization existed, but was also surprised and intrigued when I heard about a solar cookstove. I had seen how solar energy could provide lighting but couldn't understand how it could run a stove. To seek answers to these questions I started looking for a touch point in TERI who could explain this technology to me in detail. After some sleuthing around, I was able to get the mobile number of Mr P B Singh.

I immediately called him and on hearing my queries he offered to come all the way from Patna to my home in Kanti to help me understand solar energy and associated technologies better. He also brought some solar lighting models to show me and I was fascinated by the possibilities it offered. I was now eager to know where such solar energy businesses were in operation because I wanted to visit them and see first-hand how it was managed and implemented. Mr P B Singh told me about an energy enterprise in Azamgarh, Uttar Pradesh that I could visit. Azamgarh is over 250 kilometres from my town and when I expressed my wish to go and visit the enterprise there, TERI facilitated me and even sponsored my travel expenses to and from Azamgarh.

I travelled to Azamgarh in November 2013, and when I visited the project sites I was very impressed and also reassured

that the work TERI was doing was credible and the results on ground were evidence of this. At this point I made a decision to also become an energy entrepreneur. TERI was very encouraging of my decision and supported me with training and capacity building workshops to equip me with technical and business skills required to run this business. My educational background and technical qualifications proved to be a big support in helping me understand the business processes better. I also received inventory worth ₹40,000 under the project, which was an immense source of support and confidence. I was further facilitated by being linked to local NGO partners and MFIs that gave me access to customer groups that I could talk to, demonstrate for and share the benefits of solar energy with. I was also introduced and linked to manufacturers of solar technology that allowed me to get a better sourcing price and a direct line for spare parts and replacements.

Through TERI, I got the opportunity to participate in training programmes across several new platforms, which were earlier inaccessible for me. It is because of these inputs that as an energy entrepreneur I have been able to supply clean cooking and lighting solutions in over 400 homes in a very short



time. I have also employed two technicians to help me with installations, services and repairs — and see this enterprise as a vehicle for generating further livelihood opportunities within my community and village. The amusing irony is that my enterprise is located right next to the Kanti Thermal Power Plant, but in spite of that I see that people are showing more

and more interest in solar energy, specifically because of the after sales services that are provided for the products they buy. I am very happy with my decision to join TERI's energy enterprise project and am hopeful of a long and successful future in this sector.

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*Contributed by: P B Singh, TERI*

## LaBL Supporters in Canada: Mrs Bebingh's Students help Raise Awareness and Money to Support Two Families get Access to Clean Energy

One day the Grade 6/7 students from Brooke Central School in Ontario, Canada came across the perfect charity to inspire them on their journey through Challenged Based Learning. For their Heat and Electricity unit in science, they were instructed to use the big idea of Solar Power to guide them through a learning experience that could bring their learning outside of the classroom. The umbrella idea provided these students with the challenge of promoting awareness to their community on how to responsibly use the sun's energy.

"How are we going to do that?!" Thought some of the students; and they discussed in small groups how they could share this responsibility. Some of the ideas that were presented were to use the sun to dry clothes on a clothesline, to use the sun as a natural light and heat source by opening windows and curtains, and to spend more time outdoors.

The class had an "aha" moment when one student curiously asked "Is there a way to cook with the sun?" and the ideas started flowing and extending from there.

Solar-powered products were researched and they realized that there was more to using the sun's energy than they realized.

A new light of information brought on a brainstorm session of how we can find out more, and then promote awareness of our new learning to the community. Some of our ideas included creating a website, a blog, a newspaper, or a commercial. We talked about putting something on YouTube or making posters to put up in the community. Someone even suggested creating a challenge similar to the ALS ice bucket challenge. As a class, we took these ideas and agreed that the most effective way to promote awareness would be to host a Solar Power Information Fair at school

and invite members of the community in to our classroom to learn all about it. We created topics to be discussed and developed expert groups of two or three students to focus on one particular guiding question that each group would be responsible for sharing.

The research and development of our expert stations took about 6 weeks to perfect. The students worked incredibly hard and were very engaged in their expert topics. After sharing our ideas with the Lambton Kent District School

Board's Learning Coach for Innovation; Mrs Bebingh was provided with the Lighting a Billion Lives website. She shared the website with her class and they had many discussions about the success stories provided by Lighting a Billion Lives. The class came up with a brilliant idea that they would raise money for Lighting a Billion Lives when they hosted their Solar Fair by having a bake sale, as well as sharing their learning. They came up with a goal of \$165.00, as this was the amount necessary to provide a customized clean energy solution

for one family that includes solar powered home light and an improved cookstove.

