

**CALACS Working Paper Series: Beyond Aid and the Future of Development Cooperation
Issue 6, August 2017**

**LIGHTING A BILLION LIVES: A MODEL FOR SOUTH-SOUTH TECHNOLOGY
TRANSFER**

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ABSTRACT:

This paper looks at a project called 'Lighting a Billion Lives' (LaBL), initiated by The Energy and Resources Institute, New Delhi in 2008. The paper discussed the background and the impact that the project has had so far. It then analyses the project with a view of seeking out key takeaways from it for SSTT and SSC. Such analysis yields five key takeaways for South-South Technology Transfer in particular and South-South Development Cooperation in particular, as follows: a) The key role of civil society, (b) importance of engagement with local communities, (c) capacity building being an essential component of TT projects aimed at creating mass social impact, (d) acting as one solution for multiple development challenges and (e) involvement of 'triangular cooperation'.

Keywords: Development Cooperation, South-South Development Cooperation, Technology Transfer, South-South Technology Transfer, Triangular Cooperation, Global South, Civil Society Organization

Credits: This CALACS Working Paper was written by Shantanu Kanade and edited by Karin Costa Vazquez. It was an initiative by the Center for African, Latin American and Caribbean Studies at O.P. Jindal Global University School of International Affairs with the support of the Asia Foundation. The opinions expressed are those of the author and do not necessarily reflect the views of CALACS. Readers are encouraged to quote and reproduce material from the CALACS Working Paper series. In return, CALACS requests due acknowledgement and quotes to be referenced as above.

Introduction

South–South co-operation (SSC) had its roots in the Non-Aligned Movement and the historic conferences of Bandung (1955), Buenos Aires (1978) and Nairobi (2009), which set out the principles for economic and technical co-operation among developing countries. Since then, SSC has become an important feature of the international development landscape. While there is no universal definition of SSC yet, it would be worthwhile to look at some of the prominent ones. The United Nations Industrial Development Organisation (UNIDO) states that “South-South cooperation is a methodology of development which facilitates the exchange of knowledge, experience, technology, investment, information and capacity between and among Southern countries through governments, civil society organizations, academic institutions, national institutions and networks to accelerate political, economic, social, cultural, environmental and technical development. This framework is now widely recognized as a key mechanism for the development agenda of countries in the South and is guided by mutual benefit between countries, respect for national sovereignty and ownership, establishment of partnership among equals, non-conditionality in cooperation and non-interference in domestic affairs.”¹ As per the United Nations Office for South-South Co-Operation, South-South cooperation is initiated, organized and managed by developing countries themselves; often, Governments play a lead role, with active participation from public- and private-sector institutions, non-governmental organizations and individuals. It involves different and evolving forms, including the sharing of knowledge and experience, training, financial and monetary cooperation and in-kind contributions and technology transfer.²

Like SSC, there is no one accepted definition of South-South Technology Transfer (SSTT) yet. Article 4.5 of the United Nations Framework Convention on Climate Change (UNFCCC) states that developed country Parties and other developed Parties included in Annex II “shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention.”³ As may be observed, this definition limits its purview to TT from the developed to developing countries, essentially North-South TT. On the other hand, the definition of TT as proposed by the Inter-governmental Panel on Climate Change (IPCC)’s Special Report titled ‘Methodological and Technological Issues In Technology Transfer’ is much more comprehensive and inclusive. The Report defines the term “technology transfer” as a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, NGOs and research/education institutions. Clearly, the definition of technology transfer in this Report is much broader than that in the UNFCCC. The broad and inclusive term “transfer” encompasses diffusion of technologies and technology cooperation across and within countries. It covers technology transfer processes between developed countries, developing countries and countries with economies in transition, amongst developed countries, amongst developing countries and amongst countries with economies in transition. It comprises the process of learning to understand, utilise and replicate the technology, including the capacity to choose it and adapt it to local conditions and integrate it with indigenous technologies. Most importantly, it broadens the horizon of stakeholders by including non-State entities, thus recognizing that

¹ <http://www.unido.org/south-south.html> (Accessed 19 April 2017)

² http://ssc.undp.org/content/ssc/about/what_is_ssc.html (Accessed 20 April 2017)

³ <http://UNFCCC>, Article 4.5 [Accessed 4 May 2017].

