

RIGHTS AND PRACTICALITIES GUIDE



DLN/DRN-001
SOLAR LANTERN
UNITS

ライト博士によ
いお手伝いロボ
野望を打ち砕く
なる道を選んだ。

DLN/DRN-001
SOLAR LANTERN
UNITS

ライト博士によって生み出され
いお手伝いロボット「ロック」。
野望を打ち砕くべく、自ら戦闘
なる道を選んだ。

RIGHTS AND PRACTICALITIES GUIDE

YOUR RIGHT TO POWER

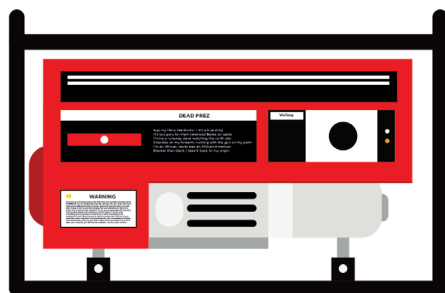
Article 15(1)(b) of the International Covenant on Economic, Social and Cultural Rights (ICESCR) recognizes the right of everyone to enjoy the benefits of scientific developments and their uses.

Article 11(1) recognizes the right of everyone to an adequate standard of living.

The United Nations Committee on Economic, Social and Cultural Rights (CESCR) affirms that the right to electricity is essential to achieving an adequate standard of living.

‘Electricity is essential to the realization of important human rights including the right to health, and the right to water. Because rights related to energy do not feature in a number of the early human rights instruments, stable electricity supply often receives less recognition as a protected right.

As a State Party, Nigeria has a duty to respect, protect, promote and fulfil all rights recognized in the ICESCR’.¹



¹ Social and Economic Rights Action Centre, <http://www.serac.org/thematic-areas/right-to-electricity>

RIGHTS AND PRACTICALITIES GUIDE

ACCESS TO POWER IN RIVERS STATE

Niger Delta communities rely on kerosene, diesel and wood for expensive, poor quality, and polluting off-grid electricity generation. These power sources supplement an unreliable and often non-existent supply of electricity provided by the grid.

In 2007, it was estimated that 20% of total electricity generated by Power Holding Company of Nigeria is lost through transmission and distribution before reaching the customers – losing around US\$600m a year.

“We are connected to the grid however electricity supply is infrequent and sporadic. Majority of citizens use generator and fuel for their households and businesses” Resident, Rumunduru

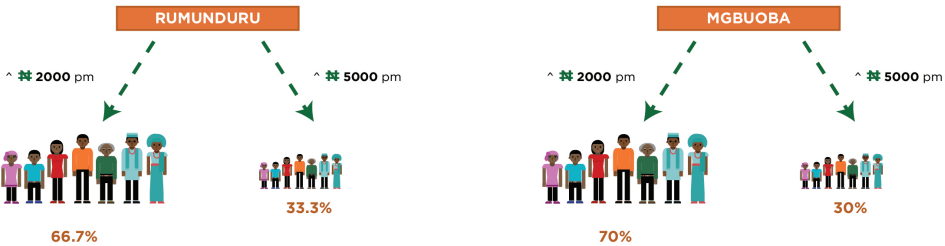
Due to the overload of urban housing areas, the Port Harcourt Energy Distribution Company output struggles to serve the amounting energy needs from over populated communities.

Currently, grid electricity is cheaper (N6 per kWh), but its ‘sporadic’ and ‘erratic’ reputation means expensively fuelled generators (N35 per kWh) have become the main source of power for many urban and rural areas.

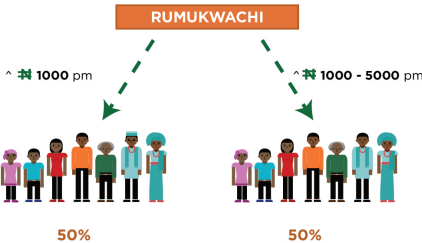
“We always have sporadic power supply, I use kerosene for my local lantern and gas for cooking, I refill my gas cylinder for N 4000 every month” Resident, Mgbuoba Community

RIGHTS AND PRACTICALITIES GUIDE

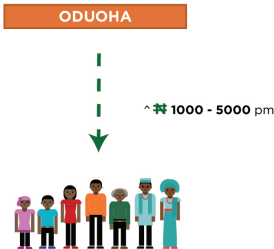
URBAN COMMUNITIES



SEMIURBAN COMMUNITIES



RURAL COMMUNITIES



A SOLUTION: PORTABLE SOLAR LIGHTING

THE MODEL

SDN initially distributed portable solar lanterns to urban and semi urban communities in Rivers State in order to better meet the decentralised energy needs of vulnerable groups.