The Solar Fair was a success! Many people came through to learn more about how we can responsibly use the sun. Each class had a chance to come through our Solar Fair and had the opportunity to purchase baked goods to help with the cause.

In the end, we raised a Grand Total of \$340. This doubled our initial goal, which ended up being enough money for a customized clean energy solution for two families, and an extra \$10 to provide clean light for the education of 8 children for a month.

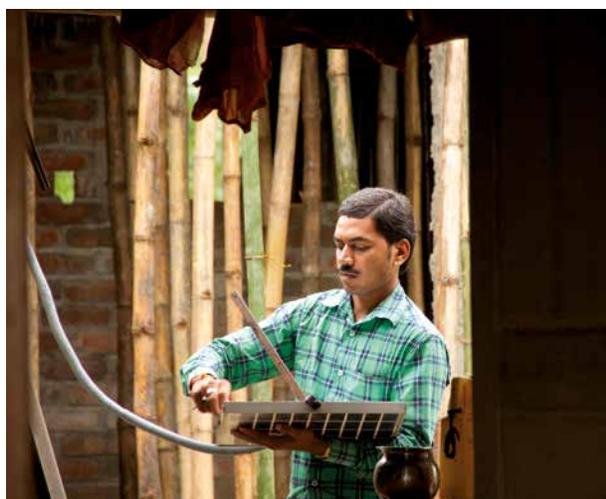
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*Contributed by: Katie Bebingh and her students*



## Brightening Lives — A Glimpse of the JEEViKA-TERI Partnership for Clean Energy Provision in Bihar

Manju Devi remembers her earlier life as one filled with darkness, due to which she and her family had to face immense difficulties. Moving around at night was nearly impossible and working after a certain time of day was also restricted. As a result, adverse poverty was an affliction most people in Manju Devi's village, like many others across Bihar, were not able to escape no matter how hard they tried.

Only 16 per cent of Bihar's population has access to electricity. TERI and the Bihar Rural Livelihood Promotional Society (BRLPS), Government of Bihar joined hands to provide clean solar lighting to women's self-help groups (SHG) through JEEViKA. An initiative of the Government of Bihar for poverty alleviation, JEEViKA is aided by BRLPS and The World Bank, and works on a micro-finance based approach wherein it provides credit services to the rural poor. Villagers can easily repay these loans in small installments.



The aim is to facilitate the poor in creating economically viable, improved and sustainable livelihoods. BRLPS partnered with TERI to enable the installation of clean energy-based solar lighting solutions across three districts of Bihar, namely, Purnia, Gaya and Madhubani. So far, over, 12,000 solar home systems have been installed through JEEViKA's SHG networks under the project.

The benefits of JEEViKA and LaBL's work in Bihar have been very positive. Villagers were earlier completely dependent on kerosene lamps and traditional cookstoves or "chulhas" to meet basic lighting and cooking needs. Solar lanterns and improved force draft mud stoves provided by TERI aided them in performing these daily activities in a cleaner, more efficient, and safer manner. Lakshmi, a student, says that she is able to study even at night because the light from the solar lantern does not hurt her eyes; unlike the kerosene lamp whose smoke would make her eyes and nose water. Himanti Devi, another villager, says she doesn't have to worry about the walls of her house turning black anymore because the improved cookstove emits much less smoke; and she is able to breathe freely now.

Apart from providing efficient lighting, JEEViKA has also aided these villagers with their livelihoods. Many have been able to rebuild and improve their lives, choosing new livelihood options that offer better economic stability. Manju Devi, who ran a small daily needs shop, now also has a small flour mill and a sewing machine. Gayatri Devi, another villager who was initially very hesitant, shared that she is very happy after taking up JEEViKA and TERI's offer of clean lighting solutions at easy finance. The increase in the number of working hours due to the availability of good lighting has led to an increase in the monthly income. Life has turned a new leaf for the residents of these villages. Everyday struggles with darkness and poverty are slowly fading and making way for brighter and happier tomorrows.

Contributed by: Jananni Rajan, TERI



**For girls in developing countries, going to school is more than just an opportunity to be educated — it can mean they avoid long work hours, stay healthy, and gain access to economic options that otherwise would not be possible. Access to sustainable lighting electricity is therefore a prerequisite, and not a result, of the education and health steps needed to improve the status of girls worldwide.**

*— Richenda Van Leeuwen, Executive Director, Energy and Climate, Energy Access Initiative, UN Foundation*



Students photographed at Lalganj in Purnia, Bihar, during disseminations this month under the Power Grid Corporation of India Limited (PGCIL) CSR Project that is supporting the provision of stand-alone solar lanterns to 10,000+ school children in Bihar, Jharkhand, and Odisha.

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## **Journey Towards a Billion**

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