TT need not necessarily State-centric.⁴ While the IPCC definition considers TT as a means of cooperation between countries to tackle climate change, it certainly serves as a benchmark for TT in any other sector of development cooperation.

This paper looks at a project called ‘Lighting a Billion Lives’ (LaBL), initiated by The Energy and Resources Institute, New Delhi in 2008. After briefly discussing the background and the impact that the project has had so far, this paper will attempt to analyse the project with a view of seeking out key takeaways from it for SSTT and SSC.

“Lighting a Billion Lives”: A Brief Background

As per a TERI report titled ‘Lighting a Billion Lives: Developing Pathways for Energy Access’ published in April 2016 (TERI Report 2016), economically poor rural communities that either do not have electricity supply or suffer from erratic and insufficient supply still have to resort to the use of environmentally unsustainable fuel such as kerosene for meeting their lighting needs. In India, 61 million rural households reportedly had no access to electricity and use kerosene for lighting which amounts to 2.2 billion litres of kerosene per year to be burned for lighting. This burning of kerosene results in approximately 5.5 million tonnes of carbon dioxide (CO₂) emissions per year. In response to this unfortunate state, the Lighting a Billion Lives (LaBL) programme by TERI was initiated in 2008 towards providing sustainable energy to these rural communities and thus, enable people to receive clean, healthy and adequate light at an affordable cost.⁵

LaBL initiated its operation with the technology of Solar Charging Station (SCS) that is a community-based lighting option with mobile lanterns. One SCS usually consists of 50 lanterns, 5 solar panels, and 5 junction boxes. Each of these lanterns provides light equivalent to a 40 W incandescent bulb for 4–6 hours and are given on rental basis to households and enterprises in the evening at a nominal charge on per day per lantern basis. Although LaBL began its operation with SCS technology but through years it has evolved various other solar technologies aiming to light up the households in the rural communities. Listed below are the lighting models that have evolved with time under LaBL:

- i. Solar Micro Grid through which low voltage electricity is distributed over a short distance from the battery banks for 4 hours every night to power the household/shop lights;
- ii. Solar Home Light Systems (SHLS) that gives an individual ownership on the light, that is, each system provides a household with a facility of two light points and a point for mobile charging. At some places, these solar home light systems are being integrated with improved cookstoves and are called Integrated Domestic Energy Systems (IDES); and
- iii. Solar Multi Utility Units which incorporates the ability of taking up a productive load so that village level micro enterprises such as spices grinding unit, rice/wheat mill, and an artisan cottage industry can run on a clean, reliable, and affordable source of energy supply.⁶

⁴ http://documentacion.ideam.gov.co/openbiblio/bvirtual/005133/ipcc/tectran/IPCC_SRTT.pdf (Accessed on 3 May 2017)

⁵ http://labl.teriin.org/files/LaBL_publication/files/downloads/LaBL_Publication.pdf (Accessed 12 April 2017)

⁶ (Ibid 5)