The Solar Portable Lighting Project sells individual renewable lights directly into communities through a local Community Distributor.

Local entrepreneurs leverage upon existing relationships in their core communities to distribute environmentally friendly solar lamps to lessen dependency on expensive diesel powered generators.



HOW HAS IT WORKED SO FAR?

SDN identified a range of tested solar products that are known to be durable and relatively affordable from three manufacturers Sunking, Schneider and Waka Waka.

SDN set the selling price which includes a mark-up that covers cost of distribution and storage.

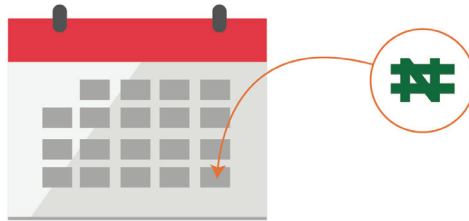
The Community Distributor identified entrepreneurial groups and individuals within their core communities and sells to them at a wholesale fixed rate; they in turn sell on to locals at a suitable retail price.

A SOLUTION: PORTABLE SOLAR LIGHTING

PAYMENT PLAN

The Community Distributor sets an agreed terms of reference that outline the requirements of the entrepreneur groups and individuals, the process of selling, and monitoring sales of solar products.

A payback period is clearly spelt out in an agreement between seller and buyer, i.e. 30 days or specified credit period to pay back the cost of the lantern. Length of credit period is usually determined by volume of stock purchased.



A SOLUTION: PORTABLE SOLAR LIGHTING

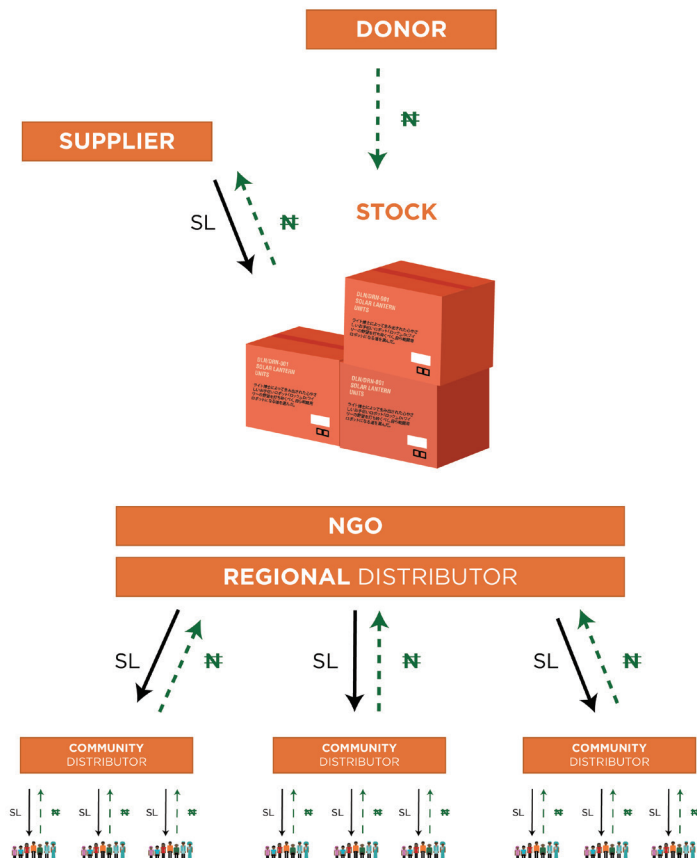
PROMOTING THE PRODUCTS

Local Distributors promote the portable solar lights through:

- Making buyers aware of the environmental benefits of solar
- Making buyers aware of the amount they can save over a period of months compared to the cost of diesel or kerosene
- Engaging key interested community groups like Market women, Parents and Entrepreneurs
- Ensuring the distributors constantly communicate with their buyers through text, phone call your weekly meetings to discuss warranty issues
- Placing solar lights in visible places like kiosks or market places to demonstrate how they work and motivate buyer's interest
- Using social media to promote their products
- Gaining trust of communities to ensure they respect the payback period



HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT



The current distribution of solar portable lights operates through an NGO Model. The diagram illustrates the current structure of our solar lantern distribution model, from SDN, the donor, through to end-users.

