

## Bazaar of Ideas

**“Applying the Green Growth approach for basic service delivery and poverty reduction”**

### Committee on Environment and Development

first session, Bangkok, 2 – 4 December 2009

**Name:** Solar Lantern Rental System (SLRS)

**Conserving:** Energy

**Sector:** Electricity generation

**Presented by:** Sunlabob, Private Energy Provider (PEP)

**Championed by:** ESCAP

**Location:** Lao PDR, Uganda, Afghanistan

**Year of introduction:** 2006-7



**Concept:** The technology being used for this project is solar energy, using a photovoltaic array to operate a charging station for the lanterns, used for home lighting. One of the unique features of this project is that end-users do not pay for the hardware (i.e. the lanterns), but only for the service (i.e. the charging), enabling poor households in off-grid areas to effectively buy hours of solar lighting, offering a cheaper, cleaner, and safer alternative to kerosene lamps. The central charging station is operated by a village technician, trained by Sunlabob, who is in charge of issuing fully-charged lanterns, collecting charging fees, and maintaining the system. A village energy committee acts as a platform for collective decision and provides good local governance. This solution is offered as an alternative to conventional solar lanterns, which have been widely propagated as a solution for lighting in remote off-grid villages, but have shown to fail early because of low quality components. Also, batteries are often irregularly charged, or households engage in "hotwiring" to use the batteries for operating other equipment, resulting in early battery failure. The consequence is that kerosene still rules the off-grid lighting market.

**Other information:** The division of public and private ownership of assets is a key factor for the proliferation of the SLRS. In Laos, the implementation arrangements involve the following players: Sunlabob, the Private Energy Provider (PEP), which makes the "private investments" to own and operate the movable assets (namely the solar charging station, i.e. the generating equipment); and the public partner, who is responsible for the "public investments" namely providing lanterns to the village community. This operational arrangement leads to an innovative financial mechanism that allows for mutually leveraging opportunities, a Public-Private Partnership (PPP). This arrangement allows public money to comfortably finance a project that directly benefits the public and leverages the private sector. Private funds are able to leverage public funds to pursue a market that would otherwise be very difficult to operate successfully in. After the initial investment by the public, the launched village enterprises are expected to generate sufficient income to expand and continue their operations through the revolving fund without any further public investment, thereby ensuring sustainability of the project. The project has already been replicated, in its pilot form, in Uganda and Afghanistan. With minor adjustments to reflect local customs, the presented operational procedures and technical solutions are replicable worldwide in areas where: there is adequate sunlight; populations are organised into villages or, if dispersed throughout the landscape, regularly gather at particular locations, such as schools or markets; and kerosene is expensive at the household level (i.e.  $\geq$  US\$1.5 per litre). In addition to providing lighting, the lantern unit can be used as an unregulated 12V power supply for small electronic devices. Possible uses include mobile phone charging or powering portable radios or mini-TVs, improving access to telecommunication systems and information, which has proven benefits for poverty alleviation.

**Economic benefits:** The SLRS addresses the needs of the poorest households in that it is affordable and directly competitive with kerosene. The product and intervention package have been designed to replicate the behavioural patterns of rural households in terms of spending on kerosene. For the households, the recharging fee is a small regular expense, comparable to the established behaviour of purchasing small amounts of kerosene regularly from the village outlet. The routine cycle of household expenditure therefore remains unchanged. In addition, the SLRS generates jobs, creates income opportunities, and enables a better setting for micro-enterprises in poor off-grid areas.

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