Impact of the Project

LaBL's solar products have not only given millions of people access to modern lighting at affordable rates, but have also provided its users with a range of connected benefits such as considerable reduction in the kerosene usage, increase in study hours of children, reduced health effects due to kerosene smoke, and increased sense of safety due to easy mobility and to be able to deter animals from approaching human settlements. Villagers who had to previously travel over long distances to get the fuel which is no more the case, and are now able to carry out household chores in the dark and charge cellphones at their homes, thus, saving the expense incurred on cellphone charging from a shop in the market. Even the accidents resulting from the usage of kerosene lamps such as house burning and children getting hurt have drastically reduced. Further, the electrification in rural health centres, equipped with solar energy, has benefitted by providing lighting for extended period and/or emergency night health services, safe child delivery, enhanced security and the local storage of vaccines in solar-powered refrigerators. There is a direct livelihood benefit in the form of 'green jobs' for the entrepreneurs managing a SCS by earning through renting. Many of the communities are using this lighting to enhance their business hours post sunset for activities like betel leaf farming, sal-leaf plate making, embroidery and other handicraft work, sewing, vending, shop-keeping, running tuition centres, and by providing other village level services. As of today, LaBL has a presence in 13 countries besides India across South Asia and Africa, which include Kenya, Ethiopia, Nigeria, Uganda, Mali, Mozambique, Republic of Congo, Sierra Leone, Afghanistan, Pakistan, Nepal and Myanmar. In all of these countries, LaBL has worked to build capacities, facilitate the creation of robust value chains, has generated opportunities for technology transfer and the exchange of knowledge and expertise in energy service delivery.⁷

Increased role of Civil Society

SSC has, over time, grown to be less state-centric. Previously, much of SSC was from state to state and was conducted through high-level political circles with presidential visits and summits such as the Africa-South America Summit (ASA), the India-Brazil-South Africa Dialogue Forum (IBSA Forum), the Forum on China-Africa Cooperation (FOCAC) and the BRICS. Over the recent years, however, civil society organisations such as the academia, NGOs, corporates, think tanks and research institutions have started playing an increasingly important role in the SSC process. It may be said that this is particularly true in case of certain modalities of SSC such as TT and capacity building. LaBL is reflective of this shift in trend. Not only is this project initiated by TERI, a civil society organisation (CSO), several of its key partners in particular countries/projects are also different kinds of CSOs.

For instance, the 'DFID-TERI Partnership for Clean Energy Access' in Africa is a collaborative action research venture to pilot scalable business models for the provision of clean cooking and lighting solutions to poor households, with a special focus on Kenya and Ethiopia. Initiated in 2011, the approach is aimed at increasing the community's awareness and at creating demand for clean energy products and services, thereby promoting the use of improved cooking and solar lighting solutions on a much larger scale. Project implementation is being carried out through two national focal points (ACTS in Kenya and HoAREC/N in Ethiopia), under an incentive based model that incentivizes 13 private and developmental organizations in Ethiopia and 6 in Kenya, based on the number of systems sold. Nearly 700 people have been trained through trainings and workshops conducted under

⁷ Ibid 5.6

the program, including capacities built for over 450 solar and cook-stove technicians and trainers. Similar projects have also been undertaken in areas of Congo, Mali, and Uganda, to provide solar lighting and in the Democratic Republic of Congo and Rwanda for cook stoves. Over 5,000 households have been impacted in these areas.⁸

In Pakistan, TERI has partnered with the Buksh Foundation and started an initiative called Lighting a Million Lives (LaML). The project aims to light up the lives of a million people in Pakistan (LaML). In addition, it would generate permanent sources of income for the entrepreneurs. The project plans to reach out to 4,000 villages with a total of 1 million lives lightened by the end of 2017.⁹ The project was officially launched on September 29, 2012 through providing solar energy to 2 villages of Chak 113 and 117, Jinnah Abadi in the district of Sahiwal. The total population of 800 individuals had earlier been surviving through critical lifestyle, with minimal facilities and ever increasing hardships. For this population, like similar 40,000 villages in Pakistan, life started and ended with the daylight, with a very low literacy rate and poor school attendance. Sakina Bibi, mother of 5 and the first LaML Entrepreneur has the following to say about LaML: *"My husband works in the fields and we did not have access to electricity with the kerosene oil so expensive and candles tedious, our lives basically ended at sunset. My husband would return from fields early in the evening and the kids settled themselves in doors, while I had to finish off all my tasks before it got too dark. But since the arrival of these solar lanterns things have become much easier. I distribute these lanterns to the entire village lighten up their houses as well as my own. People have started calling me "the lady with the light" and now I, myself earn a fair living for my entire family."*¹⁰