A regional distributor is able to regularly source resources from the stock house and make them accessible for community distributors to sell locally, with revenue generated circulating throughout. However, the maintenance of the stock house currently relies on a donor and a supplier.

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

COMMUNITY DISTRIBUTORS

SDN tested the Solar Lantern distribution model by targeting small scale business entrepreneurs in focus communities to act as ambassadors for the products, using their influence, trust and existing channels of retail and communication within their area to indirectly and directly promote Wakka Wakka, Sun King and Schneider brand lanterns.

COMMUNITY DISTRIBUTORS

The Solar lantern distribution model supported economic growth through two pathways:

1. Naira saved from buying diesel or kerosene is reallocated toward other small business ventures and the family home.
2. Individual distributor's selling the solar product have an additional means of income.

Solar Lanterns have enabled small scale local entrepreneurs to:

- Diversify their income
- Add to community economy
- Attain business skills
- Demonstrate effective entrepreneurship
- Incentivise community to up take solar product which strengthens community relationships
- Circulate renewable, environmental friendly light sources
- Support their communities' cycle of development

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

COMMUNITY DISTRIBUTORS

Profession: Primary School Director

"Savings I made from the use of solar lanterns enabled me to purchase a set of festival drums for the school, costing N 45, 000.

I rent out the drum set for 15,000 per time for festivals, street parties and wedding, which in turn generates income for my family and school. The savings will be put towards buying a photo copying machine for the students and my solar powered night school. I have already made my money back on the initial payment for the festival set."

- **The Primary School Director sells Sun King and Sun King Pro products to the local community.**
- **He currently sells at cost in order to build a client base and reputation which supports his status as an influential member of the community.**

"The Schneider Lantern output is multi-functional, it has a compatible port with my fan, I use it to charge my radio and mobile phones."

Following increase of sales, the Primary School Director intends to 'bulk' buy product and sell on a commission basis.

"I could stock the lanterns in my school storage space and act like a middleman between the community and the Marketer. I would prefer to pay in monthly instalments."

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

RUMUKWACHE COMMUNITY

Profession: Health Worker and Small Business Operator (Chemist)

"I have a meter, it is connected to my landlord's house and I do pay my bills. We have about thirty rooms (30) in the yard. We do contribute #500 to #1000 per month for NEPA. All the thirty rooms contribute this amount to pay our NEPA bills. I spend about #4500 monthly on fuel for my personal generator".

Since using the Sun King Pro, the Health Worker states that he has *"No use for candle or kerosene lamp. What I use is the solar lantern and generator. I do buy fuel every day because of the nature of my work."*

Using the Sun King Pro Lantern to supplement generator use, the Health Worker saves N 3,500 N per month.

Using his network as Health Worker and Chemist located on the central route of Rumukwache, sells the Schneider lantern, Sunking Pro, Sunking Small and Wakka – Wakka.

SDN project staff supply the Health Workers' stock.

"I collect the packs from SDN on credit and sell to customers on instalments"

Customers pay in instalment on an ad hoc basis; this can be unreliable and problematic for the Health Worker.

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

RUMUKWACHE COMMUNITY (CONT)

“Some paid #2000 or #2500 and refuse to pay the balance. Sometimes I used to go after them to demand the money. Another strategy is that if somebody paid #3000 for the solar, I will keep the money and the light until the person pay up. Some of them two - two weeks.”

Amos works on a not for profit basis as the project. He is currently building momentum and client basis.

“The products I sold is on non - profit basis. But the last pack I collected, they said there is going to be commission. I have not made any money from the sales but I have made good impact and recommendation from people. I have good reputation among community people and I am satisfied about that.”

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

IMPACT OF SOLAR LANTERNS IN THE COMMUNITY

Energy poverty is a significant barrier to youth education and empowerment across Rivers State. The SDN Solar Lantern Distribution Model works to increase parents and students' access to portable solar lanterns in order to increase productivity after dark. The Solar Lantern distribution model can impacts on small business and families through:

- Increased ability to read and study at night
- Increased ability to undertake income generating activities at night
- New jobs and areas of employment
- Increased communications and access to information (mobile phone chargers, radios)
- Less smoke inhalation
- Less noise and air pollution
- Reduced deforestation