In April 2015, a devastating earthquake hit Nepal that killed thousands of people and rendered many more homeless across Nepal as well as India. To aid relief efforts, lend security and a level of comfort in this time of distress, TERI collaborated with ICIMOD, Nepal to disseminate 1000 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 TERI's technology partner Avni Energy Solutions Pvt. Ltd. and transported to Nepal by road.¹¹

According to the TERI Report 2016, it has been observed that increased civil society participation, especially that of the private sector, has been key to achieving results in most of the countries/projects through the establishment of clear performance standards and the development of sustainable business models that address underlying issues including demand generation, mass production and distribution channels, selection and training of sellers, financing, education of users, after sales servicing and maintenance.

Importance of engagement with local communities

If we go back to the IPCC definition, TT comprises the process of learning to understand, utilise and replicate the technology, including the capacity to choose it and adapt it to local conditions and integrate it with indigenous technologies.¹² It is in the same spirit that LaBL has been focussed on engagement with local beneficiary communities by creating entrepreneurs from within the beneficiary community to maximize engagement of the business enterprise with its customers. Entrepreneurship has been a key component of the

⁸ <http://labl.teriin.org/blog-detail.php?id=1> (Accessed 21 April 2017)

⁹ <http://laml.bukshfoundation.org/know-us-better> (Accessed on 21 April)

¹⁰ <http://laml.bukshfoundation.org/transforming-lives> (Accessed 21 April 2017)

¹¹ <http://labl.teriin.org/blog.php> (Accessed 12 April 2017)

¹² Ibid 4

LaBL programme since its inception. Creating, incubating and accelerating local enterprises for clean energy dissemination has helped promote local ownership and sustainability of technologies deployed in the field. Various configurations of enterprises can be seen in the programme—ranging from village level entrepreneurs who operate and maintain small community systems, to larger suppliers and product developers operating at the state and national levels. Over time, the programme has also focussed on providing access to energy to rural micro-entrepreneurs managing varied businesses in diverse geographies, with the aim of enhancing the productivity of their business. Not only does the programme strive to build individual capacities of these enterprises, but it also attempts to strengthen the market ecosystem for the enterprises to function in a gainful manner. This feature also helps entrepreneurs experience and understand the problems that their products and service offerings seek to solve.

Participation of local (village level) actors in the energy products supply chain helps in making the business model more inclusive. The level of engagement of local/village level actors with rural households in their vicinity is generally observed to be high. This helps in forging stronger relationships between the buyers and sellers and minimizing conflicts in the business model due to divergent interests of various actors. Interacting directly with the end-users are Village Level Entrepreneurs (VLEs), who operate at the village level and manage a community system, benefitting 40–50 households. In most cases, VLEs share a part of the hardware costs at the time of installation. The VLEs collect a daily or monthly rent from end-users, which generate income for them and helps them meet the maintenance and repair costs that accrue annually. Energy Enterprises (EEs), who operate at the level of a cluster of LaBL programme villages (block or district level), directly engage in the market through sale of standalone lighting and clean cooking systems, installation of solar lighting systems, and provision of after-sales service. EEs are connected with technology developers and product suppliers, so that a steady flow of spare parts is assured. The nature of EEs selected and incubated under the LaBL programme has been quite diverse. Independent retailers, village/district cooperatives, self-help groups, producer groups, and technology developers act as EEs across different regions.¹³

Capacity Building an essential component of TT

Capacity building is an integral component of the process of the LaBL programme. The program attaches a lot of importance to creating awareness about the technology provided through it to the beneficiaries through training and knowledge sharing programs. The programme seeks to help in building financial, technical, and business-related capacities of its entrepreneurs through programme support, training, and promoting institutional and market linkages. TERI is recognized as a capacity building hub for clean energy entrepreneurs in the ‘United Nation’s Sustainable Energy for All’ programme. TERI professionals conduct training programs for the VLEs and end users on basic aspects of the technology and operating the business. As discussed above, there is a specific emphasis on creating local entrepreneurs, thereby strengthening the value chain and developing local markets for clean energy products. There is particular emphasis on building the technical and financial capacities of entrepreneurs, through a mix of training and enabling linkages with financial institutions.

Based on the above, it may be argued that capacity building is essential to ensure that “the process of learning to understand, utilise and replicate the technology” part of the IPCC

¹³ Ibid 5.6.7

definition is fulfilled and is an inseparable part of TT projects such as LaBL that aim to create a mass social impact.

One solution to multiple challenges

LaBL goes on to show the ability of TT projects to help countries in addressing multiple developmental challenges simultaneously. LaBL is aligned with as many as 7 Sustainable Development Goals namely ‘No Poverty’, ‘Good-Health and Well Being’, ‘Quality Education’, Gender Equality’ and ‘Affordable and Clean Energy’.

Let us take ‘Gender Equality’ as a case in point. To empower women and promote gender equality, TERI has consciously adopted the practice of Energy Provisioning through Inclusive Collaboration (EPIC), as a simple premise when developing localized energy service delivery models—identifying specific roles for women to facilitate last mile disseminations and the serviceability of clean lighting and cooking technologies. A simple approach that consciously involves and prepares women to become valuable participants in the delivery of clean energy as entrepreneurs, service providers, and promotion agents, has enabled Lighting a Billion Lives to establish over 800 such women energy providers across India.¹⁴ A good example would be the collaboration of TERI and Shramik Bharti, a Kanpur-based NGO in 2012 to deliver clean energy solutions to its member communities that led to involvement of differently abled or more disadvantaged women among the group as the entrepreneurs of the clean energy programme. Under this, more than a100 women were trained and appointed as Village Level Entrepreneurs (VLEs) that helped earn the VLEs around USD 78 a month. This steady monthly income gave women a sense of security and empowerment.¹⁵

Element of ‘Triangular Cooperation’

The UN’s working definition for triangular cooperation is “Southern-driven partnerships between two or more developing countries, supported by a developed country/countries or multilateral organization(s), to implement development cooperation programmes and projects”. Through triangular cooperation, Southern development assistance providers can benefit from the financial and technical support, experience and technical know-how of multilateral and developed-country partners. The increased capacity to tackle development challenges, strengthened partnerships and enhanced regional integration benefits everyone.¹⁶ As per the World Health Organisation, triangular cooperation refers to development partners, countries, and international organizations providing financial or technical support to facilitate development activities between 2 developing countries.¹⁷

Several of the initiatives of LaBL are supported by northern partners, including UKAID, Royal Norwegian Embassy, Swiss Agency for Development and Cooperation and Swedish International Development Cooperation Agency among others.¹⁸ Being a project initiated in a southern country, being implemented in southern countries and being supported by northern partners, it involves the element of ‘triangular cooperation. LaBL has particularly benefited from partnership with a northern partner in Africa, where its initiatives are in partnership with the Department of International Development, United Kingdom (DFID) in

¹⁴ (Ibid 5.6.7.13)

¹⁵ <http://labl.teriin.org/files/CaseStudy/files/basic-html/> (Accessed 06 May 2017)

¹⁶ www.undp.org/.../undp/.../Development%20Cooperation%20and%20Finance/SSC_FAQ (Accessed 06 May 2017)

¹⁷ <http://www.who.int/country-cooperation/what-who-does/south-south/en/> (Accessed 06 May 2017)

¹⁸ <http://labl.teriin.org/bilatera.php> (Accessed 06 May 2017)

the form of 'Clean Energy Access in Africa', a collaborative action research venture between TERI and DFID. The project has accordingly benefited from the support provided by northern partners.