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

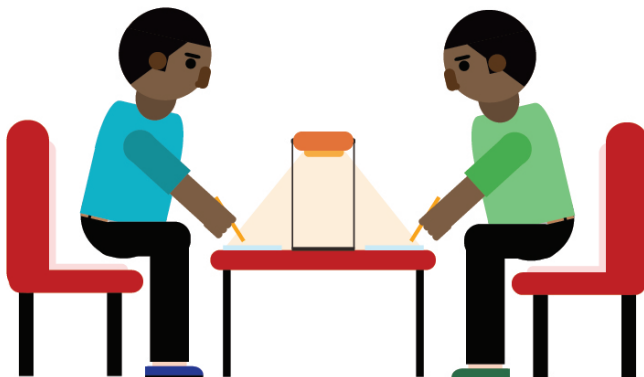
LIGHT AND LEARNING

- Solar Lantern versus “Native Lamps”:** Compared to Kerosene lanterns, respondents note that solar can improve children’s ability to study and complete assignments in the evenings.

‘It has provided light for my children to use at night. They use it to read and do their homework’ **Parent, Mgouba**

- Redistribution of resources:** Families can reallocate funds spent on candles and fuel to school tuitions and materials.

‘It helps in curbing spending on fuels, kerosene and battery and it has encouraged spending on school fees’, **Chima, Oduoha**



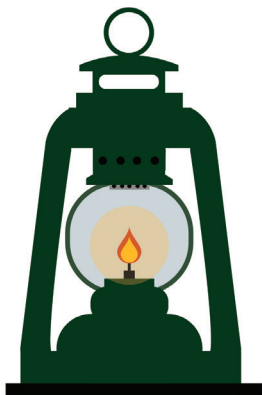
HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

HOUSEHOLD AIR POLLUTION:

"The solar lanterns were originally designed to replace the kerosene lanterns but in this community most of the people who got the solar lanterns never had to use the kerosene lanterns, but for me, solar lanterns have helped to reduce my overdependence on generator, now I put on my generator later than I used to and it has also reduced the level of pollution in the environment"

Resident, Mgouba

The decline in the use of individual Kerosene lantern has the potential for a significantly reduced impact on climate change. The black carbon emitted from kerosene lantern use is roughly 115kg of CO₂ per household per year (SolarAid, 2013).



**115KG OF CO₂ PER
HOUSEHOLD PER
YEAR**

HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

AIR AND NOISE POLLUTION:

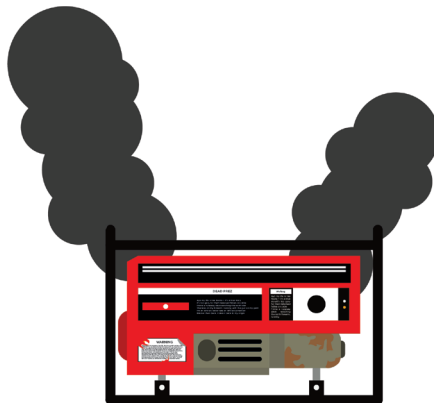
After biomass and kerosene use, the most commonly used energy source in Nigeria is diesel generators. About two-thirds of all electricity in Nigeria is created by these 'backyard' generators.

This source carries negative cost burdens for families and businesses of around US\$13 billion a year. This is problematic when constant electricity supply is fundamental to wellbeing.

Generators are also a major source of noise pollution and air contaminants.

"The generator has a bad effect on the environment because of its Carbon monoxide emissions which makes the air unsafe for breathing, the noise is very uncomfortable and annoying too"
Teacher, Rumunduru

Solar is clean and silent solution to lessen families' dependency on diesel powered generator sets.



HOW THE DISTRIBUTION MODEL WORKS AND WHAT WAS ITS IMPACT

REDUCED BIOMASS AND DEFORESTATION:

SDN's 2011 study on energy usage perception in the Niger Delta states that fuel demands a higher share of household expenses (24%) than food (19%) (<http://pubs.iied.org/pdfs/G03233.pdf>) Over reliance on biomass 'causes deforestation due to cutting down of trees for wood which in turn serves as firewood'.

Reduced biomass use can reduce the dependency on firewood, and therefore deforestation. The rate of this deforestation outstrips the ability of the environment to regenerate. Reducing this dependency and utilising solar products will increase energy security.

SOLAR

Solar lights are seen by communities as a positive solution, and have the potential to save rural African families on average around \$70/year.

"My family can sleep and breathe better. There is less noise from the generator which can disturb us."

"The house is calm, no noise and less spending."



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