Conclusion

This paper has conducted a brief analysis of LaBL as a SSTT project and the analysis has thrown up 5 key takeaways the project as follows: (a) The key role of civil society, (b) importance of engagement with local communities, (c) capacity building being an essential component of TT projects aimed at creating mass social impact, (d) acting as one solution for multiple development challenges and (e) involvement of 'triangular cooperation'.

Owing to the key takeaways for SSTT discussed above, is a good example of a SSTT project initiated and run by a civil society. Since the project is primarily a civil society initiative that brings together a diversity of stakeholders together in its implementation, it may be used as a model case study by governments and other CSOs of Southern countries while conceiving future projects as well in implementation of existing projects of a similar nature.

A recommendation for LaBL as it marches forward is to be mindful of the limitations of triangular cooperation involving a northern partner such as longer negotiations on the operational aspects of the project/programme, unclear division of roles and responsibilities leading to inefficiencies in implementation, the decreasing propensity of northern partners to support development initiatives and explore alternative models of triangular cooperation involving three southern partners.

References

Ssc.undp.org. (2017). United Nations Office for South-South Cooperation - What is SSC?. [online] Available at: http://ssc.undp.org/content/ssc/about/what_is_ssc.html [Accessed 20 Apr. 2017].

Unido.org. (2017). South-South cooperation. [online] Available at: <http://www.unido.org/south-south.html> [Accessed 7 May 2017].

<http://UNFCCC>, Article 4.5 [Accessed 4 May 2017].

Methodological and Technological Issues in Technology Transfer. (2000). New York: CAMBRIDGE UNIVERSITY PRESS.

The Energy and Resources Institute (2016). LIGHTING A BILLION LIVES DEVELOPING PATHWAYS FOR ENERGY ACCESS. New Delhi: The Energy and Resources Institute (TERI).

DFID-TERI Partnership for Clean Energy Access: Africa Update. (2015). [Blog] TERI. Available at: <http://labl.teriin.org/blog-detail.php?id=1> [Accessed 21 Apr. 2017].

Laml.bukshfoundation.org. (n.d.). Know Us Better - Lighting a Million Lives. [online] Available at: <http://laml.bukshfoundation.org/know-us-better> [Accessed 21 Apr. 2017].

Laml.bukshfoundation.org. (n.d.). Transforming Lives - Lighting a Million Lives. [online] Available at: <http://laml.bukshfoundation.org/transforming-lives> [Accessed 21 Apr. 2017].

#SupportNepal - 440 earthquake affected households in Sindhuli receive solar lamps - See more at: <http://labl.teriin.org/blog.php#sthash.140KKJN1.dpuf>. (2016). [Blog].

Rehman, I., Gill, B., Srivastava, A., Pal, R. and Singh, L. (n.d.). A Case Study on the Shramik Bharti Experience. [online] Available at: <http://labl.teriin.org/files/CaseStudy/files/basic-html/page1.html> [Accessed 21 Apr. 2017].

UNDP. (2017). UNDP - United Nations Development Programme. [online] Available at: http://www.undp.org/.../undp/.../Development%20Cooperation%20and%20Finance/SSC_FAQ.. [Accessed 24 Apr. 2017].

World Health Organization. (n.d.). South-South and triangular cooperation. [online] Available at: <http://www.who.int/country-cooperation/what-who-does/south-south/en/> [Accessed 26 Apr. 2017].

Saxena, L.P. (2014). South-South Technology Transfer A viable means of adapting to climate change. 2. Nepal: South Asia Watch on Trade, Economics and Environment (SAWTEE).

Labl.teriin.org. (n.d.). Lighting a Billion Lives - BILATERAL & MULTILATERAL. [online] Available at: <http://labl.teriin.org/bilatera.php> [Accessed 28 Apr. 2017].



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